



The City of Spartanburg Board of Architectural Design & Historic Review

AGENDA

September 14, 2023, at 5:30 P.M.

City Hall Council Chambers

145 W. Broad Street – Spartanburg, SC 29306

(Please Note: Items as they appear on the Docket may or may not be considered in the order as they are presented. The Chairman will announce any changes after the roll call)

- I. Call To Order.**
- II. Roll Call.**
- III.** Freedom of Information Act Compliance – Public notification of the City of Spartanburg’s Board of Architectural Design & Historic Review meeting has been published, posted and mailed in compliance with the Freedom of Information Act and the requirements of the City of Spartanburg’s Zoning Ordinance.
- IV. Approval of Agenda.**
- V. Disposition of Minutes from the August 10, 2023, Meeting.**
- VI. Old Business: None.**
- VII. New Business:**
 - 1. COA: 23-040-00049: Certificate of Appropriateness for Major Works – 575 Cecil Court (TMS: 7-16-02-269.00) in the Hampton Heights Neighborhood Historic District. Applicant is seeking approval of a Certificate of Appropriateness to install solar panels on the roof. The property is located in the R-8 SFD (General Residential – Single Family District). Owner: Terry Anderson / Applicant: William Clementi.
 - 2. COA: 23-040-00053: Certificate of Appropriateness for Major Works – 527 Beaumont Avenue (TMS: 7-08-15-118.00) in the Beaumont Mill Village Historic District. Applicant is seeking approval of a Certificate of Appropriateness to install solar panels on the roof. The property is located in the R-6 (General Residential District). Owner/Applicant: Virginia M. Painter / Contractor: Freedom Forever SC, LLC.
- VIII. Update on Approved Certificate of Appropriateness for Minor Works since the August 10, 2023, Meeting.**
- IX. Staff Updates.**
- X. Adjournment.**

For more information, please contact Martin L. Livingston, Jr., AICP, CPM, Community Development Director at (864) 580-5323 or by email at mlivingston@cityofspartanburg.org.

Meeting Minutes of the Board of Architectural Design and Historic Review
Tuesday, August 10th, 2023, at 5:30 PM
City Hall Council Chambers

The City of Spartanburg Board of Architectural Design and Historic Review (HARB) met in City Hall Council Chambers on Tuesday, August 10th, 2023, at 5:30PM with the following members in attendance: **Michael Pittillo, Tina Wilson, Mark Olencki, Bill Michels, Brandon Gaffney, Glory Boozer, Kenneth Brown and Rod McCants.** Representing for the Planning Department is, **Martin Livingston, Community Director, Bob Coler, City Attorney, Nan Zhou, Planner II, Tia Keitt, Planner II, and Oksana Holbrooks, Administrative Assistant.**

Roll Call:

Mr. Michels: Bill Michels
Dr. Boozer: Glory Boozer.
Mr. Olencki: Mark Olencki.
Mr. Pittillo: Michael Pittillo.
Mr. McCants: Rod McCants.
Ms. Wilson: Tina Wilson
Mr. Gaffney: Brandon Gaffney
Mr. Brown: Kenneth Brown

Mr. Gaffney: According to the Freedom of Information Act Compliance. Freedom of Information Act Compliance public notification of Board of Architectural Design and Historic Review meeting has been published, posted, and mailed in compliance with the Freedom of Information Act and the requirements of the City of Spartanburg Zoning Ordinance.

Approval of Agenda:

A motion was made by Dr. Boozer, seconded Ms. Brown approve the agenda. The motion was approved with a vote of 8-0.

Mr. Michels: Has anyone had a chance to review the agenda? Alright. The Chair will entertain any motions.

Dr. Boozer: I move that we accept the agenda as printed.

Mr. Brown: Second.

Mr. Michels: It's been properly moved in second. All those in favor accepting the agenda as presented say aye.

Attendees: Aye.

Mr. Gaffney: Are there any nays? Ayes have it.

Approval of Meeting Minutes from June 8th, 2023.

A motion was made by Mr. Michels, seconded Mr. Olencki approve the agenda. The motion was approved with a vote of 8-0.

Mr. Gaffney: The Chair will entertain a motion to approves those minutes as presented.

Mr. Michels: Bill Michels I make a motion.

Mr. Olencki: Second.

Mr. Gaffney: It's been properly moved in second. Ready for the question? All those in favor accepting minutes as presented say aye.

Attendees: Aye.

Mr. Gaffney: Are there any nays? Ayes have it.

Approval of Meeting Minutes from July 13th, 2023.

A motion was made by Mr. Michels, seconded Mr. Olencki approve the agenda. The motion was approved with a vote of 8-0.

Mr. Gaffney: Everyone had a chance to review and are there any edits or exceptions that need to be made?

Mr. Olencki: One minor point I would just refer to as name and not ?

Mr. Gaffney: One slight notation. Chair entertains a motion?

Mr. Michels: Bill Michels I make a motion.

Mr. Olencki: Second.

Mr. Gaffney: It's been properly moved in second. All those in favor accepting minutes say aye.

Attendees: Aye.

Mr. Gaffney: Are there any nays? Ayes have it.

Old Business:

Certificate of Appropriateness for Major Works – 695 N. Liberty Street (TMS# 7-08-15-252.00) in the Beaumont Mill Village Historic District. Applicant is seeking approval of a Certificate of Appropriateness to demolish the substandard structure. The property is located in the R-6 (General Residential District). Owner: New Hope Christian Church / Agent: Demtek.

Mr. Livingston: Mr. Chairman members of the Board at the last meeting first item 695 N. Liberty Street at the Beaumont Mill Village was tabled to find out about any additional information about repairing the parking space. Staff did do some research to determine if any grant was available to repair parking space. Grant is not available to repair a parking space. I did reach out to the City Manager Mr. Kennedy and tried to find out any additional information on that, there's nothing available. Staff is aware that funds are available to demolish substandard structures. This property is considered substandard because it was condemned. Because it's in Historic District we need something from Building Official stating that it cannot be repaired, unfortunately it can be repaired. And then finally, there's been some recommendation that property owner can sell the property. The City nor the HARB can required the property owner to sell the property.

Applicant:

New Hope Christian Church

Public Speakers:

Martin Livingston, Community Director.

Darnell Durrah, Agent, 5106 Borman Dr, Spartanburg, SC 29301.

Discussion:

Any variance required for demolition of the structure, and there are none. The property is located in Historic District and churches are exempt. This is churches property, but churches themselves are exempt from variance requirements per Ordinance for Beaumont Mill Village. Any consideration to selling the house to do some improvements to the property that are necessary. The church concluded that they were not interested in selling the property they would keep the property and is at mercy of the Board's decision for approving to demolish the structure.

A motion was made by Ms. Wilson, seconded Mr. Michels to deny the demolition request with a vote of 6-2.

Certificate of Appropriateness for Major Works – 521 Peronneau St. (TMS# 7-16-02-161.00) in the Hampton Heights Historic District. Applicant is seeking approval of a COA to lower / remove a portion of two chimneys to mitigate water leaks. R-8/SFD (General Residential). Owner/Applicant: Parker & Jennifer Langford / Contractor: Carolina Roof, LLC .

Mr. Livingston: Mr. Chairman members of the Board at the last meeting at 521 Peronneau Street Staff was asked to find mason or mortar specialist to determine if two chimneys in the front could be saved. The third chimney in the back can be approved with a Minor COA removal below decking of the roof. Donnie Love is here, the owner is here to talk about the report. You should have a report from Pride Masonry regarding the condition of those two chimneys and how to make the repairs.

Mr. Love: We were able to go up in the attic today, the chimney you can't see from the outside. It looked like pretty much like I thought it would. It hasn't really sustained any damage inside of the home or any real damage that we could see. The parts of chimney exposed to have weathered. Both chimneys certainly could be repaired.

Applicant:

Applicant: Parker & Jennifer Langford

Public Speakers:

Donald Love, Architect Consultant

Parker & Jennifer Langford, 521 Peronneau St, Spartanburg, SC 29302.

Discussion:

The chimneys are causing damage, yet are in repairable condition and a part of historic feature and should be preserved. There are a lot of chimneys that are missing in that neighborhood however, those must have not followed the proper procedures in applying for a permit, because they have not come before the Board for removal and approval. What makes Hampton Heights what it is are chimneys, windows and doors taking any of that away would loose the neighborhood character. Chimneys are maintenance and structural issue and are an expense.

A motion was made by Mr. Brown, seconded Ms. Wilson to deny the removal of chimney(s) request with a vote of 6-2.

New Business:

Certificate of Appropriateness for Major Works – 290 Hydrick Street (TMS: 7-12-14-177.00) in the Hampton Heights Neighborhood Historic District. Applicant is seeking approval of a Certificate of Appropriateness to raise the corner porch to its original height. The property is located in the R-8 SFD (General Residential – Single Family District). Owner/Applicant: William Austin / Contractor: Mount Valley Foundations.

Discussion:

Item dismissed: The revised scope of work has been converted into a Minor Certificate of Appropriateness.

Certificate of Appropriateness for Major Works – 689 Southern Street (TMS: 7-12-03-097.00) in the Beaumont Mill Village Historic District. Applicant is seeking approval of a Certificate of Appropriateness to replace windows, doors, and columns. The property is located in the R-6 (General Residential District). Owner/Applicant: Top Quality Fix and Flip, LLC.

Ms. Keitt: Good evening members of the HARB. Tia Keitt Planner with the City. I swear to tell the truth.

Project Description and History

A century old home with new owners seeking to wrap the building in siding and to replace the current windows and doors. The Design Guidelines for the Beaumont Mill Village defines this home as **Saddlebag**, one of fifteen house types within the historic district. According the history, these homes were built between 1890 – 1910 with the following characteristics: Interior chimney, side gabled with long rear slope roof; shed or hipped porch (sometimes gable) with one or two front doors. According to the Tax Assessor’s website, the current owners purchased the property in April of this year. Repairs inside of the home have been permitted, and now the owners would like to do some exterior work. Staff has talked with the owners regarding Beaumont Mill Village’s historic design guidelines, sharing the value of preserving as much of the original amenities of the property.

Analysis

Zoning Ordinance & Historic Design Manual Consistency

The development request is subject to Section 510 of the City’s Zoning Ordinance, Historic Preservation. This section enables the Board to review applications involving historic structures and districts and issue a Certificate of Appropriateness subject to the Standards listed in the Ordinance. Section 510.4(c) Power and Duties of the Board Review application for and, where appropriate, issue Certificates of Appropriateness permitting the rehabilitation, alteration, reconstruction, or demolition of structures on or changes to Historic Sites.

Findings

1. The character and appropriateness of the design –

The owner shared images of the type of windows and doors he would like to install. The proposed window does not meet current design standards. The proposed door (an image provided by the applicant and taken of a home on a nearby property, 651 Carla St.) is similar to what’s allowed for House Type 1, but is not an exact replica.

Section 3.7.1 Doors - of the Beaumont Mill Village Design Guidelines states: after looking at the options of replacing or repairing a door and it’s deemed that the door is so deteriorated that it cannot be replaced, then a replacement is in order. The COA applications states the applicant must provide photo documentation of the deteriorated condition. At this time the application did not come with photos of the door, but states the doors “are in pretty bad condition”. The section also states that replacement should be in the same configurations, material, size and lite pattern.

3.7.2 Windows - Windows are another significant character defining feature of any home. If it’s determined that the windows are in such deteriorated condition that they must be replaced, [the applicant] should select a new window with extreme care. Make sure the following details should be compatible when selecting a new window.

- Size of window
- Shape and size of sash
- Window pane size and configuration
- Muntin and Mullion profile shape
- Location of meeting rail

Wood and aluminum clad wood windows are the most appropriate replacement materials. Other window materials will be evaluated by the HARB.

2. The scale of the buildings –

The scale of the building will not be impacted by replacing the windows, doors and siding.

3. The texture and materials-

Several homes in the Beaumont Mill Village have siding. **Section 3.7.6** (pg. 34) says this about siding: Most of the homes in Beaumont were originally wood siding. If this material still exists on the home, it should be retained. Many homes in the area have aluminum or vinyl siding added to them. Some homes have asbestos siding which is original to their design and some asbestos siding was added to earlier homes in the 1950's. Details of the original home have been lost due to the additions of these materials. Artificial siding can trap moisture underneath and decay the original wood. Therefore homes that do not have these materials on them should not consider artificial materials as a replacement to the damaged wood. Repair is the only option.

Should it become necessary to replace the siding, then the new boards should match the existing boards in width and any characteristics, such as corner boards. If more than 50% of non original siding will be replaced then the type of replacement siding must match the historic style siding.

Appropriate new material should be: Wood / Cement Fiberboard.

Brick veneer is not recommended as an option to replace siding.

4. The relationship of such elements to similar features of structures in the immediate surroundings-

Given that a number of homes have siding or have replaced original windows and doors in the past, the request to remodel would not substantially differentiate from homes in the immediate surrounding.

5. If the property is in a Historic District, the extent to which the alteration or construction would be harmonious with the Historic District-

The alteration or construction would stand out as newly remodeled home, but the scale is not changed impacted. Therefore, the improvements could correspond to recently remodeled homes within the Beaumont Mill Village Historic District.

Applicant:

Top Quality Fix and Flip, LLC.

Consultant:

Donnie Love, Preservation Architect

Public Speakers:

Tyler Nusim, 689 Southern St, Spartanburg, SC 29302.

Buddy Bush, Building Official

Discussion:

Historic District Guidelines are the same in Beaumont Mill Village as in Hampton Heights for replacement of window, siding and door regulations. The intent is preserve and apply any necessary measures to sustain the existing form, integrity, and materials of an historical property. The windows are not that bad of shape and unless they are damaged should remain, the siding needs some repairing should remain as well. The door are not exterior doors, and are not considered to be appropriate for exterior of the house. The doors could be replaced.

A motion was made by Mr. Michels, seconded Dr. Boozer to deny the replacement of windows, siding and columns are no longer an option. Approve with condition the replacement of exterior front door with City approval of guidelines with a vote of 8-0.

Certificate of Appropriateness for Major Works – Applicant is seeking approval of a Certificate of Appropriateness to install wood, true divided-light double pane windows on the house. The property is located at 553 Pinckney Ct. in Hampton Heights Historic District and is currently zoned as the R-8/SFD (TMS# 7-16-02-095.00). Landowner/Applicant: Terrance Bobo (All in One Business LLC); Contractor: PTL Construction & Designs.

Ms. Zhou: Good evening board members. My name is Nan Zhou and I work with Planning Department.

Project Description and History

The project site is located on an approximately 10,990 square foot lot in the Hampton Heights Historic District. The site is located on the east side of Pinckney Court. The site currently contains one single-family home that was constructed in 1943. This residential structure is a wood-framed bungalow with a brick foundation. The structure has an open porch in front of the house. This residential structure has a gable roof with comp shingle. The applicant is seeking approval from the Board of Architectural Design and Historical Review to install windows (wood, true divided-light, double pane windows) on the house (front and two sides).

Analysis

Zoning Ordinance and Historic Design Manual Consistency

The project site is located in the Hampton Heights District which has design guidelines for development. These guidelines are outlined in the Design Manual for the City of Spartanburg Historic Districts and Landmarks. The purpose of the Manual is to provide property owners guidance for the preservation and protection of historic and architecturally valuable districts and sites in the City. The project is also subject to Section 510 of the City's Zoning Ordinance, Historic Preservation. This section allows the Board to review applications involving historic structures and districts and issue a Certificate of Appropriateness subject to the Standards listed in the Ordinance.

The project site has a zoning designation of R-8/SFD, Single Family Zone District, which allows for single family dwelling units. Section 510.6 of the City of Spartanburg Zoning Ordinance list standards for reviewing Certificate of Appropriateness. Specifically, Section 510.6 (C)(2) states that in reviewing applications for new construction or alteration, the board shall consider the U.S. Secretary of the Interior's Standards for Rehabilitation and the five criteria listed in the findings.

Findings

Certificate of Appropriateness, Section 510.6 (C)

1. *The character and appropriateness of the design –*

The Hampton Heights Residential Rehabilitation Guidelines states "When deteriorated elements must be replaced, new materials shall be compatible with original materials in terms of material, design, and hardware. If it is necessary to replace an entire window, the replacement shall be sized to the original opening and shall duplicate all proportions and configurations of the original window." According to Vivian Fisher's Hampton Heights of Spartanburg: Its History, Houses, and People book, the house originally had six over six wood windows on the house. The proposed design of the windows are primed wood, true divided-light, and double pane windows. All elements of the design of the windows fit Hampton Heights Residential Rehabilitation Design Guidelines other than the double pane feature of the window.

2. *The scale of the buildings –*

The scale of the building will remain the same since nothing else will be added to or removed from the building.

3. ***The texture and materials –***

The texture and materials of the windows will be wood.

4. ***The relationship of such elements to similar features of structures in the immediate surroundings –***

At this time, staff cannot make a determination regarding the type of windows in terms of double pane windows vs. single pane windows from the vicinity surroundings.

5. ***If the property is in a Historic District, the extent to which the alteration or construction would be harmonious with the Historic District –***

Hampton Heights Residential Rehabilitation Guidelines states “ the residences of Hampton Heights display a variety of windows types and materials. Sash, casement, pivot, and decorative fixed windows are all found in the district. The glazing patterns, materials, and arrangements of windows play a key role in defining the styles of Hampton Heights architecture and contribute to the overall appearance of the district.” On Pinckney Ct., majority of the houses have wood and true divided-light windows. Therefore, installing wood and true divided-light windows would be harmonious with the Historic District. However, any replacement windows must meet the fenestration requirements of the 2009 International Energy Conservation Code (Chapter 4 - Table 402.1.1 Insulation and Fenestration Requirements by Component).

Applicant:

Terrance Bobo (All in One Business LLC)

Consultant:

Donnie Love, Preservation Architect

Public Speakers:

Terrance Bobo, 2304 Benji Blvd SE Conyers, GA 30013.

Buddy Bush, Building Official

Discussion:

Replacement of windows have to go by Historic Standards and Guidelines. The Standards do allow to deviate from true divided lights. So insulated lights will be allowable here.

A motion was made by Mr. Brown, seconded Mr. Olencki to approve with condition to replace windows with double-pane simulated divided lights with a vote of 8-0.

Staff Updates:

Continued Education Registration.

The meeting was adjourned at 7:04 PM.

Brandon Gaffney, Chairman

PO Box 1749 • Spartanburg, SC 29304 • phone: (864) 596-2068 • email: planning@cityofspartanburg.org
website: www.cityofspartanburg.org

TO: The Board of Architectural Design and Historic Review

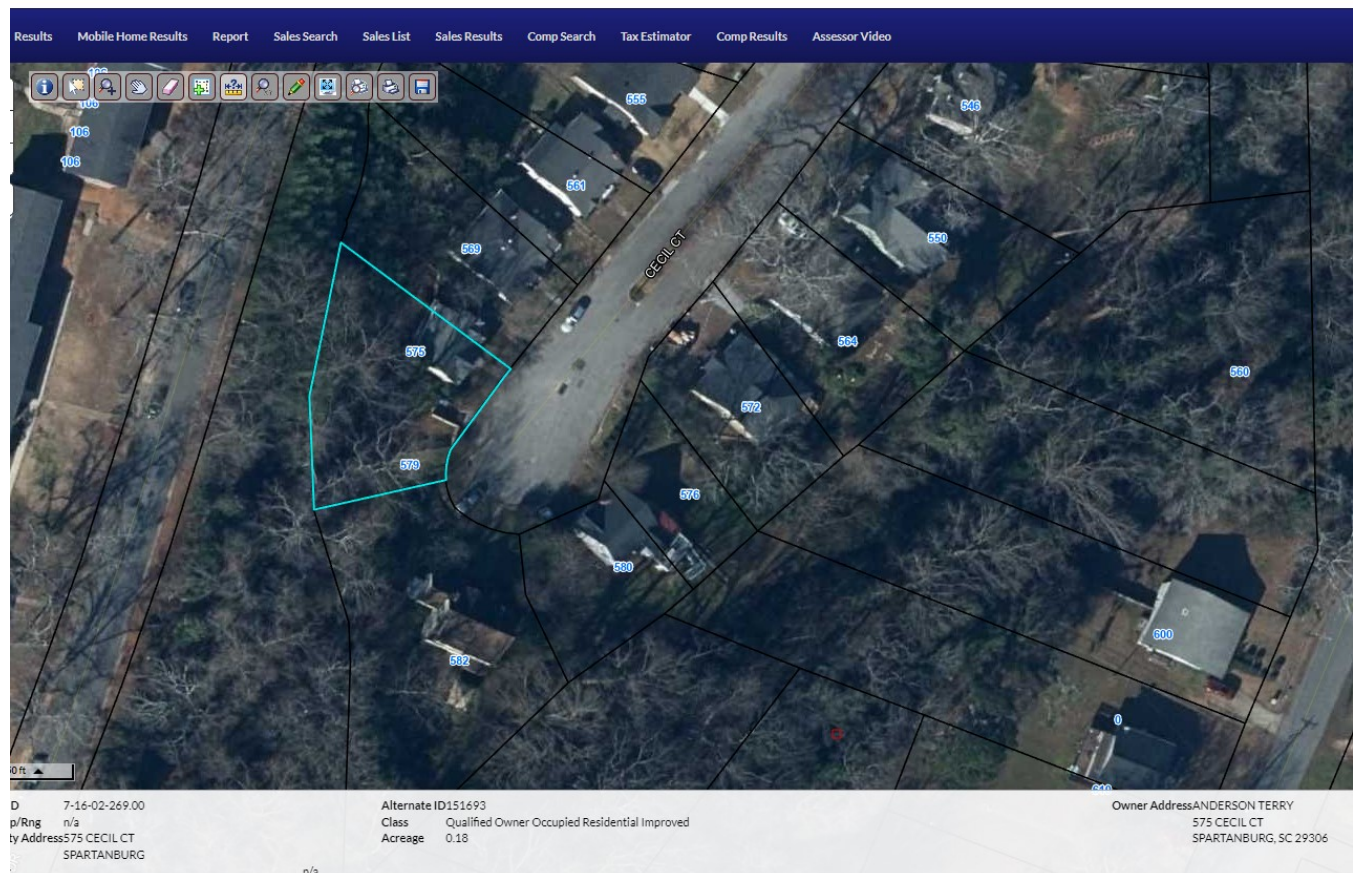
RE: **COA: 23-040-00049: Certificate of Appropriateness for Major Works – 575 Cecil Court (TMS: 7-16-02-269.00) in the Hampton Heights Neighborhood Historic District. Applicant is seeking approval of a COA to install solar panels on the front roof. The property is located in the R-8 SFD (General Residential – SFD). Owner: Terry Anderson
Applicant: William Clementi.**

Date: September 6, 2023

Project Description and History

The property owner, Mr. Terry Anderson, would like to install 10 solar panels on his roof. The contractor, [365Solar Energy](#), is proposing to connect five solar panels to the rear slope, and 5 solar panels to the front. The National Park Service's website is clear on solar panels, <https://www.nps.gov/orgs/1739/solar-panels-on-historic-properties.htm>, therefore, the contractor needs a decision from the historic review board regarding the placement of the five solar panels proposed for the front of the home. Drawings submitted by 365Solar Energy are included in the staff report, as well as pages from the Purchase & Installation Agreement.

Spartanburg County, SC



Analysis

Zoning Ordinance & Historic Design Manual Consistency

The development request is subject to **Section 510 of the City's Zoning Ordinance, Historic Preservation**. This section enables the Board to review applications involving historic structures and districts and issue a Certificate of Appropriateness subject to the Standards listed in the Ordinance. **Section 510.4(c) Power and Duties of the Board** Review application for and, where appropriate, issue Certificates of Appropriateness permitting the rehabilitation, alteration, reconstruction, or demolition of structures on or changes to Historic Sites.

Findings

Certificate of Appropriateness, Section 510.6 (C)

a. The character and appropriateness of the design –

Each solar panel is about is **21.64sf** [3.5' x 6.3'] and laid flat upon the roof. The solar panels are attached by a railing system. The front panels will be split 2 / 3, where 2 panels to be installed left of the front gable door, and 3 to the right, between the entrance and window dormer.

b. The scale of the buildings –

The scale of the building would not be impacted the installation of solar panels. The drawings submitted by the contractor states that the solar panels will not raise higher than 6 inches.

c. The texture and materials –

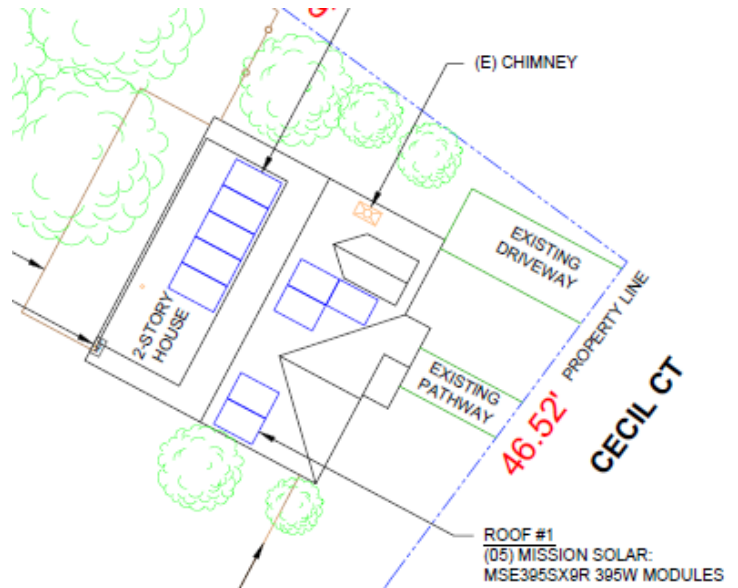
Solar Panels are a modern utility and contrasts texture and materials typically associated with historic architecture. Installing solar panels requires several parts, including the rail system, mounting devices, and the 21.67 sf panels, comprised of 66 solar cells, and weighs just under 50 lbs.

d. The relationship of such elements to similar features of structures in the immediate surroundings –

There are a couple of homes in Hampton Heights that have solar panels that can be seen from the sidewalk. Staff did not see any homes on Cecil Court with obvious solar panels. Images of homes within HH are included in the staff report.

e. If the property is in a Historic District, the extent to which the alteration or construction would be harmonious with the Historic District –

Less than 1% of the homes in Hampton Heights has solar panels and for the homes that do have panels installed can be seen when walking or driving past the home. The panels are not intrusive , but are obvious. Solar panels represent a homeowner's preference to how they would like to generate electricity. The property owner shared that using solar panels *is just the right thing to do*. He also shared that he will not be able to attend the HARB meeting. He is physically disabled and is a *recluse*.



Submitted by:

Tia Keitt

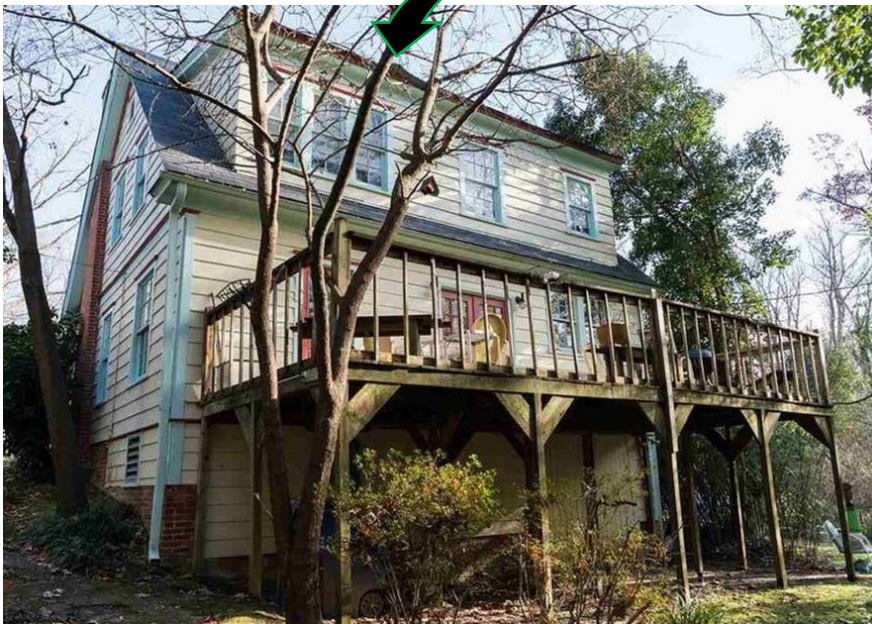
Tia Keitt, AICP /Planner II

Staff Report includes:

COA Major Works Application Permit # 23-0400049

Photos / Engineer Drawings / Solar Agreement





5 Solar Panels

PROJECT DESCRIPTION:

10 x MISSION SOLAR: MSE395SX9R 395W MONO MODULES
 ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
 DC SYSTEM SIZE: 3.950kW DC
 AC SYSTEM SIZE: 7.600kW AC
 AC SYSTEM SIZE D-RATED FOR CEC WEIGHTED EFFICIENCY: 7.600kW X 0.97 = 7.372kW AC
 ROOF ARRAY AREA #1:- 108.20 SQ FT.
 ROOF ARRAY AREA #2:- 108.20 SQ FT.

AUTHORITIES HAVING JURISDICTION

BUILDING: SPARTANBURG COUNTY
 ZONING: SPARTANBURG COUNTY
 UTILITY: DUKE ENERGY

APPLICABLE CODES & STANDARDS

NEC 2020
 SCBC 2021
 SCRC 2021
 SCFC 2021

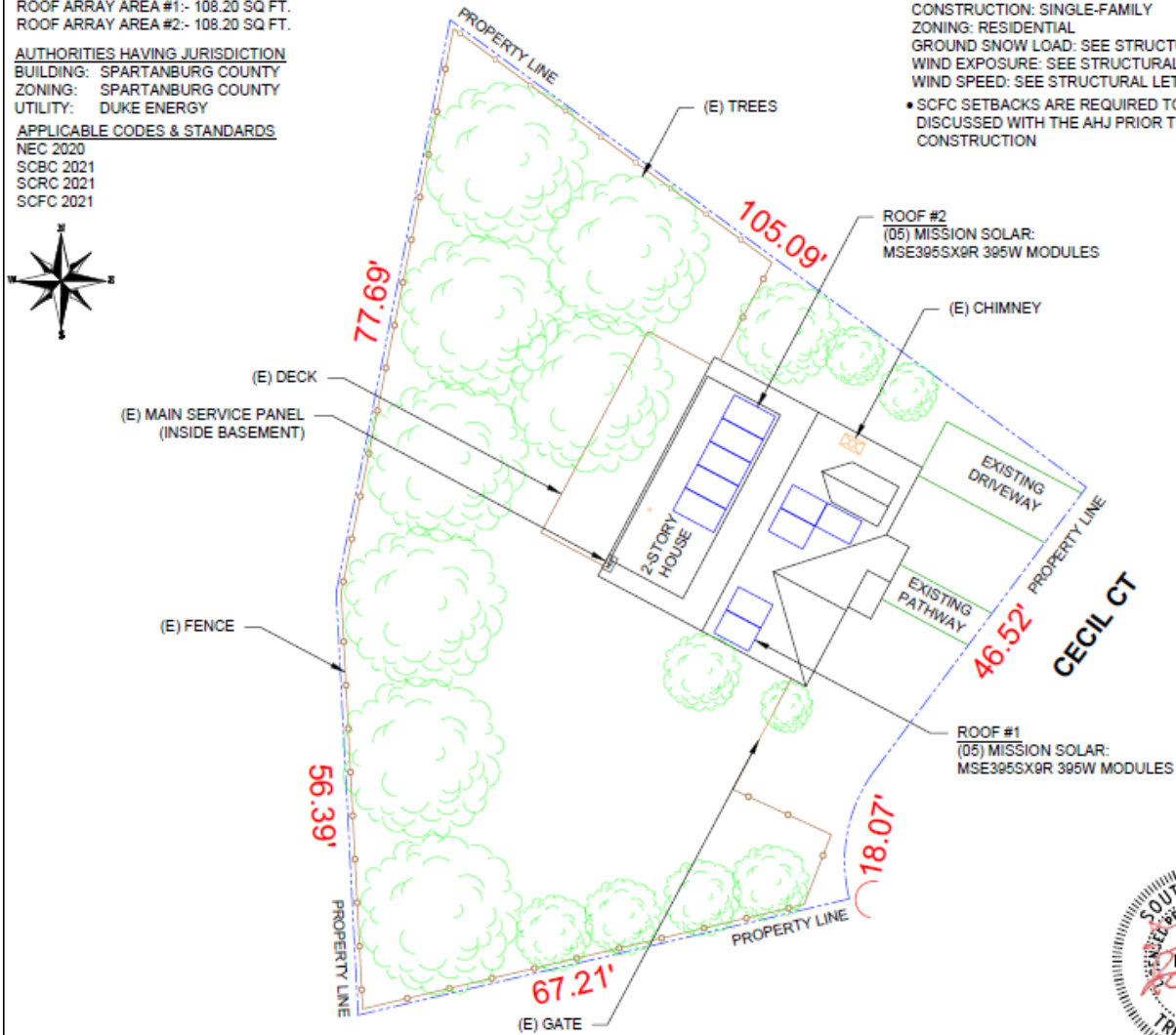
EQUIPMENT SUMMARY

10 MISSION SOLAR: MSE395SX9R 395W MODULES
 10 GENERAC SNAPRS802
 02 GENERAC PV LINK S2502 POWER OPTIMIZERS
 01 GENERAC PWRCELL: XVT076A03 7600W INVERTER

DESIGN SPECIFICATIONS

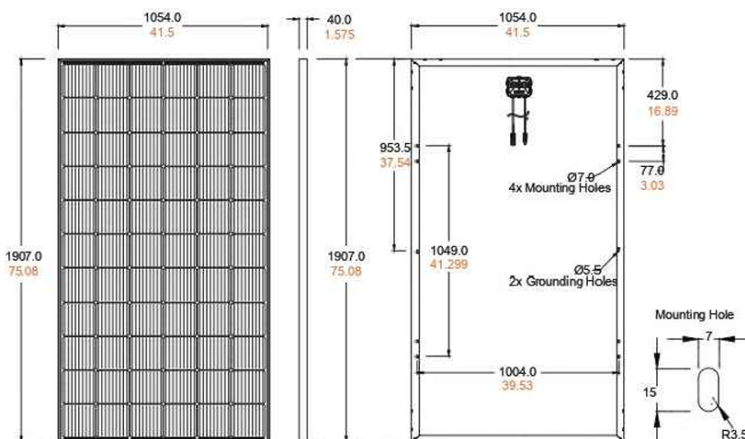
OCCUPANCY: II
 CONSTRUCTION: SINGLE-FAMILY
 ZONING: RESIDENTIAL
 GROUND SNOW LOAD: SEE STRUCTURAL LETTER
 WIND EXPOSURE: SEE STRUCTURAL LETTER
 WIND SPEED: SEE STRUCTURAL LETTER

- SCFC SETBACKS ARE REQUIRED TO BE DISCUSSED WITH THE AHJ PRIOR TO CONSTRUCTION



BASIC DIMENSIONS

[UNITS: MM/IN]



Thanks! Based on your energy use, we estimate you could save



1 Tons

of CO2 over 20 years

Which is equal to:



33 Trees

Planted over 20 years

by going solar!



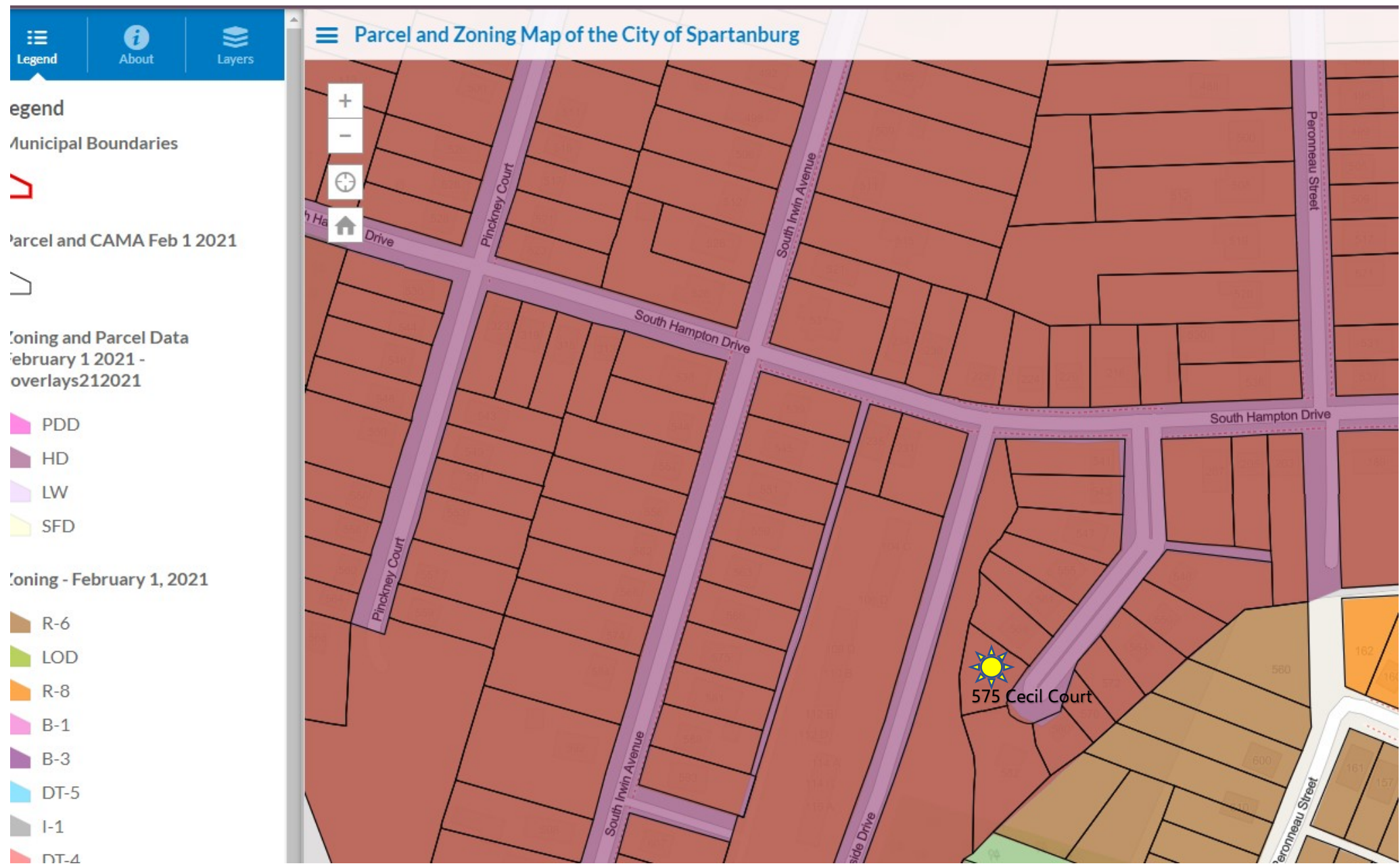
Next >







Hampton Heights Historic District R-8 General Residential – Single Family District



PROJECT DESCRIPTION:

10 x MISSION SOLAR: MSE395SX9R 395W MONO MODULES
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES

DC SYSTEM SIZE: 3.95kW DC

AC SYSTEM SIZE: 7.600kW AC

AC SYSTEM SIZE D-RATED FOR CEC WEIGHTED EFFICIENCY: 7.600kW X 0.97 = 7.372kW AC

ROOF ARRAY AREA #1:- 108.20 SQ FT.
ROOF ARRAY AREA #2:- 108.20 SQ FT.

AUTHORITIES HAVING JURISDICTION

BUILDING: SPARTANBURG COUNTY

ZONING: SPARTANBURG COUNTY

UTILITY: DUKE ENERGY

APPLICABLE CODES & STANDARDS

NEC 2020

SCBC 2021

SCRC 2021

SCFC 2021



EQUIPMENT SUMMARY

10 MISSION SOLAR: MSE395SX9R 395W MODULES

10 GENERAC SNAPRS802

02 GENERAC PV LINK S2502 POWER OPTIMIZERS

01 GENERAC PWRCELL: XVT076A03 7600W INVERTER

DESIGN SPECIFICATIONS

OCCUPANCY: II

CONSTRUCTION: SINGLE-FAMILY

ZONING: RESIDENTIAL

GROUND SNOW LOAD: SEE STRUCTURAL LETTER

WIND EXPOSURE: SEE STRUCTURAL LETTER

WIND SPEED: SEE STRUCTURAL LETTER

- SCFC SETBACKS ARE REQUIRED TO BE DISCUSSED WITH THE AHJ PRIOR TO CONSTRUCTION

PROJECT SITE



2

HOUSE PHOTO

PV-1

SCALE: NTS



3

VICINITY MAP

PV-1

SCALE: NTS

SHEET INDEX

PV-1	PLOT PLAN & VICINITY MAP
PV-2	ROOF PLAN & MODULES
PV-2A	STRING LAYOUT
PV-3	ATTACHMENT DETAIL
PV-4	ELECTRICAL LINE DIAGRAM
PV-5	WIRING CALCULATIONS
PV-6	LABELS
PV-7	PLACARD
PV-8	POWER OPTIMIZER CHART
PV-9+	EQUIPMENT SPECIFICATIONS

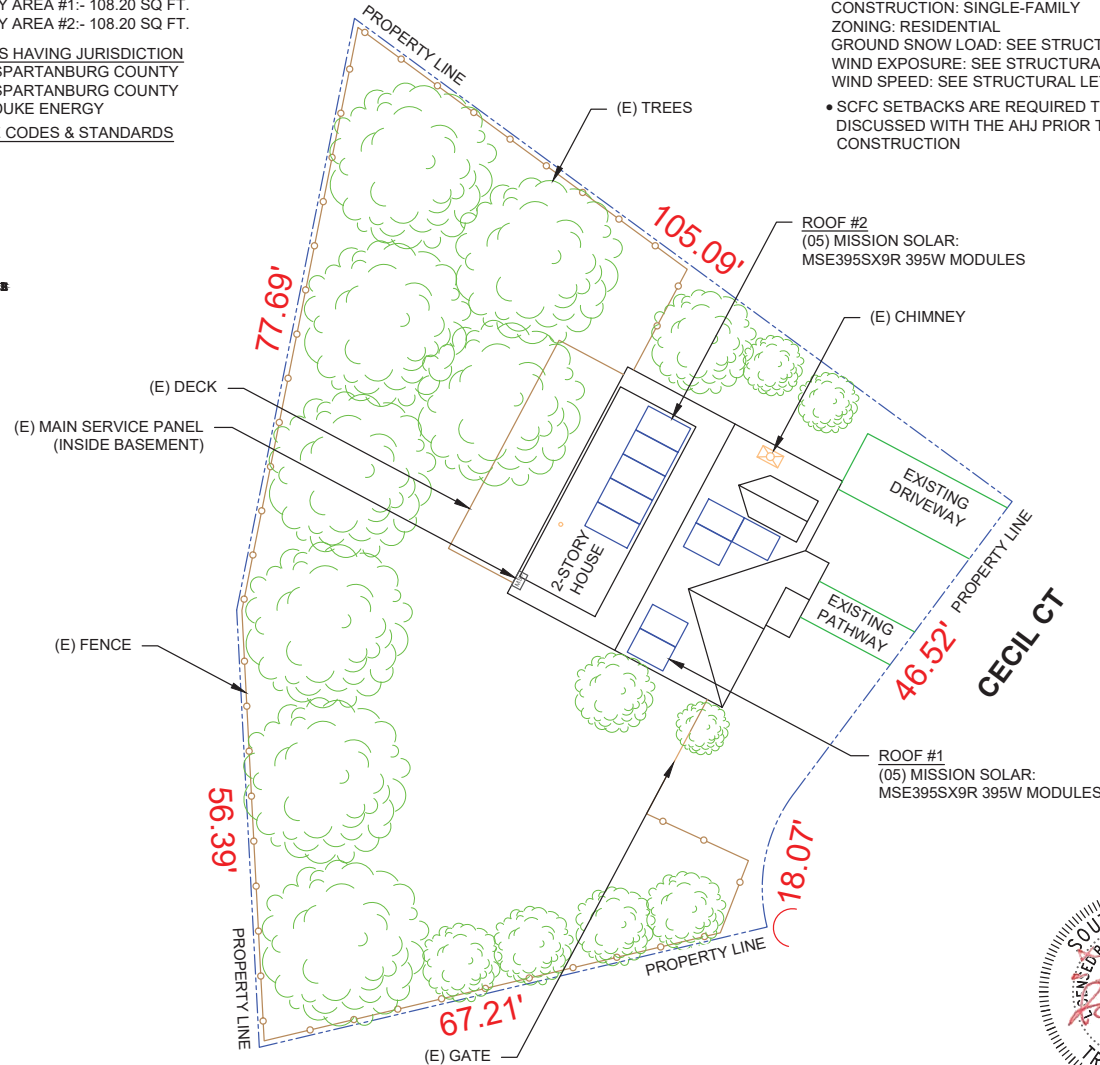


STRUCTURAL ONLY
07/12/2023

1 PLOT PLAN WITH ROOF PLAN

PV-1

SCALE: 1/16" = 1'-0"



REVISIONS

DESCRIPTION	DATE	REV
INITIAL	07/11/2023	

SIGNATURE WITH SEAL

DATE: 07/11/2023

PROJECT NAME & ADDRESS

TERRY ANDERSON
RESIDENCE
575 CECIL CT
SPARTANBURG, SC 29306

DC SIZE: 3.950 KW

AC SIZE: 7.600 KW

SHEET NAME

PLOT PLAN &
VICINITY MAP

SHEET SIZE

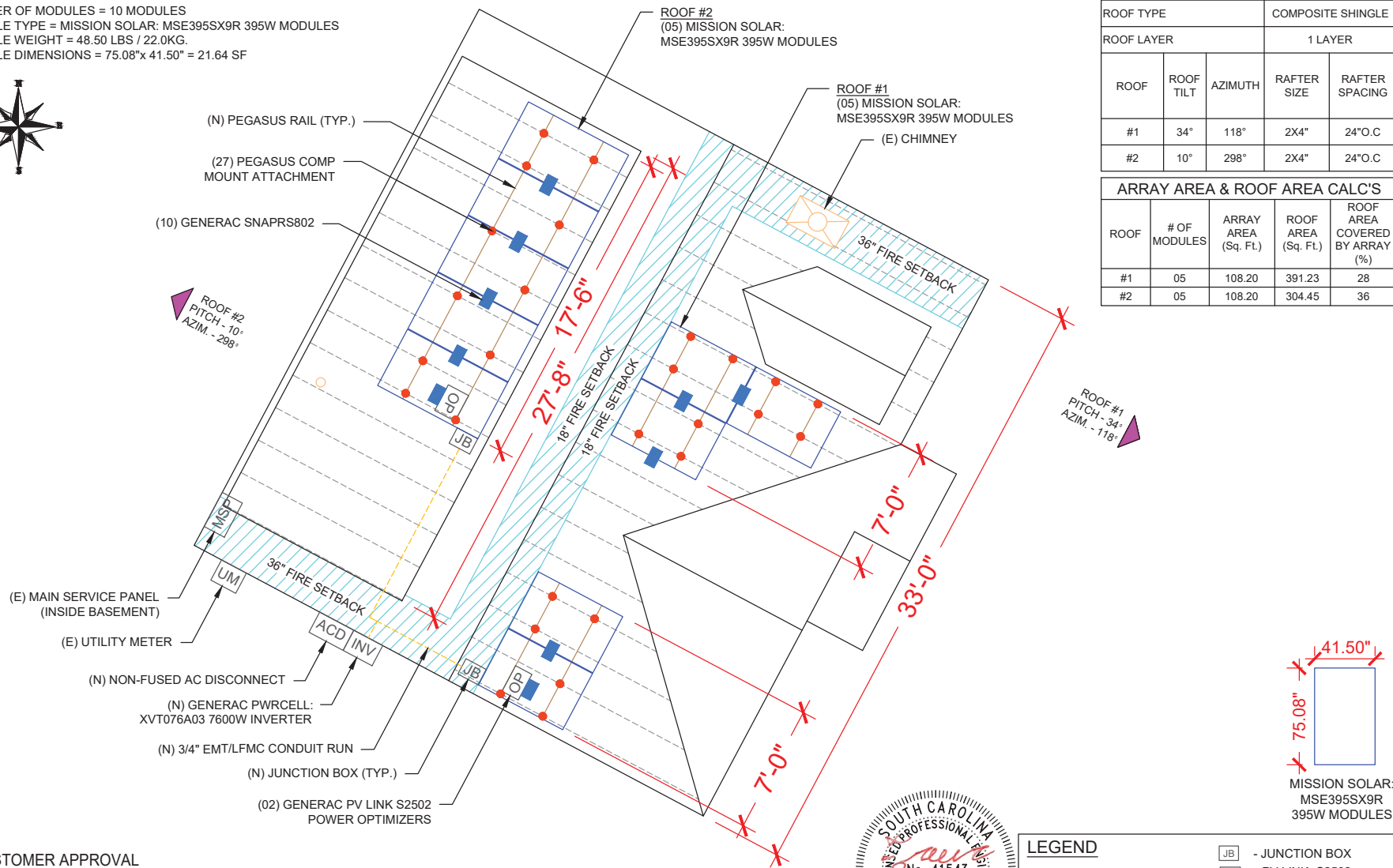
ANSI B
11" X 17"

SHEET NUMBER

PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 10 MODULES
 MODULE TYPE = MISSION SOLAR: MSE395SX9R 395W MODULES
 MODULE WEIGHT = 48.50 LBS / 22.0KG.
 MODULE DIMENSIONS = 75.08"x 41.50" = 21.64 SF



ROOF DESCRIPTION				
ROOF TYPE		COMPOSITE SHINGLE		
ROOF LAYER		1 LAYER		
ROOF	ROOF TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING
#1	34°	118°	2X4"	24"O.C
#2	10°	298°	2X4"	24"O.C

ARRAY AREA & ROOF AREA CALC'S				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	05	108.20	391.23	28
#2	05	108.20	304.45	36



REVISIONS		
DESCRIPTION	DATE	REV
INITIAL	07/11/2023	

SIGNATURE WITH SEAL

DATE: 07/11/2023

PROJECT NAME & ADDRESS

TERRY ANDERSON
 RESIDENCE
 575 CECIL CT
 SPARTANBURG, SC 29306

DC SIZE: 3.950 KW
 AC SIZE: 7.600 KW

SHEET NAME
 ROOF PLAN & MODULES

SHEET SIZE
 ANSI B
 11" X 17"

SHEET NUMBER
 PV-2

CUSTOMER APPROVAL

SIGNATURE: _____ DATE: _____

1 ROOF PLAN & MODULES

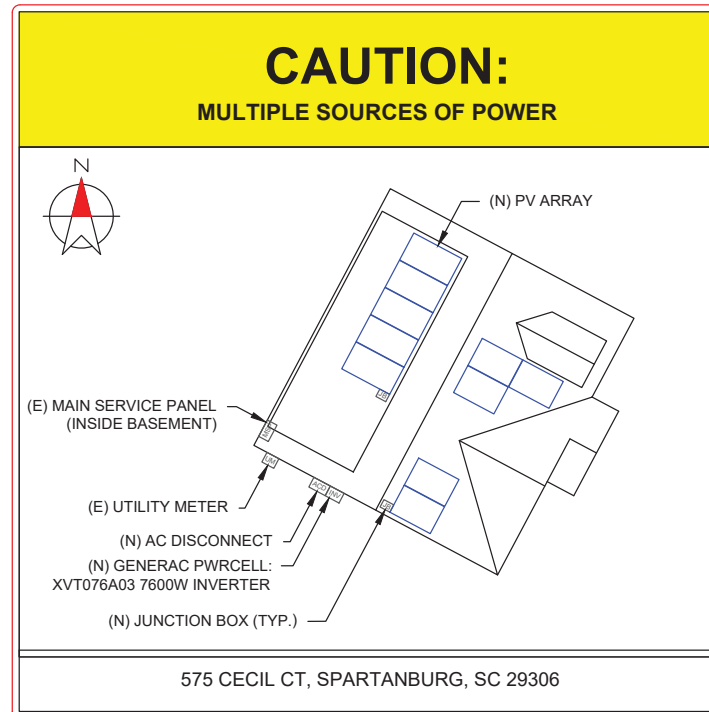
PV-2 SCALE: 3/16" = 1'-0"



STRUCTURAL ONLY
 07/12/2023

LEGEND

INV	- INVERTER	JB	- JUNCTION BOX
ACD	- AC DISCONNECT	OP	- PV LINK -S2502
MSP	- MAIN SERVICE PANEL		- SNAPRS802
	- CONDUIT		- VENT, ATTIC FAN (ROOF OBSTRUCTION)
	- RAFTER		- ROOF ATTACHMENT



DIRECTORY

PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN:
NEC 690.56(A)(B), NEC 705.10)

LABELING NOTES:

1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21]
5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND, REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]



REVISIONS

DESCRIPTION	DATE	REV
INITIAL	07/11/2023	

SIGNATURE WITH SEAL

DATE: 07/11/2023

PROJECT NAME & ADDRESS

**TERRY ANDERSON
RESIDENCE**
575 CECIL CT
SPARTANBURG, SC 29306

DC SIZE: 3.950 KW
AC SIZE: 7.600 KW

SHEET NAME

PLACARD

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-7

JUL 31 2023

City of Spartanburg Planning Department

Certificate of Appropriateness Application



Mail to:
Post Office Box 1749
Spartanburg, SC 29304

Phone: 864.596.2068
Fax: 864.596.2360
nrosario@cityofspartanburg.org

Name William Clementi **Terry Anderson 425-9129**
Address 575 Cecil Ct, Spartanburg SC 29306 Email permits@365solarenergy.com
Home Phone 704-774-5465 Work/Cell Phone 704-774-5465

Owner Name and Address (if other than applicant):

Terry Anderson (Homeowner) - 575 Cecil Ct, Spartanburg SC 29306

Historic Property

Street Address 575 Cecil Ct, Spartanburg SC 29306

Tax Map Number 712300257797 Zoning District Spartanburg County

Type of Change (Check all that apply)

- ☒ Alteration ☐ Repair ☐ Addition ☐ New Construction
☐ Demolition ☒ Other

Work being performed by

Architect or Engineer Trevor Jones Contact Information 833-463-0801 - 365 solar
Building Contractor William Clementi Contact Information 704-774-5465
Other Bekka Given Contact Information _____
(admin.)

Charlotte based
Matthew Stiner, CEO

For Official Use Only

Date Received 7/31/23 Time _____
Accepted by Owana Master Tracking Number COA 23-040049



City of Spartanburg Planning Department
Certificate of Appropriateness Application

Mail to:
Post Office Box 1749
Spartanburg, SC 29304

Phone: 864.596.2068
Fax: 864.596.2360
nrosario@cityofspartanburg.org

Required Attachments to this Application

- ☒ Site Plan ☐ Elevation ☐ Detail Drawing(s) or Sketch(s)
☐ Material Sample(s) ☐ Photographs ☐ Other _____

(Please discuss appropriate photographs/materials with the Planning Department prior to application submission)

Description of Proposed work (attach extra sheets as needed) 10 panel roof mounted solar
P/V install on single family home 7.6kW AC

Please read and initial the following statements

- ____ I am the owner of the property, or
X I am acting on behalf of the owner(s) of this property and have attached a letter from the owner(s) indicating their knowledge of this application
X The information on this application represents an accurate description of the proposed work. I have omitted nothing that might affect the decision of the Historic Architect Review Board
X I will attend (or send a representative to attend) the public hearing of this application before the Historic Architect Review Board
X I understand that issuance of a Certificate of Appropriateness is not an authorization to begin work

William Clout
Signature of Applicant

7/24/2023
Date

DONALD L. LOVE JR, ARCHITECT, AIA

608 Otis Boulevard, Spartanburg, SC · 864.415.0459

lovejrd@gmail.com

September 5, 2023

Martin Livingston
City of Spartanburg
Neighborhood Services Director

Re: 575 Cecil Court

Dear Martin,

The purpose of this letter is to assist the Spartanburg Historic Architecture Review Board with a determination of appropriateness for the installation of solar panels on the roof at 575 Cecil Court, in the Hampton Heights Historic District. Review of Solar Panels on Historic Properties from the National Park Service forms the basis for my opinion. I have also reviewed Solar Panels and Historic Buildings from the City of Columbia, S.C.

The applicant has requested approval to install solar panels on the roof of the house, in the front and in the rear. Product information, drawings, and details were provided.

The Guidelines for the Historic District do not address the installation of solar panels, however, National Park Service document, Solar Panels on Historic Properties, does address the issue. It states "Solar panels installed on a historic property in a location that cannot be seen from the ground will generally meet the Secretary of the Interior's Standards for Rehabilitation".

The City of Columbia's City Ordinance does not address solar panels. In order to clarify the issue, the City of Columbia prepared the document Solar Panels and Historic Buildings. It states the following:

- Installation of panels should be reversible and not damage historic integrity, detract from the historic character, alter character defining features, or remove historic materials;
- Panels should be installed so that they do not alter the slope of the roof; consider using on rear slopes to minimize visibility from the public right-of-way;
- Solar panels should be positioned behind existing architectural features such as parapets, dormers, and chimneys; and
- Freestanding or detached solar panels should be installed in locations that minimize visibility from the public right of way; consider using screening if needed.

On September 1, 2023, I visited the property with you, Ms. Nan Zhou, and Ms. Tia Keitt to observe the conditions. Based on my observations on site and the documentation provided, installation of solar panels on the front of the house will not meet the Standards because they will be visible from the street. Installation of solar panels on the rear of the house, where they cannot be seen, will meet the Standards.

Please let me know if you have any questions or require any additional information.

Regards,



Donald L. Love, Jr, Architect, AIA
Historic Preservation

TO: The Board of Architectural Design and Historic Review

RE: Certificate of Appropriateness for Major Works – Applicant is seeking approval of a Certificate of Appropriateness to install a set of nine (9) roof mounted solar panels on the front roof. The property is located at 527 Beaumont Ave. in Beaumont Mill Village Historic District and is currently zoned as R-6, General Residential District (TMS # 7-08-15-118.00). **Landowner: Carrol and Virginia Painter; Agent/Contractor: Freedom Forever SC LLC/Brooke Bigham**

Date: September 7, 2023

Project Description and History

The project site is located on an approximately 6,861 square foot lot in the Beaumont Mill Village Historic District. The site is located on the east side of Beaumont Ave. The site currently contains one single-family home that was constructed in 1910. This residential structure is a wood-framed bungalow with a brick foundation. The structure has an open porch in front of the house. This residential structure has a gable roof with comp shingle.

The applicant is seeking approval from the Board of Architectural Design and Historical Review to install a set of nine (9) roof mounted solar panels on the front roof. The set of solar panels will take approximately 186.37 SF (14.88%) of the total roof area. The solar panels will be visible from Beaumont Ave.

Analysis

Zoning Ordinance and Historic Design Manual Consistency

The project site is located in the Beaumont Mill Village Historic District which has design guidelines for development. These guidelines are outlined in the Design Manual for the City of Spartanburg Historic Districts and Landmarks. The purpose of the Manual is to provide property owners guidance for the preservation and protection of historic and architecturally valuable districts and sites in the City. The project is also subject to Section 510 of the City's Zoning Ordinance, Historic Preservation. This section allows the Board to review applications involving historic structures and districts and issue a Certificate of Appropriateness subject to the Standards listed in the Ordinance.

The project site has a zoning designation of R-6, General Residential District, which allows for single family dwelling unit. Section 510.6 of the City of Spartanburg Zoning Ordinance list standards for reviewing Certificate of Appropriateness. Specifically, Section 510.6 (C)(2) states that in reviewing applications for new construction or alteration, the board shall consider the U.S. Secretary of the Interior's Standards for Rehabilitation and the five criteria listed in the findings.

Findings

Certificate of Appropriateness, Section 510.6 (C)

1. *The character and appropriateness of the design* –

The proposed roof mounted solar panels will be placed on the front roof and do not interfere with any of the character defining features of the home. The proposed solar panels will maintain a low to median profile (3 inches minimum to 6 inches) ensures that they are appropriately designed so as to not seem out of character with the rest of the neighborhood.

2. *The scale of the buildings –*

The scale of the building will remain the same. Adding roof mounted solar panels will not increase the scale of the primary structure. The proposed panels will maintain a low to medium profile (3 inches to 6 inches) and will not overwhelm the house or the site.

3. *The texture and materials –*

The texture and materials of the solar panels will be solar glass (black) with anti-reflective surface treatment, and the frame of the panels is made of anodized aluminum (black). While the solar panels are clearly different from the asphalt shingles, the black color of the solar panels harmoniously will somewhat blend into the asphalt shingles.

4. *The relationship of such elements to similar features of structures in the immediate surroundings –*

The proposed solar panels will not alter the pitch of the roof. However, properties to the left and right side of the project site do not currently have roof mounted solar panels on the front roof of the houses. Therefore, properties in the immediate surroundings do not share similar features of such elements.

5. *If the property is in a Historic District, the extent to which the alteration or construction would be harmonious with the Historic District –*

Despite the fact that currently in Beaumont Mill Village Historic District, there are no other houses having solar panels, adding solar panels will not drastically change the historic feature of the house and the historic neighborhood. Due to the low to medium profile of the solar panels, they would blend in with the District. Furthermore, as the photovoltaic industry continues to progress, it is likely that more homeowners will come to rely on solar panels in the near future.

Submitted by:



Nan Zhou, AICP
City Planner II
City of Spartanburg Planning Department

Attachments:

Conditions of Approval

Application

Photos – Site Photos

Specifications / Style of Solar Panels

CONDITIONS OF APPROVAL FOR THE PROJECT ON PROPERTY AT:

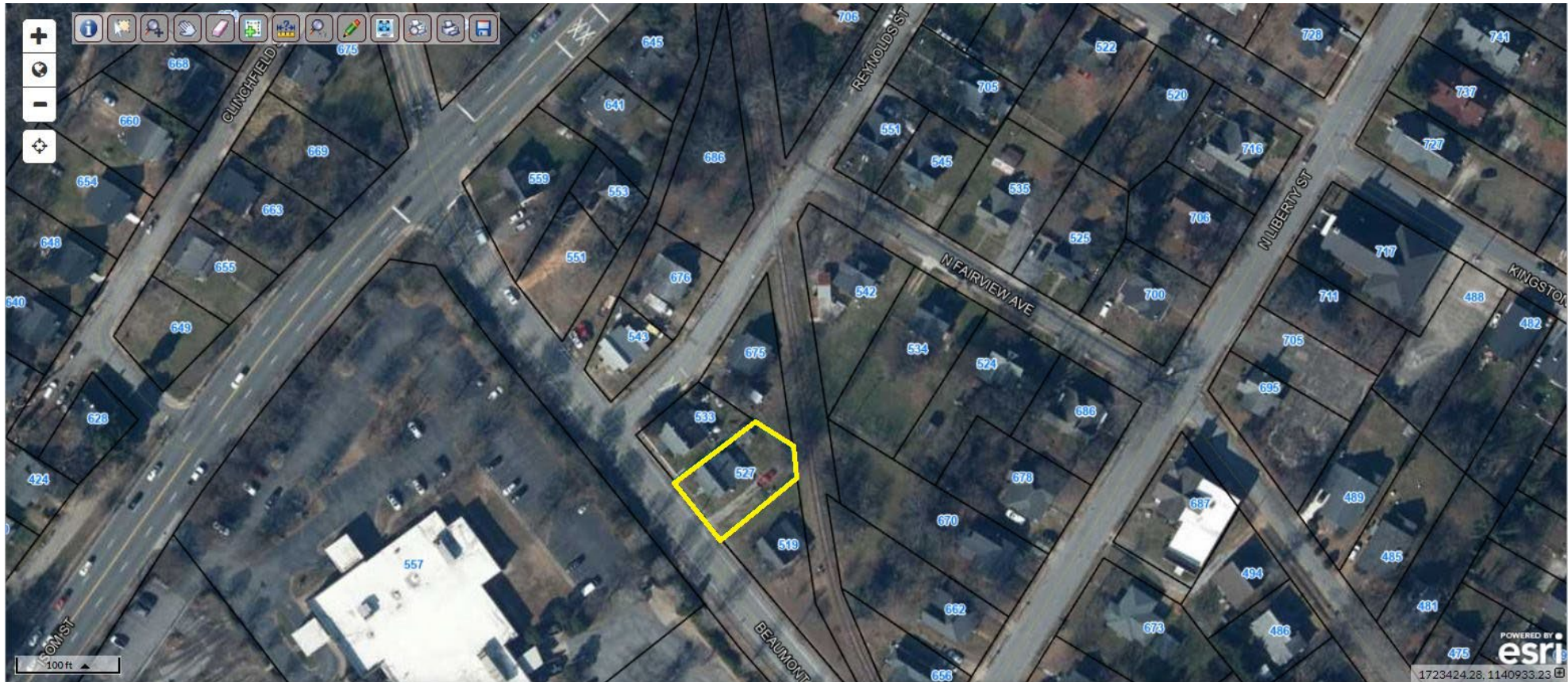
527 Beaumont Ave., Beaumon Mill Village Historic District

Certificate of Appropriateness for Major Works – Permission to install a set of nine (9) solar panels on the front roof of the house

**Zoning District: R-6, General Residential District; Landowner: Carrol and Virginia Painter;
Agent: Freedom Forever SC LLC**

1. If one or more of the following conditions is not met with respect to all its terms, then this approval may be revoked.
2. All plans for future construction which are not covered by this review shall be submitted to the City Planning Department for review and approval.
3. Major modifications to plans or exceptions to completion may be granted only by the City authority which approved the project.
4. This permit shall be exercised within **six months of the date of final approval**, or it shall become null and void. Extensions may be granted with permission of the Board.
5. A building permit shall be obtained from the Building Department prior to commencement of work.
6. The development of the site shall be in substantial accordance with the approved plans submitted and on file in the Spartanburg City Planning Department. Major modifications to plans or exceptions to completion may be granted only by the City authority which approved the project.

SITE MAP – 527 Beaumont Ave.



ZONING MAP – 527 Beaumont Ave.



Photo – Front



Photo – Left Side



Photo – Right Side



Photo – Property to the Left



Photo – Property to the Right



Photo – Properties to the Left of the Project Site



Photo – Properties to the Right Side of the Project Site



Photo – View Directly Across from the Project Site



Photo – View Directly Across from the Project Site



Planning Department

PO Box 1749 • Spartanburg, SC 29304 • phone: (864) 596-2068 • email: planning@cityofspartanburg.org
website: www.cityofspartanburg.org

Certificate of Appropriateness (COA) Historic Properties

Owner: Carrol Painter and Virginia Painter Phone: (864) 529-8010
Address: 527 Beaumont Ave Email: vpaintert@aol.com
City: Spartanburg State: SC Zip: 29303

Applicant: Brooke Bigham Phone: 864-382-0552
Address: 415 Industrial Ct Email: permitsgreenville@freedomforever.com
City: Greer State: SC Zip: 29651

Contractor: Freedom Forever SC LLC Phone: 864-382-0552
Address: 415 Industrial Ct Email: permitsgreenville@freedomforever.com
City: Greer State: SC Zip: 29651

Address of Property: 527 Beaumont Ave, Spartanburg, SC 29303
Tax Map Number: 7-08-15-118.00 Zoning District R-6

Please select the activity requested:

- | | |
|--|---|
| ☒ Alteration of Structure/Property | ☐ New Construction on Vacant Lot |
| ☐ Repair of Structure/Property | ☐ Demolition of Structure |
| ☐ Addition to Existing Structure | ☐ Other |

Fees and Payments can be made using the Permit Number and the [City of Spartanburg Payment Portal](#).

To the best of my knowledge, the information on this application and all additional documentation is true, factual and complete. I hereby agree to abide by all conditions of any approvals granted by the City of Spartanburg. I understand that such conditions shall apply to the subject property only and are a right or obligation transferable by sale. I hereby authorize the staff of the Planning Department to inspect the premises of the above-described property.

Applicant Signature: Brooke Bigham Date: 8/8/2023

Staff Use Only / Received by: Dusana
Date Received: 8/8/23 Time: _____ Permit Number: COA-23-040053

Certificate of Appropriateness (COA) Additional Items

Please attach to this Application any of the applicable items:

- | | |
|---|---|
| ☒ Site Plans or Surveys | ☒ Detail Drawing(s), Floor Plans(s) or Sketch(es) |
| ☐ Photographs of Existing property | ☐ Material(s) and Sample(s) |
| ☐ Photographs of Changes requested | ☐ Other |

Description of Proposed work (attach extra sheets as needed):

Installation of 9 roof mounted solar panels on the front. Dimensions (mm) 1730x1118x30. 3.9 KW, 240V, roof array of 187 sq ft. 40 AMP

Please read and initial the following statements:

- BB I am the owner of the property, or
- BB I am acting on behalf of the owner(s) of this property and have attached a letter from the owner(s) indicating their knowledge of this application.
- BB The information on this application represents an accurate description of the proposed work.
- BB I have omitted nothing that might affect the decision of the Historic Architect Review Board.
- BB I will attend (or send a representative to attend) the public hearing of this application before the Historic Architect Review Board.
- BB I understand that issuance of a Certificate of Appropriateness is not an authorization to begin work.

Received by: _____ **Staff Use Only:** _____ **MCOA - Minor** _____ **COA - Major**

DONALD L. LOVE JR, ARCHITECT, AIA

608 Otis Boulevard, Spartanburg, SC · 864.415.0459

lovejrd@gmail.com

September 5, 2023

Martin Livingston
City of Spartanburg
Neighborhood Services Director

Re: 527 Beaumont Avenue

Dear Martin,

The purpose of this letter is to assist the Spartanburg Historic Architecture Review Board with a determination of appropriateness for the installation of solar panels on the roof at 527 Beaumont Avenue, in the Beaumont Mill Historic District. Review of Solar Panels on Historic Properties from the National Park Service forms the basis for my opinion. I have also reviewed Solar Panels and Historic Buildings from the City of Columbia, S.C.

The applicant has requested approval to install solar panels on the front roof slope of the house, facing the street. Product information, drawings, and details were provided.

The Guidelines for the Historic District do not address the installation of solar panels, however, National Park Service document, Solar Panels on Historic Properties, does address the issue. It states "Solar panels installed on a historic property in a location that cannot be seen from the ground will generally meet the Secretary of the Interior's Standards for Rehabilitation".

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- Solar panels should be positioned behind existing architectural features such as parapets, dormers, and chimneys; and
- Freestanding or detached solar panels should be installed in locations that minimize visibility from the public right of way; consider using screening if needed.

On September 1, 2023, I visited the property with you, Ms. Nan Zhou, and Ms. Tia Keitt to observe the conditions. Based on my observations on site and the documentation provided, installation of solar panels on the front of the house will not meet the Standards because they will be visible from the street. It is recommended that the property owner explore placing the panels on the rear roof slope where they will not be visible.

Please let me know if you have any questions or require any additional information.

Regards,



Donald L. Love, Jr, Architect, AIA
Historic Preservation

ROOF MOUNT PHOTOVOLTAIC SYSTEM

CODES:

THIS PROJECT COMPLIES WITH THE FOLLOWING:
 I21 INTERNATIONAL BUILDING CODE
 I21 INTERNATIONAL RESIDENTIAL CODE
 I21 INTERNATIONAL FIRE CODE
 I21 INTERNATIONAL PLUMBING CODE
 I21 INTERNATIONAL MECHANICAL CODE
 I21 INTERNATIONAL FUEL GAS CODE
 I20 NATIONAL ELECTRICAL CODE
 I09 INTERNATIONAL ENERGY CONSERVATION CODE (ENERGY STANDARD ACT)
 S ADOPTED BY CITY OF SPARTANBURG (SC)

CONSTRUCTION NOTES:

CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

ALL SOLAR ENERGY SYSTEM EQUIPMENT SHALL BE SCREENED TO THE MAXIMUM EXTENT POSSIBLE AND SHALL BE PAINTED A COLOR SIMILAR TO THE SURFACE UPON WHICH THEY ARE MOUNTED.

MODULES SHALL BE TESTED, LISTED AND IDENTIFIED WITH FIRE CLASSIFICATION IN ACCORDANCE WITH UL 2703. SMOKE AND CARBON MONOXIDE ALARMS ARE REQUIRED PER SECTION R314 AND 315 TO BE VERIFIED AND INSPECTED BY INSPECTOR IN THE FIELD.

DIG ALERT (811) TO BE CONTACTED AND COMPLIANCE WITH EXCAVATION SAFETY PRIOR TO ANY EXCAVATION TAKING PLACE

PHOTOVOLTAIC SYSTEM GROUND WILL BE TIED INTO EXISTING GROUND AT MAIN SERVICE FROM DC DISCONNECT/INVERTER AS PER 2020 NEC SEC 250.166(A).

SOLAR PHOTOVOLTAIC SYSTEM EQUIPMENT WILL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF ART. 690 OF THE 2020 NEC

THE MAIN SERVICE PANEL WILL BE EQUIPPED WITH A GROUND ROD OR UFER

UTILITY COMPANY WILL BE NOTIFIED PRIOR TO ACTIVATION OF THE SOLAR PV SYSTEM

SOLAREDGE OPTIMIZERS ARE LISTED TO IEC 62109-1 (CLASS II SAFETY) AND UL 1741 STANDARDS

INSTALL CREW TO VERIFY ROOF STRUCTURE PRIOR TO COMMENCING WORK. EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNT.

LOCATION MAP:

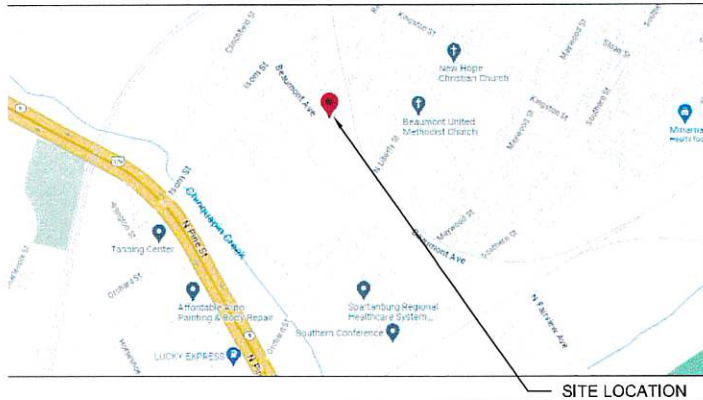


TABLE OF CONTENTS:

PV-1	SITE LOCATION
PV-2	SITE PLAN
PV-2A	ROOF PLAN WITH MODULES LAYOUT
PV-2B	ROOF AND STRUCTURAL TABLES
PV-3	MOUNTING DETAILS
PV-4	THREE LINE DIAGRAM
PV-5	CONDUCTOR CALCULATIONS
PV-5A	ELECTRICAL CALCULATIONS
PV-6	EQUIPMENT & SERVICE LIST
PV-7	LABELS
PV-7A	SITE PLACARD
PV-8	OPTIMIZER CHART
PV-9	SAFETY PLAN
PV-10	SAFETY PLAN
APPENDIX	MANUFACTURER SPECIFICATION SHEETS

CLIENT:
 VIRGINIA PAINTER
 527 BEAUMONT AVE. SPARTANBURG SC
 29303
 AHJ: CITY OF SPARTANBURG (SC)
 UTILITY: DUKE ENERGY
 METER: 346272247
 PHONE: (864) 529-9010
 EMAIL: VPAINTE@AOL.COM
 FINANCE: OTHER

SYSTEM:
 SYSTEM SIZE (DC): 9 X 410 = 3,690 kW
 SYSTEM SIZE (AC): 3,800 kW @ 240V
 MODULES: 9 X REC SOLAR: REC410AA
 PURE-R
 OPTIMIZERS: 9 X SOLAREDGE P505
 INVERTER: SOLAREDGE SE3800H-USRGM
 [S1]

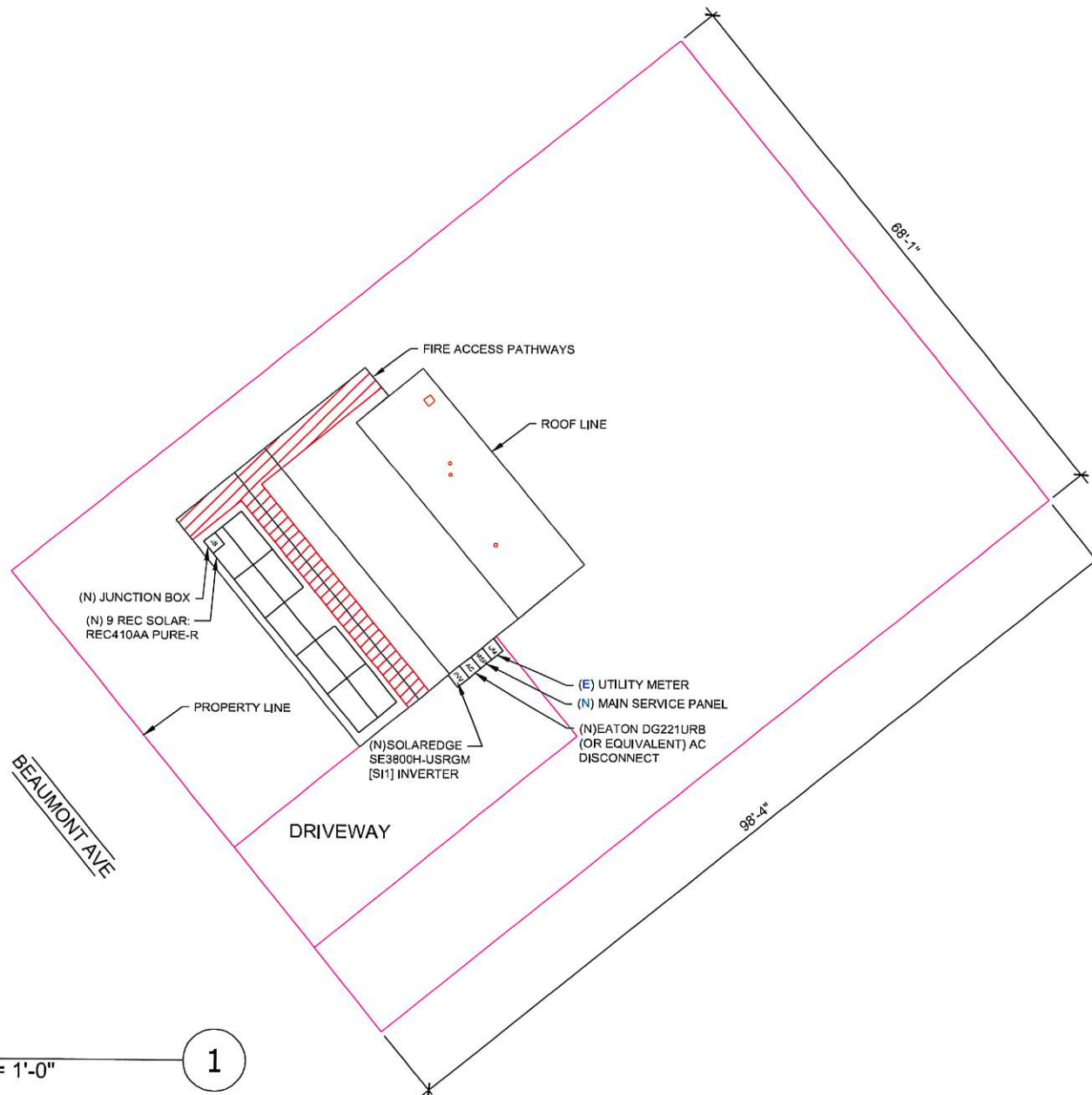
REVISIONS		
NO.	REVISED BY	DATE
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-	-	-
-	-	-

freedom
 FOREVER
 FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075
GREG ALBRIGHT

 CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR 115742

SITE LOCATION			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-1

LEGEND:	
	CHIMNEY
	PIPE VENT
	MODULES
	CONDUIT
	SETBACK
	AC DISCONNECT
	UTILITY METER
	JUNCTION BOX
	INVERTER
	MAIN SERVICE PANEL



SITE PLAN
SCALE: 2/25" = 1'-0"

1

Avial
Lumagui

Digitally signed
by Avial Lumagui
Date: 2023.07.20
09:32:07 -0400



ROOF AREA: 1259.34 SQ FT

CLIENT:
VIRGINIA PAINTER
527 BEAUMONT AVE, SPARTANBURG, SC
29303
AHJ: CITY OF SPARTANBURG (SC)
UTILITY: DUKE ENERGY
METER: 340272247
PHONE: (864) 529-8010
EMAIL: VPAINTE@AOL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 9 X 410 = 3,690 kW
SYSTEM SIZE (AC): 3,800 kW @ 240V
MODULES: 9 X REC SOLAR: REC410AA
PURE-R
OPTIMIZERS: 9 X SOLAREEDGE P505
INVERTER: SOLAREEDGE SE3800H-USRGM
[SI1]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29615
Tel: (800) 385-1075

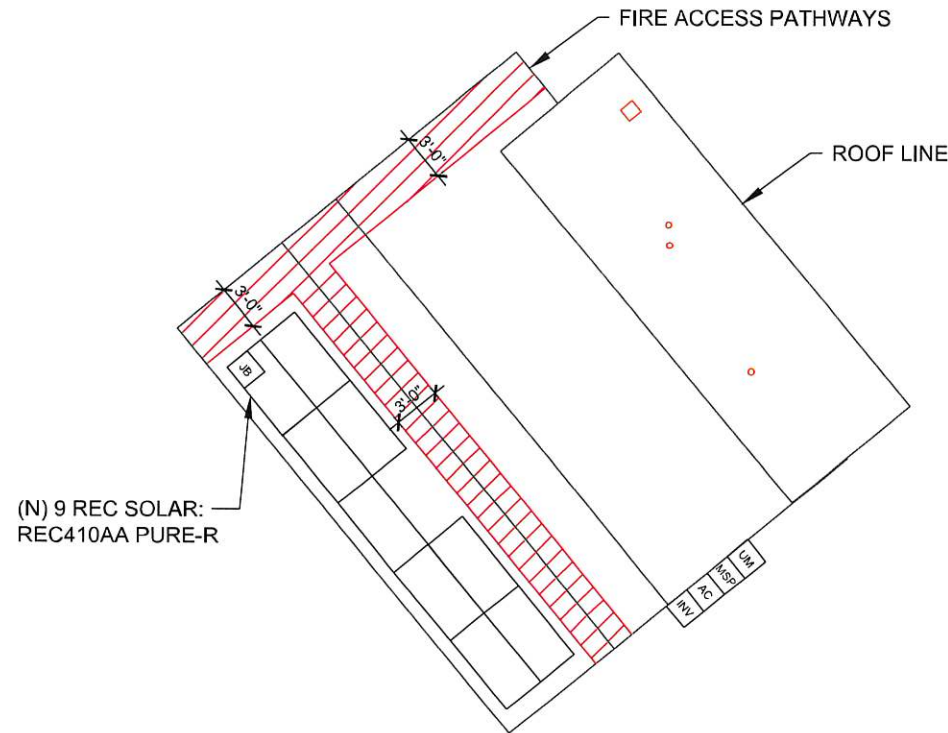
GREG ALBRIGHT

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

SITE PLAN			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-2

LEGEND:	
	CHIMNEY
	PIPE VENT
	MODULES
	CONDUIT
	SETBACK
	AC DISCONNECT
	UTILITY METER
	JUNCTION BOX
	INVERTER
	MAIN SERVICE PANEL

TOTAL ROOF AREA: 1259.34 SQ FT
TOTAL ARRAY AREA: 187.37 SQ FT
ARRAY COVERAGE: 14.88%
SYSTEM DISTRIBUTED WEIGHT: 2.28 LBS
ROCKIT SMART SLIDE POINT-LOAD: 26.67 LBS



ROOF AREA: 1259.34 SQ FT

CLIENT:
VIRGINIA PAINTER
527 BEAUMONT AVE, SPARTANBURG, SC
29303
AHJ: CITY OF SPARTANBURG (SC)
UTILITY: DUKE ENERGY
METER: 340272247
PHONE: (864) 529-8010
EMAIL: VPAINTER1@AOL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 9 X 410 = 3,690 kW
SYSTEM SIZE (AC): 3,800 kW @ 240V
MODULES: 9 X REC SOLAR: REC410AA
PURE-R
OPTIMIZERS: 9 X SOLAREDGE PS05
INVERTER: SOLAREDGE SE3800H-USRGM
(S11)

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29661
Tel: (800) 385-1075

GREG ALBRIGHT

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

ROOF PLAN WITH MODULES LAYOUT			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-2A



ROOF PLAN
SCALE: 1/8" = 1'-0"

1

NOTES:

1. EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNTS
2. ATTACHED CLAMPS AT 25% FROM THE EDGE AND 50% FROM THE CENTER OF THE MODULES
3. JUNCTION BOX IS MOUNTED TO THE RAIL.

ROOF DETAILS:

TOTAL ROOF AREA: 1259.34 SQ FT
TOTAL ARRAY AREA: 187.37 SQFT
ARRAY COVERAGE: 14.88%
SYSTEM DISTRIBUTED WEIGHT: 2.28 LBS
ROCKIT SMART SLIDE POINT-LOAD: 26.67 LBS



ROOF AREA STATEMENT						
ROOF	MODULE QUANTITY	ROOF PITCH	ARRAY PITCH	AZIMUTH	ROOF AREA	ARRAY AREA
ROOF 1	9	40	40	231	381.39 SQ FT	187.37 SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT

CLIENT:
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EMAIL: VPAINTE@AOL.COM
FINANCE: OTHER

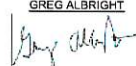
SYSTEM:
SYSTEM SIZE (DC): 9 X 410 = 3,690 kW
SYSTEM SIZE (AC): 3,800 kW @ 240V
MODULES: 9 X REC SOLAR: REC410AA
PURE-R
OPTIMIZERS: 9 X SOLAREEDGE P505
INVERTER: SOLAREEDGE SE3800H-USRGM
[S11]

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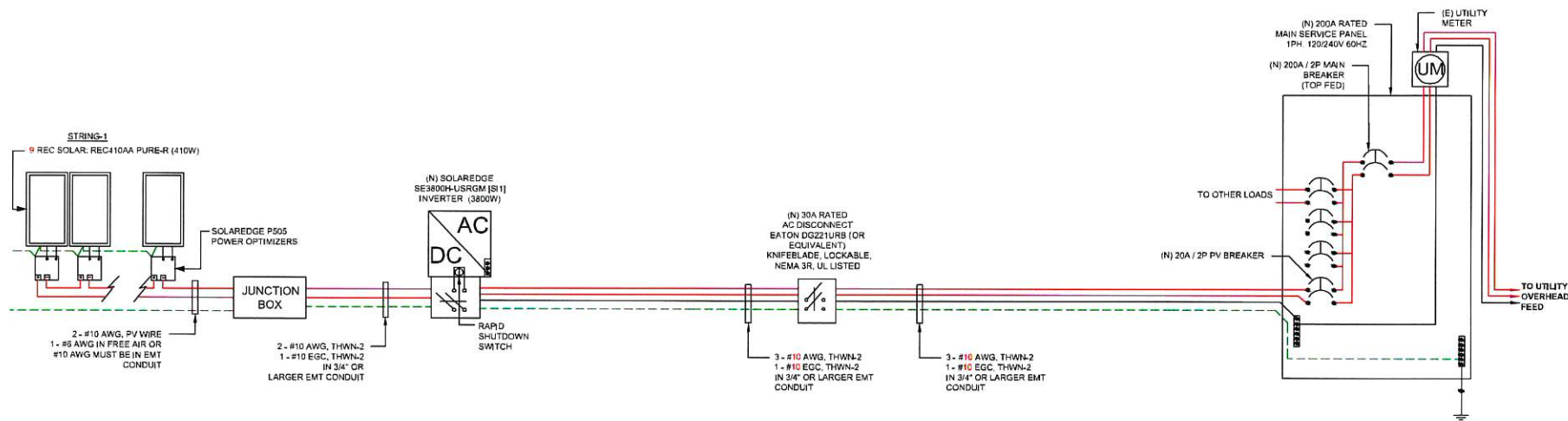
GREG ALBRIGHT



CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

ROOF DETAILS			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-2B

BACKFEED BREAKER SIZING					
MAX. CONTINUOUS OUTPUT 16.00A @ 240V					
16.00	X	1.25	=	20.00AMPS	20A BREAKER - OK
SEE 705.12 OF 2020 NEC					
200	X	1.20	=	240	
240	-	200	=	40A ALLOWABLE BACKFEED	



CLIENT:
 VIRGINIA PAINTER
 527 BEAUMONT AVE. SPARTANBURG, SC
 29303
 AHJ: CITY OF SPARTANBURG (SC)
 UTILITY: DUKE ENERGY
 METER: 340272247
 PHONE: (864) 529-8010
 EMAIL: VPAINTE@AOL.COM
 FINANCE: OTHER

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 OPTIMIZERS: 9 X SOLAREEDGE P505
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 [SI1]

REVISIONS		
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 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075

GREG ALBRIGHT
[Signature]
 CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR 115742

NOTE:
 CONDUIT AND CONDUCTORS SPECIFICATIONS ARE BASED
 ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT
 TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS

THREE LINE DIAGRAM			
JOB NO.	DATE	DESIGNED BY	SHEET
342624	7/19/2023	T.L.	PV-4

[illegible][illegible][illegible]

SYSTEM:
SYSTEM SIZE (DC): 9 X 410 = 3.690 kW
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PURE-R
OPTIMIZERS: 9 X SOLAREEDGE P505
INVERTER: SOLAREEDGE SE3800H-USRGM
[SI]

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GREG ALBRIGHT

Gay Allen

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

EQUIPMENT & SERVICE LIST

JOB NO:	DATE:	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-6

**MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT**
690.13(B)

**DO NOT DISCONNECT
UNDER LOAD**
NEC 690.15 (B) & NEC 690.33(D)(2)

WARNING
SINGLE 120-VOLT SUPPLY
DO NOT CONNECT
MULTIWIRE BRANCH CIRCUITS
NEC 710.15(C) & 692.9 (C)

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
NEC 705.12(D) & NEC 690.59

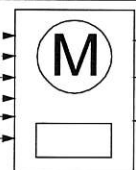
WARNING
TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL
NEC 110.27(C) & OSHA 1910.145(F)(7)

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
706.15(C)(4) & 690.13(B)

WARNING
THIS EQUIPMENT FED BY
MULTIPLE SOURCES:
TOTAL RATING OF ALL OVERCURRENT
DEVICES EXCLUDING MAIN POWER
SUPPLY SHALL NOT EXCEED
AMPACITY OF BUSBAR
NEC 705.12(B)(3)(3)

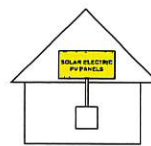
WARNING
THE DISCONNECTION OF THE
GROUNDED CONDUCTOR(S)
MAY RESULT IN OVERVOLTAGE
ON THE EQUIPMENT
NEC 690.31(E)

**RAPID SHUTDOWN SWITCH FOR
SOLAR PV SYSTEM**
690.56(C)(3)



**SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN**

TURN RAPID
SHUTDOWN SWITCH TO
THE "OFF" POSITION TO
SHUT DOWN PV SYSTEM
AND REDUCE SHOCK
HAZARD IN THE ARRAY



IFC 605.11.3.1(1) & 690.56(C)

CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED
NEC 705.12(D) & NEC 690.59

WARNING
POWER SOURCE OUTPUT
CONNECTION. DO NOT
RELOCATE THIS
OVERCURRENT DEVICE.
NEC 705.12(C) & NEC 690.59

WARNING
ARC FLASH AND SHOCK HAZARD
APPROPRIATE PPE REQUIRED
NEC 706.15(C) AND NEC 110.16

**PHOTOVOLTAIC
AC DISCONNECT**
NEC 690.13(B)

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: **16.00A**
NOMINAL OPERATING AC VOLTAGE: **240V**
NEC 690.54

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
NEC 705.12(D) & NEC 690.59

AC

PM

INVERTER

SOLAR PV DC CIRCUIT
EVERY 10' ON CONDUIT AND ENCLOSURES
NEC 690.31

PHOTOVOLTAIC POWER SOURCE
EVERY 10' ON CONDUIT AND ENCLOSURES
NEC 690.31(D)(2)

MAXIMUM VOLTAGE **480** V
MAXIMUM CIRCUIT CURRENT **10.5** A
MAX DC-DC CONVERTER
OUTPUT CURRENT **15** A

NOTES:

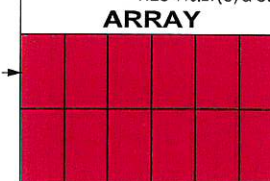
- NEC ARTICLES 690 AND 705 AND IRC SECTION R324 MARKINGS SHOWN HEREON.
- ALL MARKING SHALL CONSIST OF THE FOLLOWING:
 - UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
 - RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
 - ARIAL FONT.
- ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
- SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS

**PHOTOVOLTAIC
DC DISCONNECT
MAXIMUM DC VOLTAGE
OF PV SYSTEM**
NEC 690.13(B)

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
DC VOLTAGE IS ALWAYS PRESENT
WHEN SOLAR MODULES
ARE EXPOSED TO SUNLIGHT
706.15(C)(4) & 690.13(B)

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
706.15(C)(4) & 690.13(B)

WARNING
TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL
NEC 110.27(C) & OSHA 1910.145(F)(7)



NEC 690.31(G)(3) & (4)

CLIENT:
VIRGINIA PAINTER
527 BEAUMONT AVE, SPARTANBURG, SC
29303
AHJ: CITY OF SPARTANBURG (SC)
UTILITY: DUKE ENERGY
METER: 340272247
PHONE: (864) 529-8010
EMAIL: VPAINTER1@AOL.COM
FINANCE: OTHER

SYSTEM:
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SYSTEM SIZE (AC): 3,800 kW @ 240V
MODULES: 9 X REC SOLAR: REC410AA
PURE-R
OPTIMIZERS: 9 X SOLAREDGE P505
INVERTER: SOLAREDGE SE3800H-USRGM
[S11]

REVISIONS		
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-	-	-
-	-	-

freedom
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415 INDUSTRIAL CT., GREER, SC 29651
Tel: (800) 385-1075
GREG ALBRIGHT
CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

LABELS			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-7



NOTES:

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2. ALL MARKING SHALL CONSIST OF THE FOLLOWING:
 - A. UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
 - B. RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
 - C. AERIAL FONT.
3. ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
4. SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS.

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PURE-R
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(S11)

REVISIONS		
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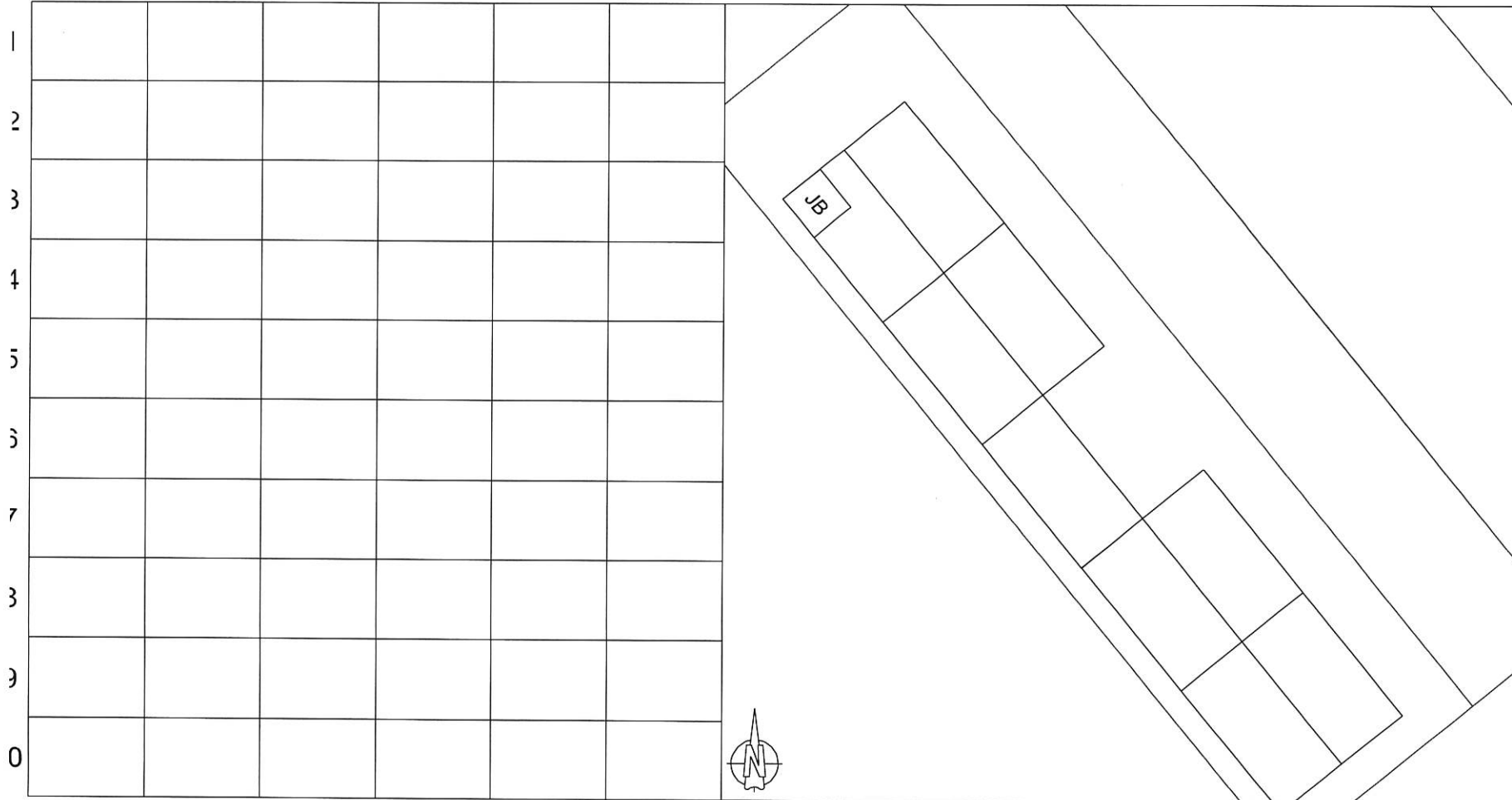
GREG ALBRIGHT

Greg Albright
CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

SITE PLACARD			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-7A

SOLAREEDGE OPTIMIZER CHART

1-10 11-20 21-30 31-40 41-50 51-60



CLIENT:
 VIRGINIA PAINTER
 527 BEAUMONT AVE, SPARTANBURG, SC
 29303
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 (S11)

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FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29661
 Tel: (800) 385-1075

GREG ALBRIGHT

Greg Albright

CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR 115742

OPTIMIZER CHART			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-8

SAFETY PLAN

INSTRUCTIONS:

1. USE SYMBOLS IN KEY TO MARK UP THIS SHEET.
2. SAFETY PLAN MUST BE MARKED BEFORE JOB STARTS AS PART OF THE PRE-PLAN
3. DOCUMENT ALL ADDITIONAL HAZARDS ON THIS PAGE & MAKE NOTES ON THE JHA SHEET

INCIDENT REPORTING:

INJURIES - CALL INJURY HOTLINE

855) 400-7233

If injury is life threatening, call 911 first THEN the Injury Hotline

NON-INJURIES - USE MOBILE INCIDENT REPORTING
Auto, Property Damage, Near Miss)



NEAREST OCCUPATIONAL/INDUSTRIAL CLINIC:

NAME: _____

ADDRESS: _____

NEAREST HOSPITAL:

NAME: _____

ADDRESS: _____

SAFETY COACH CONTACT INFORMATION:

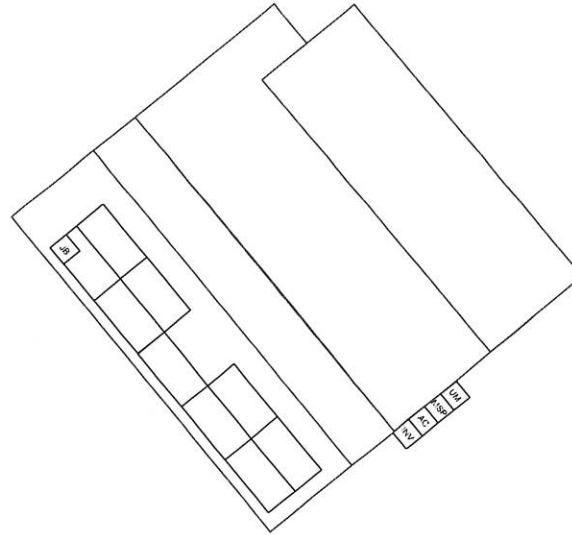
NAME: _____

PHONE NUMBER: _____

ALL EMPLOYEES ON SITE SHALL BE MADE AWARE OF THE SAFETY PLAN AND SIGN INDICATING THAT THEY ARE AWARE OF THE HAZARDS ON-SITE AND THE PLAN FOR WORKING SAFELY.

NAME	SIGNATURE
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DATE: _____ TIME: _____



MARK UP KEY

- (P) PERMANENT ANCHOR
- (T) TEMPORARY ANCHOR
- [IL] INSTALLER LADDER
- [B] JUNCTION / COMBINER BOX
- [S] STUB-OUT
- [X] SKYLIGHT
- [] NO LADDER ACCESS (STEEP GRADE OR GROUND LEVEL OBSTRUCTIONS)
- [] RESTRICTED ACCESS
- CONDUIT
- (GAS) GAS SHUT OFF
- (H₂O) WATER SHUT OFF
- (7) SERVICE DROP
- (Z) POWER LINES

CLIENT:
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PURE-R
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[S11]

BREAK AND WATER LOG

THIS LOG IS TO BE FILLED OUT ANY TIME THE TEMP EXCEEDS 90 DEGREES, THE CREW LEAD AND ROOF LEAD ARE RESPONSIBLE FOR ENSURING THIS IS COMPLETED AND UPLOADED AT THE END OF EVERYDAY WHEN TEMPS EXCEED 90 DEGREES

NAME	0800HRS	0900HRS	1000HRS	1100HRS	1200HRS	1300HRS	1400HRS	1500HRS	1600HRS

REVISIONS		
NO.	REVISED BY	DATE



FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29615
Tel: (800) 385-1075

GREG ALBRIGHT

[Signature]

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

SAFETY PLAN

JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-9

JOB HAZARD ANALYSIS

Crew leader to fill out all sections below, hold a pre-job safety meeting with all personnel, and upload this completed document and the Safety Plan to Site Capture

Ladder Access

- Ladders must be inspected before each use.
- Extension ladders must be set up on a firm and level surface at a 4-to-1 rise to run angle (or 75 degrees) and the top must be secured to the structure. Extension style ladders placed on uneven, loose or slippery surfaces must additionally have the base firmly anchored or lashed so the base will not slip out.
- Extension ladders must be used with walk-through devices or the ladder must extend 36" above the stepping off point.
- A-frame ladders must only be climbed with the ladder spreader bars locked in the open position; A-frame ladders shall not be climbed while in the closed position (ex, closed and used while leaned against a structure).
- Additional notes:

Mobile Equipment

- Only Qualified operators will operate equipment; operators must maintain a certification on their person for the equipment being operated.
- Type(s) of mobile equipment (Type/Make/Model):
- Qualified operator(s):

Material Handling and Storage

- Materials will be staged/stored in a way that does not present a hazard to client, personnel or public. Materials stored on the roof will be physically protect from falling or sliding off.

Fall Protection

- A site-specific plan for fall prevention and protection is required prior to starting work and must remain onsite at all times until work is complete; a fall rescue plan must be outlined and discussed among the crew prior to work start.
- First-person-Up (FPU) must install their anchor and connect before any other task, including installing other anchors. The Last-Person-Down (LPD) must be the only person on a roof uninstalling fall protection.
- FPCP (name and title):

- FPU and LPD (name and title):

Electrical Safety

- The Electrical Qualified Person (EQP) is required onsite to perform electrical work.
- All electrical work will be performed with equipment in an electrically safe condition (de-energized) unless approval has been granted prior to work.
- Service drops and overhead electrical hazards will be identified and protected from contact, as necessary.
- EQP (name and title):

Public Protection

- The safety of the Client and Public must be maintained at all times.
- The Client and the Public shall be prevented from entering the work zone through the use of barriers and/or signage, as required.
- Company, Client and Public property shall be protected from falling objects.
- Pets (including dogs) shall be secured by their owners prior to work start.
- The Client should not leave pets, family members, or others in charge or care of Employees, Contractors, or Temporary Workers.

- Crew leader responsible for communication with the client:

- Client and public is excluded from work area by barricades (N/A, Yes, No):

Training and Pre-Job Safety Briefing

- All employees onsite shall be made aware of the specific hazards of this project and review this HJA during a pre-job briefing, and their signature indicates awareness of site conditions and the plan to eliminate any hazards identified prior to and during the project.

- Crew leader (name/title):

- Crew member (name/title):

- Crew member (name/title):

- Crew member (name/title):

- Crew member (name/title):

- Crew member (name/title):

Airborne Contaminants:

- Asbestos-containing (Transite) piping (ACP) - Do not disturb (move, drill, cut fracture, etc.)
- Asbestos-containing thermal insulation (ACI) and Asbestos-containing duct wrapping (ACW) - do not disturb, no attic or crawlspace access is allowed if work to be performed could cause exposure to personnel, client or public.

- If yes, list specific tasks and protection in place:

Weather and Environment

- The site supervisor shall forecast the weather conditions at the job site, prior to crew arrival, in order to mitigate any hazards associated with inclement weather (heat, cold, wind, rain, etc.)
- The site supervisor will utilize a portable wind meter (anemometer) to verify actual onsite wind conditions, by checking at the ground and on any elevated work surface (ex, rooftop) prior to work start, at midday and prior to solar panel staging on a roof.
- Elevated work involving the moving or maneuvering of solar panels shall cease at 25mph (sustained wind) until wind subsides.
- Forecasted weather maximum temp (degrees f):

Heat Related Illness Prevention

- Employees shall have access to potable drinking water that is fresh, pure, and suitably cool. The water shall be located as close as practicable to the areas where employees are working. Water shall be supplied in sufficient quantity at the beginning of the work shift to provide at least one quart per employee per hour for drinking for the entire shift. Employees may begin the shift with smaller quantities of water if they identify the location and have effective means for replenishment during the shift to allow employees to drink on quart or more per hour. The frequent drinking of water shall be encouraged.
- Shade shall be present when temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work exceeds 80 degrees Fahrenheit, employees shall have and maintain one or more areas with shade at all times.
- New employees must be acclimatized. New employees will be monitored by their Crew Leader (site supervisor) for the first two (2) weeks of employment or longer when necessary.
- Employees will be allowed and encouraged to implement scheduled breaks during each shift. Employees must take cool-down breaks in the shade any time they feel the need to do so to protect them from overheating. Supervisors are REQUIRED to allow employees any break period they need during high heat conditions.
- Cool Vests are encouraged for all employees at all times during periods of high heat.
- Identify the location of the closest Occupational/Industrial Clinic or Hospital in case a crew member becomes ill.

What is the specific plan to provide and replenish sufficient water for all employees on site?

- If offsite replenish is necessary, where will you go to replenish water (location/address):

- Who will replenish the drinking water (name):

Restroom facilities

- Employees shall have access to restroom facilities with hand-washing stations. Use of onsite restroom is at the client's discretion (location is annotated below). If client does not give permission, location of suitable restroom facilities with hand-washing stations offsite will be provided. The onsite supervisor will identify location and make arrangements to ensure all employees have access at any point.

- Restroom facilities will be (circle one): Onsite - Offsite
- If Offsite, add location name and address:

Incident Reporting Procedure

- Contact your Site Supervisor

Name:

Phone:

- Contact your Manager

Name:

Phone:

- Contact your Site Supervisor

Name:

Phone:

With: Your full name, phone number, office location, brief description of what happen and when.

NOTE ADDITIONAL HAZARDS NOT ADDRESSED ABOVE (add as many as necessary by using additional sheets)

Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:

CLIENT:
VIRGINIA PAINTER
527 BEAUMONT AVE, SPARTANBURG, SC
29303
AHJ: CITY OF SPARTANBURG (SC)
UTILITY: DUKE ENERGY
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[SI1]

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Tel: (800) 385-1075

GREG ALBRIGHT

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR 115742

SAFETY PLAN			
JOB NO.	DATE	DESIGNED BY:	SHEET
342624	7/19/2023	T.L.	PV-10

FOR INSTALLATION REFERENCE ONLY

SCAN QR CODE TO ACCESS REFERENCE LINK

FREEDOM REFERENCES

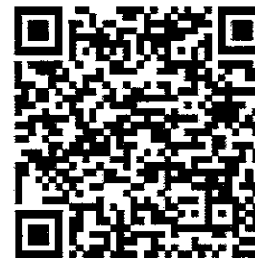


INSTALL HOTLINE

PV INSTALLATION REFERENCES



ENPHASE IQ8



SOLAREDGE HD WAVE



TESLA INVERTER

BATTERY INSTALLATION REFERENCES



TESLA POWERWALL 2



SHIFT/SELF CONSUMPTION



SOLAREDGE ENERGY BANK



SOLAREDGE LG RESU (BACKUP)



TESLA POWERWALL+ (BACKUP)

V1.1

SOLAR'S MOST TRUSTED



REC ALPHA PURE-R SERIES PRODUCT SPECIFICATIONS

COMPACT PANEL SIZE

9 A PANEL CURRENT
COMPATIBLE WITH MPPE

430 W_P
223 W_M²

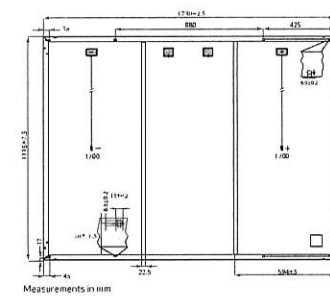


REC ALPHA PURE-R SERIES PRODUCT SPECIFICATIONS



GENERAL DATA

Cell type:	80 half-cut REC heterojunction cells with lead-free, gapless technology
Glass:	3.2 mm solar glass with anti-reflective surface treatment in accordance with F412150
Backsheet:	Highly resistant polymer (black)
Frame:	Anodized aluminum (black)
Junction box:	4-part, 4 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors:	Stäubli MC4PV-KBT4/RT4 (4 mm²) in accordance with IEC 62852, IP68 only when connected
Cable:	4 mm² solar cable, 1.7 m in accordance with EN 50618
Dimensions:	1730 x 1118 x 30 mm (1.93 m²)
Weight:	21.5 kg
Origin:	Made in Singapore



ELECTRICAL DATA

Product Code*: RECxxxAA Pure-R

	400	410	420	430
Power Output - P _{max} (Wp)	400	410	420	430
V _{att} Class Sorting - (IV)	0/+10	0/+10	0/+10	0/+10
Nominal Power Voltage - V _{mp} (V)	48.8	49.4	50.0	50.5
Nominal Power Current - I _{mp} (A)	8.20	8.30	8.40	8.52
Open Circuit Voltage - V _{oc} (V)	58.9	59.2	59.4	59.7
Short Circuit Current - I _{sc} (A)	8.80	8.84	8.88	8.91
Power Density (W/m²)	207	212	218	223
Panel Efficiency (%)	20.7	21.2	21.8	22.3
Power Output - P _{max} (Wp)	305	312	320	327
Nominal Power Voltage - V _{mp} (V)	46.0	46.6	47.1	47.6
Nominal Power Current - I _{mp} (A)	6.64	6.70	6.80	6.88
Open Circuit Voltage - V _{oc} (V)	55.5	55.8	56.0	56.3
Short Circuit Current - I _{sc} (A)	7.11	7.16	7.20	7.24

Values at standard test conditions (STC: air mass AM1.5, irradiance 1000 W/m², temperature 25°C) based on a production spread with tolerance of P_{max} - V_{oc} < ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM1.5, irradiance 800 W/m², temperature 20°C, wind speed 1 m/s). * Where xxx indicates the nominal power class (P_{max}) at STC above.

CERTIFICATIONS

IEC 61215:2016, IEC 61730:2016, UL 61730
IEC 62804
IEC 61701
IEC 62716
IEC 62782
ISO 11925-2
IEC 61215-2:2016
IEC 62321
IEC 61730-2:2016
ISO 14001, ISO 9001, IEC 45001, IEC 62941



TEMPERATURE RATINGS*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P _{max} :	-0.24 %/°C
Temperature coefficient of V _{oc} :	-0.24 %/°C
Temperature coefficient of I _{sc} :	0.04 %/°C

*The temperature coefficients stated are linear values

MAXIMUM RATINGS

Operational temperature:	-40...+85°C
System voltage:	1000 V
Test load (front):	+7000 Pa (713 kg/m²)
Test load (rear):	-4000 Pa (407 kg/m²)
Series fusing rating:	25 A
Reverse current:	25 A

* See installation manual for mounting instructions. Design load = Test load / 1.5 (safety factor)

WARRANTY

	Standard	REC ProTrust
Installed by an REC Certified Solar Professional	No	Yes
System Size	All	425 kW 25-500 kW
Product Warranty (yrs)	20	25
Power Warranty (yrs)	25	25
Labor Warranty (yrs)	0	10
Power in Year 1	98%	98%
Annual Degradation	0.25%	0.25%
Power in Year 25	92%	92%

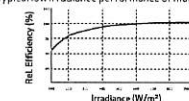
The REC ProTrust Warranty is only available on panels purchased through REC Certified Solar ProTrust installers. Warranty conditions apply. See www.recgroup.com for more details.

DELIVERY INFORMATION

Panels per pallet:	33
Panels per 40 ft GP/high cube container:	858 (26 pallets)
Panels per 13.6 m truck:	924 (28 pallets)

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Available from:

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

REC Solar PTE. LTD.
20 Tuas South Ave. 14
Singapore 637312
pos@recgroup.com
www.recgroup.com

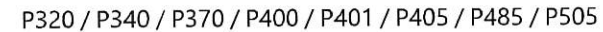


P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505



MI

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety



Rated Input L-C Power (W)	320	320	340	400	435	480	500	Wd	
Absolute Maximum Input Voltage (Vdc at lowest temperature)	48	60	60	60	60	125 V	80	Vdc	
ICPT Operating Range	0 ~ 46	0 ~ 60	0 ~ 60	0 ~ 60	125 ~ 05	125 ~ 80	Vdc		
Maximum Short Circuit Current (A)	11	11.62	11	11.7	11	14	Ad		
Maximum DC Input Current (A)	2.75		2.5		12.5		17.5	Ad	
Maximum Efficiency	99.3							%	
Weighted Efficiency	98.8							%	
Overvoltage Category	II								
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)									
Maximum Output Current	15							Ad	
Maximum Output Voltage	50				80			Vdc	
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)									
Safety Output Voltage per Power Optimizer	1 ± 0.1							Vcc	
STANDARD COMPLIANCE									
EMC	FCC Part 15 Class B, IEC 60900-6-2, IEC 60900-6-3								
Safety	IEC 60700-1 (Class II safety), UL 1741								
Material	UL94 V-0, JM Flammable								
RoHS	Yes								
INSTALLATION SPECIFICATIONS									
Maximum Allowed System Voltage	1000							Vdc	
Compliance in meters	All SolarEdge Single Phase and Three Phase inverters								
Dimensions (W x L x H)	129 x 23 x 27.5 / 5.1 x 6 x 1.1		129 x 12 x 29.5 / 5.1 x 6 x 1.16		129 x 29 x 40.5 / 5.1 x 6 x 1.6		129 x 62 x 59 / 5.1 x 6.4 x 2.3	mm / in	
Weight (including cables)	6.90 / 1.5		7.60 / 1.7		8.45 / 1.9		13.64 / 3.0	kg / lb	
Input Connector	MC4 [®]					Single or dual Wc [®]		1/4"	
Input Wire Length	0.16 / 0.52			0.6 / 0.9 / 0.52 or 0.39		0.16 / 1.52		m / ft	
Output Wire Type / Connection	See Installation Manual								
Output Wire Length	0.9 / 2.95		1.2 / 3.9					m / ft	
Operating Temperature Range	-40 ~ +65 / -40 to +65								
Protection Rating	IP68 / type GP								
Relative Humidity	0 ~ 100								%

(1) For detailed string string information refer to: http://www.miksebridge.com/sites/default/files/string_string.pdf
 (8) It is not allowed to mix $\pm 12/148/3/2^{\circ}\text{C}$ with P50/9/32/3/3/2/3/3/1 in one store
 (9) As the strings with 1200 3000mm does not meet IEC class 3, the requirements will be done as a 90% instrument
 (10) For 77/2 and it is allowed to sell up to 6.700W per string when the maximum power difference between two strings is 70W
 (11) For 777/483 and it is allowed to sell up to 15.300W per string when the maximum power difference between two strings is 3.000W

 **RoHS**

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

solaredge.com

solaredge

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11100 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11100 @ 240V 10000 @ 208V	VA
AC Output Voltage Min./Nom./Max. (21 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min./Nom./Max. (193 - 228 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60.5 Hz							~Z
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Acquisition Delay (t ₀) 0.5 s to 0.8 s							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Factory Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9200	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380						400	Vdc
Maximum Input Current @240V ⁽²⁾	6.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	40							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	60kV Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Hightime Power Consumption ⁽³⁾	< 0.5							W

(1) For other regions, see regional contact SolarEdge support

(2) A higher current source may be used, the inverter will limit its input current to the values stated

Single Phase Inverter with HD-Wave Technology

for North America

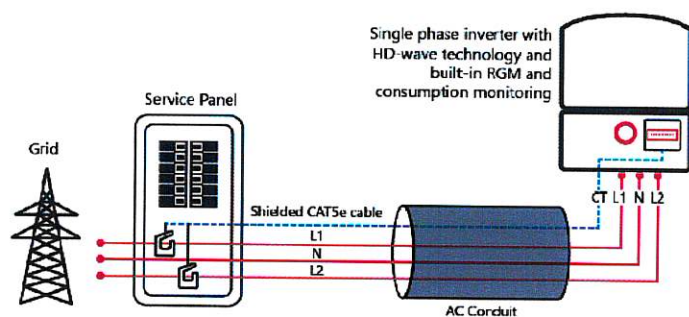
SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional ¹							
Consumption metering	Optional ¹							
Inverter Commissioning	With the SolApp mobile application using the built-in Wi-Fi Access Point for Local Connection							
Rapid Shutdown - A-FC 2014, IFC 2017 and NEC 2020, 690.2	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1895R, CSA C72.7, Canadian AHCI according to UL1895R							
Grid Connection Standards	IEEE1547, Rule 2 ² , Rule 14 (HI)							
Emissions	FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	1" Maximum / 11-6 AWG				1" Maximum / 7-4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 11-6 AWG				1" Maximum / 1-3 strings / 11-6 AWG			
Dimensions with Safety Switch (LxWxD)	7.7 x 14.6 x 6.5 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm	
Weight with Safety Switch	22.13	25.11	31.1	26.21	17.9	38.8 / 17.6	lb / kg	
Noise	< 25				< 50		dBA	
Cooling	Natural Convection							
Operating Temperature Range	-40 to +146 / -40 to +50 ²							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

⁽¹⁾ Inverters with Revenue Grade Meter P/N: SE3800H-US, SE5000H-US, SE6000H-US, SE7600H-US, SE10000H-US, SE11400H-US. For consumption metering, current transformers should be ordered separately: SEAC-075V-2.0NA-20 or SEAC-075V-4.0NA-20 (20 amp per leg).
⁽²⁾ Full power up to at least 50°C / 122°F, for a wider derating information please refer: <https://www.solaredge.com/sites/default/files/temperature-derating-note-na.pdf>

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



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RoHS

Product specifications

Eaton DG221URB

Catalog Number: DG221URB

Eaton General duty non-fusible safety switch, single-throw, 30 A, 240 V, NEMA 3R, Rainproof, Painted galvanized steel, Two-pole, Two-wire

General specifications

Product Name	Catalog Number
Eaton general duty non-fusible safety switch	DG221URB
	UPC
	782113120232
Product Length/Depth	Product Height
6.88 in	10.81 in
Product Width	Product Weight
6.38 in	6 lb
Warranty	Certifications
Eaton Selling Policy 25-000, one (1) year UL Listed from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first,	Catalog Notes
	WARNING! Switch is not approved for service entrance unless a neutral kit is installed.



Product specifications

Product Category
General duty safety switch
Enclosure material
Painted galvanized steel
Type
Non-fusible, single-throw
Fuse configuration
Non-fusible
Number of wires
2
Enclosure
NEMA 3R
Voltage rating
240V
Amperage Rating
30A
Number Of Poles
Two-pole

Resources

Catalogs
Eaton's Volume 2—Commercial Distribution
Multimedia
Double Up on Safety
Switching Devices Flex Center
Specifications and datasheets
Eaton Specification Sheet - DG221URB



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30 Pembroke Road
Dublin 4, Ireland
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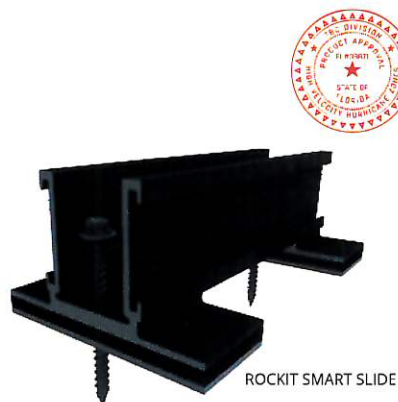


INTRODUCING ROCKIT SMART SLIDE!

Introducing EcoFasten's patent pending RockIt Smart Slide, our simple solution for quickly installing the popular RockIt rail-less racking system to composition shingle roofs.

Features & Benefits

- Eliminates the need to pry up shingle courses and install a metal flashing
- Multiple opportunities to find the rafter
- No need for additional material when architectural shingles are not level
- Longer 6.75" slide avoids overlaps in shingle courses
- Integrated flashing utilizes UltraGrip Technology™ to create a watertight seal



ROCKIT SMART SLIDE

Required Components:

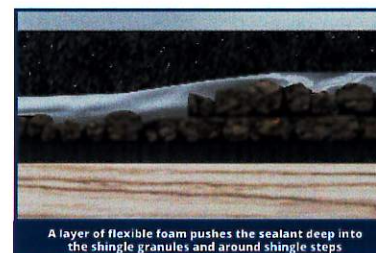
Part Number:	Description:
2011024	RI SMART SLIDE BLK 6.75"
2011025	RI SMART SCRW #12X3" W/BW

ECOFASTENSOLAR.COM

ROCKIT SMART SLIDE

Integrated UltraGrip Technology™

Pre-installed sealing pads are compatible with all composition shingle roofs. The compression achieved when fastened to the roof creates a super strong watertight seal. In most cases, the slide can be mounted to the deck without the need for sealant. A layer of flexible foam provides cushioning, which allows the waterproofing sealant to embed deep into the granules of the shingle as well as to flexibly conform over the steps found on architectural-style shingles.



A layer of flexible foam pushes the sealant deep into the shingle granules and around shingle steps



RockIt Smart Slide can be installed on top of architectural shingles steps

Testing & Documentation

- [UL441 Rain Report](#)
- [TAS 100 \(A\)-95 Wind and Wind Driven Rain Resistance](#)
- [Mechanical Load Test/Structural Capacity Certification](#)
- [Florida Product Approval](#)
- [RockIt Installation Manual](#)
- [RockIt CutSheets](#)



VERSION 1.1



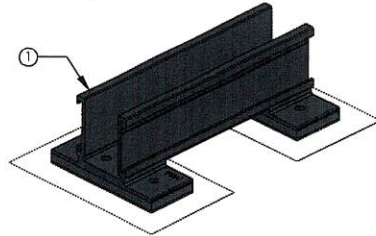
4141 W. VAN BUREN ST, SUITE 2, PHOENIX AZ 85009
1-877-859-3947 | INFO@ECOFASTENSOLAR.COM

PRODUCT CUT SHEET



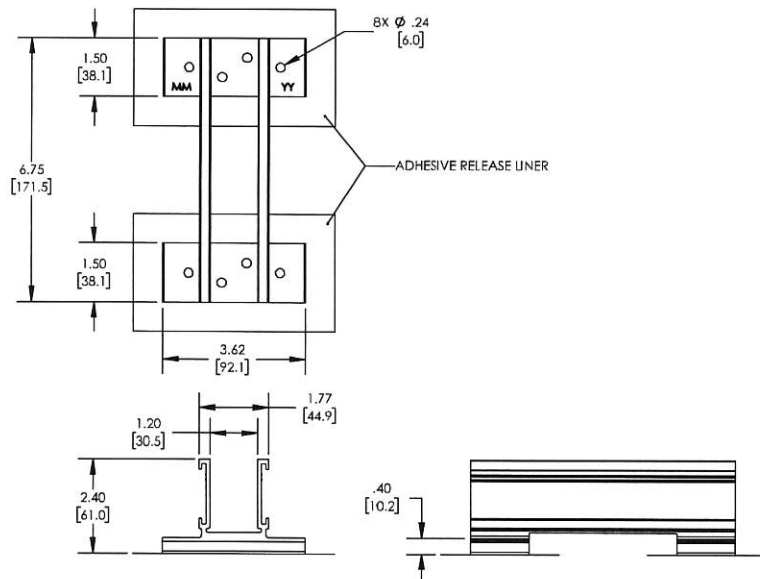
RI SMART SLIDE BLK 6.75"

PART NUMBER	DESCRIPTION
2011024	RI SMART SLIDE BLK 6.75"



ITEM NO.	DESCRIPTION
1	ROCKIT SMART SLIDE ASSEMBLY

1) ROCKIT FLASHLESS SLIDE ASSEMBLY



MATERIAL	ALUMINUM, EPDM, ADHESIVE, TREATED PAPER
FINISH	BLACK

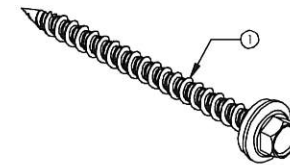
Rev: CS-3

PRODUCT CUT SHEET

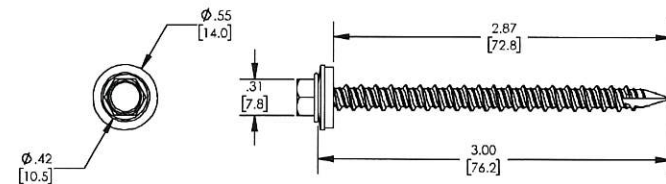


RI SMART SCREW #12X3" W/BW

PART NUMBER	DESCRIPTION
2011025	RI SMART SCREW #12X3" W/BW



ITEM NO.	DESCRIPTION
1	SELF TAPPING SCREW #12 WITH SEALING WASHER ASSEMBLY



MATERIAL	STAINLESS STEEL, EPDM RUBBER
FINISH	MILL, BLACK

Rev: CS-2



ROCKIT

COMPLETE RAIL-LESS RACKING SYSTEM

The RockIt system is the industry's premier rail-less PV racking system for composition shingle, tile, and metal roofs. Designed in conjunction with the needs of installers, RockIt quickly & easily installs with a single tool. Featuring an easy-to-position alignment slide and a top-down leveling system, RockIt is logistically intelligent with no need to ship or transport long rails. Components are available in a black finish that complements both commercial and residential applications. Conforms to UL 2703.

FEATURES & BENEFITS

- Patented watertight technology
- Fully integrated bonding
- Top-down leveling system
- North-South adjustability
- Single tool install
- Florida Product Approved for composition shingle roofs

STREAMLINED INSTALLATION WITH MINIMAL ROOF PENETRATIONS



Composition Shingle,
Tile, Metal



Rail-Less



Structural-Attach
Direct-Attach



ECOFASTENSOLAR.COM

ROCKIT

ROCKIT COUPLING

The fast installing Rockit Coupling easily attaches to the module frame to bridge the gaps between modules.

SKIRT

The sleek black Skirt installs first and acts as an alignment guide for the entire array. The Skirt End Cap does double duty as a skirt coupling device and an aesthetically-pleasing finishing touch.

ROCKIT MOUNT

Featuring integrated bonding pins, the Rockit Mount connects to the Slide and can easily be positioned for fast installation. Features top-down leveling.



ROCKIT COMP SLIDE

Available in four variations, the Rockit Slide allows installation on composition shingle, tile, and metal roofs.

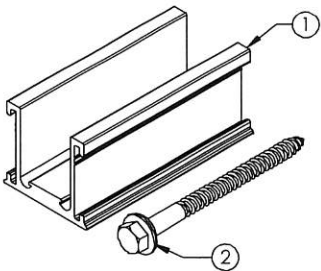
FRAME MLPE MOUNT

Attaches and fully bonds MLPE's (Module Level Power Electronics) to the module frame with a single bolt clip.



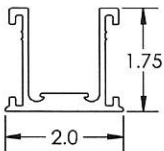
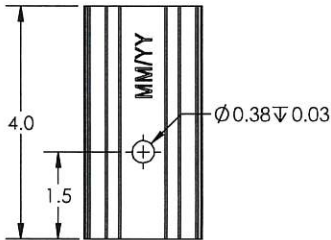
RI COMP SLIDE AL BLK

PART NUMBER	DESCRIPTION
2011013	RI COMP SLIDE AL BLK



ITEM NO.	DESCRIPTION
1	ROCKIT V3 SLIDECOMP
2	LAG SCREW, 5/16-4", THREAD 3", EPDM BACKED WASHER

1) ROCKIT V3 SLIDECOMP

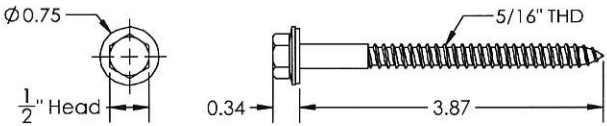


Material	Aluminum
Finish	Black

REV.- CS1

RI COMP SLIDE AL BLK

2) LAG SCREW, 5/16-4", THREAD 3", EPDM BACKED WASHER

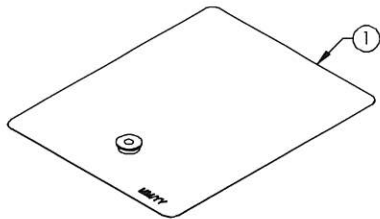


Material	Stainless Steel
Finish	Mill

REV.- CS1

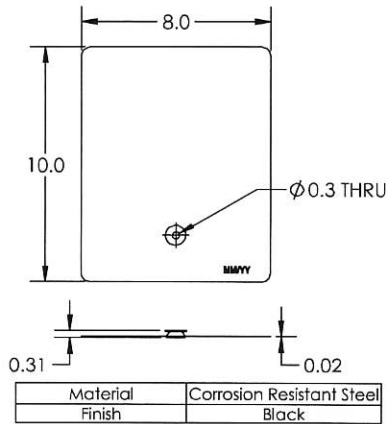
GF-1 FLASHING GLV BLK 8X10"

PART NUMBER	DESCRIPTION
3012020	GF-1 FLASHING GLV BLK 8X10"



ITEM NO.	DESCRIPTION
1	GF1M-GAL-BLK-810 W/O WASHER ASSEMBLY

1) GF1M-GAL-BLK-810 W/O WASHER ASSEMBLY



REV.- CS1



July 5, 2022

EcoFasten Solar LLC
4141 W Van Buren St, Ste 2
Phoenix, AZ 85009
TEL: (877) 859-3947

Attn.: Eco Fasten Solar LLC - Engineering Department

Re: Report # 2015-05884HG.07.01 – EcoFasten - RockIt System for Gable and Hip Roofs
Subject: Engineering Certification for the State of South Carolina

PZSE, Inc. – Structural Engineers has provided engineering and span tables for the EcoFasten - RockIt System, as presented in PZSE Report # 2015-05884HG.07.01, "Engineering Certification for the EcoFasten - RockIt System for Gable and Hip Roofs". All information, data, and analysis therein are based on, and comply with, the following building codes and typical specifications:

- Building Codes:
1. ASCE/SEI 7-10 & 7-16 Minimum Design Loads for Buildings and Other Structures, by American Society of Civil Engineers
 2. 2012, 2015, & 2018 International Building Code
 3. 2012, 2015, & 2018 International Residential Code
 4. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES
 5. Aluminum Design Manual 2010 & 2018, by The Aluminum Association, Inc.
 6. ANSI/AWC NDS-2015 & 2018, National Design Specification for Wood Construction, by the American Wood Council

Design Criteria:

Risk Category II
Seismic Design Category = A - E
Exposure Category = B, C & D
Basic Wind Speed (ultimate) per ASCE 7-16 = 90 mph to 180 mph
Ground Snow Load = 0 to 60 (psf)

This letter certifies that the loading criteria and design basis for the EcoFasten - RockIt System Span Tables are in compliance with the above codes.

If you have any questions on the above, do not hesitate to call.

Prepared by:
PZSE, Inc. – Structural Engineers
Roseville, CA

DIGITALLY SEALED



1478 Stone Point Drive, Suite 190, Roseville, CA 95661
T 916.961.3960 F 916.961.3965 W www.pzse.com
Experience | Integrity | Empowerment

DONALD L. LOVE JR, ARCHITECT, AIA

608 Otis Boulevard, Spartanburg, SC · 864.415.0459

lovejrd@gmail.com

September 5, 2023

Martin Livingston
City of Spartanburg
Neighborhood Services Director

Re: 527 Beaumont Avenue

Dear Martin,

The purpose of this letter is to assist the Spartanburg Historic Architecture Review Board with a determination of appropriateness for the installation of solar panels on the roof at 527 Beaumont Avenue, in the Beaumont Mill Historic District. Review of Solar Panels on Historic Properties from the National Park Service forms the basis for my opinion. I have also reviewed Solar Panels and Historic Buildings from the City of Columbia, S.C.

The applicant has requested approval to install solar panels on the front roof slope of the house, facing the street. Product information, drawings, and details were provided.

The Guidelines for the Historic District do not address the installation of solar panels, however, National Park Service document, Solar Panels on Historic Properties, does address the issue. It states "Solar panels installed on a historic property in a location that cannot be seen from the ground will generally meet the Secretary of the Interior's Standards for Rehabilitation".

The City of Columbia's City Ordinance does not address solar panels. In order to clarify the issue, the City of Columbia prepared the document Solar Panels and Historic Buildings. It states the following:

- Installation of panels should be reversible and not damage historic integrity, detract from the historic character, alter character defining features, or remove historic materials;
- Panels should be installed so that they do not alter the slope of the roof; consider using on rear slopes to minimize visibility from the public right-of-way;
- Solar panels should be positioned behind existing architectural features such as parapets, dormers, and chimneys; and
- Freestanding or detached solar panels should be installed in locations that minimize visibility from the public right of way; consider using screening if needed.

On September 1, 2023, I visited the property with you, Ms. Nan Zhou, and Ms. Tia Keitt to observe the conditions. Based on my observations on site and the documentation provided, installation of solar panels on the front of the house will not meet the Standards because they will be visible from the street. It is recommended that the property owner explore placing the panels on the rear roof slope where they will not be visible.

Please let me know if you have any questions or require any additional information.

Regards,



Donald L. Love, Jr, Architect, AIA
Historic Preservation

STAFF APPROVED MINOR WORKS SINCE AUGUST 10, 2023 MEETING

Approved Date	Street Address	Approved Work
8/14/2023	300 Hydrick St.	Repairing carport supporting column (left-side) to its original appearance, matching the column to the right side.
8/18/2023	299 S. Spring St	Fence permit approval
8/23/2023	172 W. Hampton Ave.	Repairing siding and trim on exterior of the house with like for like material (This request was originally approved as a minor work COA on 9/30/2019, but the work had not been completed prior to the closing of the building permit). Add gutters to the house to reduce water damage and runoff to the east side (first floor) and north side of the house (second floor).
9/1/2023	172 W. Hampton Ave.	Replacing the existing tongue and groove porch floor with identical T&G flooring due to structural rot. (While repairing the front porch, the porch roof will be held up with temporary supports, all columns and railings will be removed and preserved for re-installation following the floor replacement).