STAFF RECOMMENDATION

Staff recommends that the HPC approve the HAWP application.

ARCHITECTURAL DESCRIPTION

SIGNIFICANCE: Non-Contributing Resource within the Takoma Park Historic District
STYLE: Bungalow Revival
DATE: 1980s

PROPOSAL

The applicant proposes to install 10 roof-mounted solar panels at the subject property.
APPLICABLE GUIDELINES

When reviewing alterations and new construction within the Takoma Park Historic District several documents are to be utilized as guidelines to assist the Commission in developing their decision. These documents include the historic preservation review guidelines in the approved and adopted amendment for the Takoma Park Historic District (Guidelines), Montgomery County Code Chapter 24A (Chapter 24A), Historic Preservation Commission Policy No. 20-01: ADDRESSING EMERGENCY CLIMATE MOBILIZATION THROUGH THE INSTALLATION OF ROOF-MOUNTED SOLAR PANELS (Policy No. 20-01), and the Secretary of the Interior’s Standards for Rehabilitation (Standards). The pertinent information in these documents is outlined below.

Takoma Park Historic District Guidelines

There are two very general, broad planning and design concepts which apply to all categories. These are:

- The design review emphasis will be restricted to changes that are all visible from the public right-of-way, irrespective of landscaping or vegetation (it is expected that the majority of new additions will be reviewed for their impact on the overall district), and

- The importance of assuring that additions and other changes to existing structures act to reinforce and continue existing streetscape, landscape, and building patterns rather than to impair the character of the historic district.

NON-CONTRIBUTING /OUT-OF-PERIOD RESOURCES – RESIDENTIAL

Non-Contributing/Out-of-Period Resources are either buildings that are of little or no architectural and historical significance to the historic district or are newer buildings that have been constructed outside of the district’s primary periods of historical importance.

These types of resources should receive the most lenient level of design review. Most alterations and additions to Non-Contributing/Out-of-Period Resources should be approved as a matter of course. The only exceptions would be major additions and alterations to the scale and massing of Non-Contributing/Out-of-Period Resources which affect the surrounding streetscape and/or landscape and could impair the character of the historic district as a whole.

Demolition of Non-Contributing/Out-of-Period Resources should be permitted. However, any new building constructed in the place of a demolished building should be reviewed under the guidelines for new construction that follow.

Montgomery County Code; Chapter 24A-8

(b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:

(1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or

(2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter; or
I.D

(3) The proposal would enhance or aid in the protection, preservation and public or private utilization of the historic site or historic resource located within an historic district in a manner compatible with the historical, archeological, architectural or cultural value of the historic site or historic district in which an historic resource is located; or

(4) The proposal is necessary in order that unsafe conditions or health hazards be remedied; or

(5) The proposal is necessary in order that the owner of the subject property not be deprived of reasonable use of the property or suffer undue hardship; or

(6) In balancing the interests of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit.

(c) It is not the intent of this chapter to limit new construction, alteration or repairs to any 1 period or architectural style.

(d) In the case of an application for work on an historic resource located within an historic district, the commission shall be lenient in its judgment of plans for structures of little historical or design significance or for plans involving new construction, unless such plans would seriously impair the historic or architectural value of surrounding historic resources or would impair the character of the historic district. (Ord. No. 9-4, § 1; Ord. No. 11-59.)

Historic Preservation Commission Policy No. 20-01: ADDRESSING EMERGENCY CLIMATE MOBILIZATION THROUGH THE INSTALLATION OF ROOF-MOUNTED SOLAR PANELS

On December 5, 2017, the Montgomery County Council adopted an Emergency Climate Mobilization resolution (Resolution No.: 18-974) which declared a climate emergency and charged the County Executive, Montgomery County Public Schools, and the Maryland-National Capital Park and Planning Commission to advise the Council on methods to reduce greenhouse gas emissions.

As a body established by the County Executive, it is incumbent on the Historic Preservation Commission (HPC) to undertake steps to achieve the goals of the Emergency Climate Mobilization resolution.

One method for reducing greenhouse gas emissions is to replace carbon-heavy methods of energy production, like coal and natural gas power plants, with renewable sources like wind and solar power. Current historic preservation best practice is to limit the locations solar panels may be installed to preserve the character of the building above all other considerations. Chapter 24A-8(b)(6) of County Code establishes a balancing test for approval of a HAWP where there is an apparent conflict between the desired impact on the historic resource compared to the public benefit of the proposal. Because the widespread use of solar panels, both for hot water and for electricity production, will reduce greenhouse gases in the county, it is the position of the HPC that solar panels may be installed on all roof elevations of historic sites or historic resources located within a historic district provided:

1. The identified preferred location (on the rear of the property, building additions, accessory structures, or ground-mounted arrays) is not feasible due to resource orientation or other site limitations and;
2. The roof is not either architecturally significant or a slate or tile roof unless it can be demonstrated that the solar array will be installed without damaging the historic character of the resource or historic fabric; and

3. A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

Now, THEREFORE:

WHEREAS, Historic Area Work Permit decisions are guided by the criteria in Section 24A, The Secretary of the Interior’s Standards for Rehabilitation, and pertinent guidance from applicable master plan amendments and/or site or district-specific studies;

WHEREAS, The Secretary of the Interior’s Standards for Rehabilitation as interpreted by the National Park Service limit the placement of rooftop solar panels under Standards 2, 9, and 10 to less conspicuous locations;

WHEREAS, the County Council has established a Climate Emergency;

WHEREAS, the Historic Preservation is a body established by the County Executive and County Council;

WHEREAS, Section 24-8(b)(6) states, “In balancing the interest of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit;”

WHEREAS, the widespread use of solar panels, both for hot water and for electricity production, will reduce greenhouse gases in the county, in accordance with the aims of the Emergency Climate Mobilization resolution (Resolution No.: 18-974), it shall be the policy of the Historic Preservation Commission that:

1. The preferred locations for solar panel installation(s) on a designated historic site or an historic resource located within an historic district is a) on the rear of the property, b) on non-historic building additions, c) on accessory structures, or d) in ground-mounted arrays;

2. If it is not feasible to install solar panels in one of the identified preferred locations due to resource orientation or other site limitations; and,

3. The roof is determined to be neither architecturally significant, nor a character-defining feature of the resource, nor is it a slate or tile roof, that unless it can be demonstrated that the solar array will be installed without damaging the historic character of the resource or historic fabric; then

4. The public welfare is better served by approving a Historic Area Work Permit for solar panels on all visible side or front roof slopes under Section 24A-8(b)(6).

5. A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

Secretary of the Interior’s Standards for Rehabilitation:

The Secretary of the Interior defines rehabilitation as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values.” The Standards are as follows:
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

**STAFF DISCUSSION**

The applicant proposes to install 10 roof-mounted solar panels at the subject property. The solar panels will be installed on the southern (front) roof slope of the main house.

Staff finds the proposal to be consistent with the Commission’s solar policy. The subject property is moderately forested, and the house is oriented with its front to the south, making it infeasible to install the proposed solar panels in a preferred location (on the rear of the property, building additions, accessory structures, or ground-mounted arrays). Also, because the resource is a c. 1980s Non-Contributing Resource, the roof is neither architecturally significant, nor a character-defining feature of the resource, nor is it a slate or tile roof.

The proposal is not a major addition or alteration to the scale and massing that will affect the surrounding streetscape and/or landscape or impair the character of the historic district as a whole. Therefore, in accordance with the Guidelines for Non-Contributing Resources, the proposal should receive the most lenient level of design review, and most alterations should be approved as a matter of course.

In accordance with Standards #2 and #9, the proposal will not remove or alter character-defining features of the subject property or surrounding streetscape.

After full and fair consideration of the applicant’s submission staff finds the proposal as being consistent with the Criteria for Issuance in Chapter 24A-8(b), (1), (2) & (d), having found the proposal is consistent with the Secretary of the Interior’s Standards for Rehabilitation #2 and #9, and Takoma Park Historic District Guidelines, and the HPC Policy No. 20-01, as outlined above.

**STAFF RECOMMENDATION**

Staff recommends that the Commission approve the HAWP application under the Criteria for Issuance in Chapter 24A-8(b), (1), (2) & (d) having found that the proposal is consistent with the Takoma Park Historic District Guidelines, and therefore will not substantially alter the exterior features of the historic resource and is compatible in character with the district and the purposes of Chapter 24A;

and with the Secretary of the Interior’s Standards for Rehabilitation #2 and #9;

and with HPC Policy 20-01;

and with the general condition that the applicant shall present the 3 permit sets of drawings, if applicable, to Historic Preservation Commission (HPC) staff for review and stamping prior to submission for the Montgomery County Department of Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the Commission as a revised HAWP application at staff’s discretion;
and with the general condition that the applicant shall notify the Historic Preservation Staff if they propose to make any alterations to the approved plans. Once the work is completed the applicant will contact the staff person assigned to this application at 301-563-3400 or michael.kyne@montgomeryplanning.org to schedule a follow-up site visit.
APPLICATION FOR
HISTORIC AREA WORK PERMIT
HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT:

Name: ELLIOTT ANDALMAN E-mail: eandalman@gmail.com
Address: 6 MONTGOMERY AVE City: TAKOMA PARK Zip: 20912
Daytime Phone: 301-980-4367 Tax Account No.: 01066791

AGENT/CONTACT (if applicable):

Name: AARON WILLIAMS E-mail: awilliams@fusionss.net
Address: 3600 COMMERCE DR, #601 City: BALTIMORE Zip: 21227
Daytime Phone: 443-425-5988 Contractor Registration No.: MHIC 30991

LOCATION OF BUILDING/PREMISE:

MIHP # of Historic Property_____________________________

Is the Property Located within an Historic District? Yes/District Name TAKOMA PARK
No/Individual Site Name__________________________

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

Are other Planning and/or Hearing Examiner Approvals /Reviews Required as part of this Application? (Conditional Use, Variance, Record Plat, etc.?) If YES, include information on these reviews as supplemental information.

Building Number: ________________ Street: ______________________________________________

Town/City: __________________________ Nearest Cross Street: __________________________________

Lot: ____________ Block: ___________ Subdivision: _______ Parcel: _____

TYPE OF WORK PROPOSED: See the checklist on Page 4 to verify that all supporting items for proposed work are submitted with this application. Incomplete Applications will not be accepted for review. Check all that apply:

☐ New Construction ☐ Deck/Porch ☐ Shed/Garage/Accessory Structure
☐ Addition ☐ Fence ☐ Solar
☐ Demolition ☐ Hardscape/Landscape ☐ Tree removal/planting
☐ Grading/Excavation ☐ Roof ☐ Window/Door
☐ Other:________________________

I hereby certify that I have the authority to make the foregoing application, that the application is correct and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

Signature of owner or authorized agent 8/27/2020
### HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFING
[Owner, Owner’s Agent, Adjacent and Confronting Property Owners]

<table>
<thead>
<tr>
<th>Owner’s mailing address</th>
<th>Owner’s Agent’s mailing address</th>
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<tbody>
<tr>
<td>6 MONTGOMERY AVE</td>
<td>3600 COMMERCE DR, # 601</td>
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<tr>
<td>TAKOMA PARK, MD 20912</td>
<td>BALTIMORE, MD 21227</td>
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<th>Adjacent and confronting Property Owners mailing addresses</th>
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<tr>
<td>POLLY DUNFORD</td>
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<tr>
<td>8 MONTGOMERY AVE</td>
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<td>TAKOMA PARK, MD 20912</td>
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<tr>
<td>HUGH MORALES</td>
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<tr>
<td>10 PINE AVE</td>
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<td>TAKOMA PARK, MD 20912</td>
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<td>LEAH CURRY</td>
</tr>
<tr>
<td>5 MONTGOMERY AVE</td>
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<td>TAKOMA PARK, MD 20912</td>
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Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

HOME IS IN EXCELLENT CONDITION. THERE ARE SEVERAL TREE IN THE FRONT YARD WHICH WILL HELP CONCEAL THE ADDITION OF SOLAR PANELS.

Description of Work Proposed: Please give an overview of the work to be undertaken:

INSTALLING 10 ROOF MOUNTED SOLAR PANELS. 2 PANELS ARE GOING WHERE SKYLIGHTS USED TO BE, AND THERE WILL BE 4 PANELS ON EACH DORMER ON THE MAIN ROOF OF THE HOUSE.
<table>
<thead>
<tr>
<th>Work Item 1: <strong>SOLAR INSTALLATION</strong></th>
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<tbody>
<tr>
<td><strong>Description of Current Condition:</strong></td>
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<tr>
<td><strong>HOME IS IN GREAT SHAPE AND DOES NOT NEED ANY ADDITIONAL WORK TO ALLOW FOR SOLAR PANELS</strong></td>
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<tr>
<td><strong>Proposed Work:</strong></td>
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<td><strong>INSTALL 10 ROOF MOUNTED SOLAR PANELS</strong></td>
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<th>Work Item 2: ______________________</th>
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<td><strong>Description of Current Condition:</strong></td>
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<td><strong>Proposed Work:</strong></td>
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<th>Work Item 3: ______________________</th>
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<td><strong>Description of Current Condition:</strong></td>
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<td><strong>Proposed Work:</strong></td>
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# HISTORIC AREA WORK PERMIT

**CHECKLIST OF APPLICATION REQUIREMENTS**

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<td>Driveway/ Parking Area</td>
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<td>Tree Removal</td>
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<td>Siding/ Roof Changes</td>
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<td>Window/ Door Changes</td>
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HISTORIC AREA WORK PERMIT APPLICATION
Application Date: 8/25/2020

Affidavit Acknowledgement
The Contractor is the Primary applicant authorized by the property owner
This application does not violate any covenants and deed restrictions

Primary Applicant Information
Address 6 MONTGOMERY AVE
TAKOMA PARK, MD 20912
Othercontact Rice (Primary)

Historic Area Work Permit Details
Work Type ALTER
Scope of Work INSTALL 10 ROOF MOUNTED SOLAR PANELS
Street view is much older than satellite image. Old skylights are no longer there.
SOLAR PV SYSTEM: 3.6 kWp

ANDALMAN RESIDENCE
6 MONTGOMERY AVENUE TAKOMA PARK, MD UNITED STATES 20912

PROJECT INFORMATION
OWNER: ELLIOTT ANDALMAN
ADDRESS: 6 MONTGOMERY AVENUE
TAKOMA PARK, MD UNITED STATES 20912
AHJ: MONTGOMERY
ADDRESS: 255 ROCKVILLE PIKE, 2ND
FLOOR ROCKVILLE, MD 20850
ZONING: RESIDENTIAL
BUILDING CODE: IBC 2018
ELECTRICAL CODE: NEC 2017
ASCE VERSION: ASCE 7-16
SNOW LOAD: 30 PSF
WIND SPEED: 115 MPH
WIND EXPOSURE: B
DC RATING: 3.6 kW
AC RATING: 2.9 kW
RACKING: UNIRAC SM LIGHT RAIL
MODULE: (10) REC360AA
INVERTER: (10) IQ7PLUS-72-2-US

GENERAL NOTES
1) THE PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURER'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
2) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (2).
3) THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM, AND THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE.
4) ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE AND AS REQUIRED BY THE NEC AND AHJ.
5) PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.

INDEX OF PAGES
Z001 COVER PAGE
A001 ATTACHMENT & SITE PLAN
S001 ASSEMBLY & LOAD CALCS
E001 ELECTRICAL - LINE DIAGRAM
E002 ELECTRICAL - WIRE CALCS
E003 STRING & CONDUIT LAYOUT
E004 EQUIP. RATINGS & SIGNAGE

APPENDIX
MODULE DATASHEET
INVERTER DATASHEET
RACKING DATASHEET
ANCHOR DATASHEET

专业认证：我 hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No.: 41308 Exp. Date: 01-06-2022

STAMPED AND SIGNED FOR STRUCTURAL ONLY
8/18/2020

Fusion Solar Services
3600 Commerce Dr
Suite 601
Baltimore, MD 21227
(443) 955-0779

LICENSE NUMBER:
MHIC-30991

15
- ALL SOLAR MODULES SUPPORTED BY ROOF ATTACHMENTS 48" O.C.

- SOLAR PHOTOVOLTAIC SYSTEM INSTALLED PARALLEL TO ROOF SURFACE

- SOLAR PHOTOVOLTAIC SYSTEM INSTALLED AT A MAXIMUM HEIGHT OF 6" ABOVE ROOF SURFACE

---

**INSTALLATION NOTES**

1. **ALL RACKING SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS**

2. **ALL ROOFING PENETRATIONS SHALL BE EMBEDDED IN STRUCTURAL MEMBERS AND PROPER FLASHING SEALANT SHALL BE USED TO PROVIDE WATERTIGHT ASSEMBLY**

3. **WHEN POSSIBLE, ALL RACKING STANDOFFS WILL BE STAGGERED AMONGST THE ROOF SUPPORT MEMBERS**

4. **REFER TO PAGE S001 FOR MAXIMUM ALLOWABLE RAIL SPAN AND MODULE OVERHANG, AND ATTACHMENT DETAILS**

5. **ALL RACKING AND STRUCTURAL WORK FOR THIS PROJECT SHALL COMPLY WITH BUILDING CODE, IBC 2018 AND ASCE 7-16**

---

**FOR ENGINEERING USE ONLY**

**FOR PERMITTING USE ONLY**

**attachment & site plan A001**

---

**Professional Certification:** I hereby certify that these documents were prepared or approved by me and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No.: 41308 Exp. Date: 01-06-2022

STAMPED AND SIGNED FOR STRUCTURAL ONLY

---

**CONTRACTOR INFO:**

3600 COMMERCE DR

SUITE 601

BALTIMORE, MD 21227

(443) 955-0779

LICENSE NUMBER:

MHIC-30991

---

**PROJECT ADDRESS:**

ELLIOTT ANDALMAN

6 MONTGOMERY AVENUE

TAKOMA PARK, MD 20912

UNITED STATES 20912

---

**REVIEW DATE**

IFC 8/25/2020
1) ALL RACKING SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS
2) M.L.E.'S = MODULE LEVEL ELECTRONICS (IE, POWER OPTIMIZERS, MICRO-INVERTERS, CABLES, ETC)
3) USE 5/16" X 4" HEX HEAD STAINLESS STEEL LAG SCREWS
4) ALL RACKING AND STRUCTURAL WORK FOR THIS PROJECT SHALL COMPLY WITH BUILDING CODE, IBC 2018 AND ASCE 7-16

SITE CONDITIONS

| WIND SPEED | 115 MPH |
| SNOW LOAD | 30 PSF |
| ROOF ZONE (TYP.) | 3 |

TOTAL ARRAY AREA (SQ.FT.)

| DISTRIBUTED LOAD (PSF) | 2.81 |

POINT LOAD CALCULATION

| TOTAL ARRAY WEIGHT (LBS) | 529.5 |
| TOTAL NUMBER OF STANDOFFS (TYP.) | 35 |
| POINT LOAD (LBS/STANDOFF) | 15.13 |

MOUNTING SYSTEM PROPERTIES

| RACKING | UNIRAC SM LIGHT RAIL |
| STANDOFF | UNIRAC FLASHLOC |

FASTENING DETAILS

| MAX. RAIL SPAN | 48" |
| MIN. FASTENER DEPTH | 2.25" |
| MAX. RAIL CANTILEVER | 16" |
| MAX. ARRAY HEIGHT | 6" |

STANDOFF MOUNTING SYSTEM PROPERTIES

| FASTENING DETAILS | SEE NOTE 3 |
| MAX. RAIL SPAN | 48" |
| MIN. FASTENER DEPTH | 2.25" |
| MAX. RAIL CANTILEVER | 16" |
| MAX. ARRAY HEIGHT | 6" |

DEAD LOAD CALCULATION

| LOAD | QTY. OR LIN. FT. | WEIGHT PER (LB) | TOTAL LBS. |
| MODULES | 10 | 43 | 430.00 |
| M.L.E.'S | 10 | 2.38 | 23.80 |
| RACKING | 71.9 | 0.81 | 58.22 |
| STANDOFF | 35 | 0.5 | 17.50 |

TOTAL ARRAY WEIGHT (LBS) 529.5

TOTAL ARRAY AREA (SQ.FT.) 188.2

DISTRIBUTED LOAD (PSF) 2.81

RACKING AND STRUCTURAL NOTES

1) ALL RACKING SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS
2) M.L.E.'S = MODULE LEVEL ELECTRONICS (IE, POWER OPTIMIZERS, MICRO-INVERTERS, CABLES, ETC)
3) USE 5/16" X 4" HEX HEAD STAINLESS STEEL LAG SCREWS
1) All equipment to be listed and labeled for its application

2) Working clearances around all new and existing electrical equipment shall comply with NEC110.26

3) If used, PV power source breaker to be located at bottom of bus per NEC690.64(b)(7)

4) Listing agency name and number to be indicated on inverters and modules per NEC110.3(b)

5) AC combiner panels shall be labeled as "inverter AC combiner panel"

5) PV power source to be suitable for backfeed per NEC690.64(b)(5)
Interconnection
Line Side Tap
Wire Size #10 AWG

WIRE SIZING CALCULATION
2011/2014 NEC Article 310

Full Load Amperage.............. 12.1
Source Voltage.............. 240
Length of Run (F).............. 30
Load Duty............. Continuous
Conductor Type........ THWN-2
Conductor Material........ Copper
Conductor Location........ Dry or Wet
Conductor Insulation Temperature : 90 °C
Ambient Temperature........ 26-30 °C = 78-86 °F
Terminal Temperature Rating : 60 °C
Circuit Type........ Single Phase 2 Wire (2 phase conductors, or phase & neutral)
Qty. of Current-Carrying Conductors : 2

Conductor Requirement:
Full Load Amps.............. 12.1
Load Duty Multiplier : 1.25

Required Conductor Ampacity: 17.99
Terminal Requirement:
Full Load Amps.............. 12.1
Load Duty Multiplier : 1.25

Required Terminal Ampacity: 15.13
Selected Conductor:
Conductor Ampacity........ 40.0
Ambient Temp. Derate : 0.87
Qty. Conductors Derate : 1.0

Adjusted Ampacity.............. 34.8
SELECTED CONDUCTOR SIZE: 10 Awg
2 x Ohms/MItp x Length x Amps = 2 x 1.24 x 30 x 17.99
VD = 1000 x 1000 = 1000 x 1

Volts At Load Terminals........ 238.1
Actual Percent Voltage Drop : 0.68

Combiner to Array
Wire Length 50'
Wire Size #10 AWG

CALCULATION FOR MAIN PV BREAKER & CIRCUITS

SYSTEM CURRENT: = 1.21 x 16
16 x 15.125 = 15.13 A

MAIN BUS RATING: = 200 x 120%
200 x 240 = 200 A

MAX SOLAR BREAKER: = 200 x 120%
200 x 240 = 200 A

CIRCUIT #1 = 10 x 120% = 12.1 A

1.21 x 125% = 15.125 A

CALCULATION FOR PV BREAKER & CIRCUITS

SYSTEM CURRENT: = 1.21 x 16
16 x 15.125 = 15.13 A

MAIN BUS RATING: = 200 x 120%
200 x 240 = 200 A

MAX SOLAR BREAKER: = 200 x 120%
200 x 240 = 200 A

CIRCUIT #1 = 10 x 120% = 12.1 A

ELECTRICAL NOTES

1) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 90 °C AND WET ENVIRONMENT, UNLESS OTHERWISE NOTED.
2) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
3) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER MANUFACTURER’S INSTRUCTION.
4) MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER GEC VIA WEEB LUG PER NEC690.4(c)
ELECTRICAL NOTES

PROJECT ADDRESS:
ELLIOTT ANDALMAN
6 MONTGOMERY AVENUE
TAKOMA PARK, MD
UNITED STATES 20912

LICENSE NUMBER:
MHIC-30991

CONTRACTOR INFO:
3600 COMMERCE DR
SUITE 601
BALTIMORE, MD 21227
(443) 955-0779

FOR PERMITTING USE ONLY
8/25/2020

STRING & CONDUIT LAYOUT

Utility Meter
AC Disconnect
AC Combiner

ROOF A
PITCH: 45°
AZIMUTH: 170°

ROOF B
PITCH: 21°
AZIMUTH: 170°

ROOF C
PITCH: 32°
AZIMUTH: 170°

FRONT
**SOLAR MODULE RATINGS**

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>67.75 in</td>
</tr>
<tr>
<td>Width</td>
<td>40 in</td>
</tr>
<tr>
<td>Thickness</td>
<td>1.18 in</td>
</tr>
<tr>
<td>Weight</td>
<td>43 lbs</td>
</tr>
<tr>
<td>Imp (A)</td>
<td>9.55 A</td>
</tr>
<tr>
<td>Vmp (V)</td>
<td>37.7 V</td>
</tr>
<tr>
<td>Voc (V)</td>
<td>44.3 V</td>
</tr>
<tr>
<td>Isc (A)</td>
<td>10.16 A</td>
</tr>
<tr>
<td>OCPD (A)</td>
<td>25 A</td>
</tr>
<tr>
<td>Pmax (W)</td>
<td>360 W</td>
</tr>
<tr>
<td>Vmax (V)</td>
<td>1000 V</td>
</tr>
<tr>
<td>Temp. Coefficient (% Voc%/°C)</td>
<td>-0.24</td>
</tr>
</tbody>
</table>

**INVERTER 1 RATINGS**

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max # Per String</td>
<td>13</td>
</tr>
<tr>
<td>Imax (ac) (A)</td>
<td>1.21 A</td>
</tr>
<tr>
<td>Vmax (dc) (V)</td>
<td>60 V</td>
</tr>
<tr>
<td>Pmax (W)</td>
<td>290 W</td>
</tr>
<tr>
<td>Nom. AC Voltage (V)</td>
<td>240 V</td>
</tr>
<tr>
<td>OCPD (A)</td>
<td>20 A</td>
</tr>
<tr>
<td>Weight (Optimier)</td>
<td>2.38 lbs</td>
</tr>
<tr>
<td>Imax (Input) (A)</td>
<td>15 A</td>
</tr>
<tr>
<td>Pmax (dc) Input (W)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**INVERTER 2 RATINGS**

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>VALUE</th>
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</thead>
<tbody>
<tr>
<td>Max # Per String</td>
<td>0</td>
</tr>
<tr>
<td>Imax (ac) (A)</td>
<td>0 A</td>
</tr>
<tr>
<td>Vmax (dc) (V)</td>
<td>0 V</td>
</tr>
<tr>
<td>Pmax (W)</td>
<td>0 W</td>
</tr>
<tr>
<td>Nom. AC Voltage (V)</td>
<td>0 V</td>
</tr>
<tr>
<td>OCPD (A)</td>
<td>0 A</td>
</tr>
<tr>
<td>Weight (Optimier)</td>
<td>0 lbs</td>
</tr>
<tr>
<td>Imax (Input) (A)</td>
<td>0 A</td>
</tr>
<tr>
<td>Pmax (dc) Input (W)</td>
<td>0</td>
</tr>
</tbody>
</table>

**INVERTER 3 RATINGS**

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max # Per String</td>
<td>0</td>
</tr>
<tr>
<td>Imax (ac) (A)</td>
<td>0 A</td>
</tr>
<tr>
<td>Vmax (dc) (V)</td>
<td>0 V</td>
</tr>
<tr>
<td>Pmax (W)</td>
<td>0 W</td>
</tr>
<tr>
<td>Nom. AC Voltage (V)</td>
<td>0 V</td>
</tr>
<tr>
<td>OCPD (A)</td>
<td>0 A</td>
</tr>
<tr>
<td>Weight (Optimier)</td>
<td>0 lbs</td>
</tr>
<tr>
<td>Imax (Input) (A)</td>
<td>0 A</td>
</tr>
<tr>
<td>Pmax (dc) Input (W)</td>
<td>0</td>
</tr>
</tbody>
</table>

**SOLAR PV LOADCENTER**

**3.6 kW DC SOLAR ARRAY**

**240 VOLT AC SYSTEM**

**INSTALLED COMPONENTS**

+ (10) REC 360W Modules
+ (10) IQ7PLUS-72-2-US Inverters

**CIRCUIT CALCULATIONS**

**SYSTEM CURRENT:**

\[ 1.21 \times 10 = 12.1 \text{ A} \]

**DESIGN AMPERAGE:**

\[ 12.1 \times 125\% = 15.125 \text{ A} \]

**CIRCUIT #1:**

\[ 10 \times 1.21 \times 125\% = 15.13 \text{ A} \]

**WARNING**

**PHOTOVOLTAIC POWER SOURCE**

**WARNING**

**ELECTRICAL SHOCK HAZARD**

**DO NOT TOUCH TERMINALS!**

TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

**PHOTOVOLTAIC DC DISCONNECT**

**LABEL TO BE INSTALLED AT EACH DC DISCONNECTING MEANS**

[NEC 690.13(B)]

**LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE**

[IFC 605.11.1.1]

**WARNING**

**PHOTOVOLTAIC AC DISCONNECT**

**LABEL TO BE INSTALLED AT EACH AC DISCONNECTING MEANS**

[NEC 690.13(B)]

**LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE**

[IFC 605.11.1.1]

**PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN**

**LABEL TO BE INSTALLED AT RAPID SHUTDOWN SWITCH**

[NEC 690.55(G)]

**LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE**

[IFC 605.11.1.1]

**SOLAR PV SYSTEM DISCONNECT**

**RATED AC OUTPUT CURRENT:**

12.1 A

**NOMINAL OPERATING AC VOLTAGE:**

240 V

**WARNING**

**ELECTRICAL SHOCK HAZARD**

**IF GROUND FAULT IS INDICATED**

NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

**INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED**

**LABEL TO BE INSTALLED AT UTILITY METER**

[NEC 690.56(B)]

**WARNING**

**DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM**

**LABEL TO BE APPLIED TO THE DISTRIBUTION EQUIPMENT**

[NEC 690.64(B)(7)]

**WARNING**

**INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE**

**LABEL TO BE APPLIED ON EXTERIOR OF MAIN ELECTRICAL PANEL**

**WARNING**

**DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM**

**LABEL TO BE APPLIED ON EXTERIOR OF MAIN ELECTRICAL PANEL**

**SIGNAGE NOTES**

1. All plaques and labels shall have a red background (or as shown here).
2. All lettering shall be white and have a minimum height of 3/8" (or as shown here).
3. Font shall be Arial (or similar) and all lettering shall be capitalized.
4. All plaques and labels shall be of a material suitable for the environment installed.
Real Property Data Search

Search Result for MONTGOMERY COUNTY

<table>
<thead>
<tr>
<th>View Map</th>
<th>View GroundRent Redemption</th>
<th>View GroundRent Registration</th>
</tr>
</thead>
</table>

**Special Tax Recapture:** None

**Account Identifier:** District - 13 Account Number - 01066791

**Owner Information**

<table>
<thead>
<tr>
<th>Owner Name:</th>
<th>ANDALMAN ELLIOTT &amp; MARHTA BERGMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailing Address:</td>
<td>6 MONTGOMERY AVE TAKOMA PARK MD 20912-4615</td>
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</tbody>
</table>

**Location & Structure Information**

<table>
<thead>
<tr>
<th>Premises Address:</th>
<th>6 MONTGOMERY AVE TAKOMA PARK 20912-0000</th>
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</table>

**Legal Description:** B F G

<table>
<thead>
<tr>
<th>Map:</th>
<th>Grid:</th>
<th>Parcel:</th>
<th>Neighborhood:</th>
<th>Subdivision:</th>
<th>Section:</th>
<th>Block:</th>
<th>Lot:</th>
<th>Assessment Year:</th>
<th>Plat No:</th>
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<tbody>
<tr>
<td>JN51</td>
<td>0000</td>
<td>0000</td>
<td>13052502.16</td>
<td>0025</td>
<td>18</td>
<td>3</td>
<td>2019</td>
<td></td>
<td></td>
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</tbody>
</table>

**Town:** TAKOMA PARK

**Primary Structure Built Above Grade Living Area:** 2,310 SF
**Finished Basement Area:** 350 SF
**Property Land Area:** 7,500 SF
**County Use:** 111

**Stories:** 2
**Basement:** YES
**Type:** STANDARD UNIT
**Exterior FRAME/ Quality:** 5
**Full/Half Bath:** 2 full/ 1 half
**Garage:**

**Last Notice of Major Improvements:**

**Value Information**

<table>
<thead>
<tr>
<th>Land:</th>
<th>Improvements</th>
<th>Total:</th>
<th>Preferential Land:</th>
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<tbody>
<tr>
<td>343,700</td>
<td>468,300</td>
<td>812,000</td>
<td>0</td>
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</table>

<table>
<thead>
<tr>
<th>Base Value</th>
<th>Value</th>
<th>Phase-in Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land: 343,700</td>
<td>343,700</td>
<td>As of 01/01/2019</td>
</tr>
<tr>
<td>Improvements: 468,300</td>
<td>577,100</td>
<td>As of 07/01/2020</td>
</tr>
<tr>
<td>Total: 812,000</td>
<td>920,800</td>
<td>As of 07/01/2021</td>
</tr>
</tbody>
</table>

**Transfer Information**

**Seller:** PAUL TRESEDER
**Type:** ARMS LENGTH IMPROVED
**Date:** 09/29/1997
**Price:** $394,000
**Deed1:** /15190/ 00634
**Deed2:**

**Seller:**
**Type:** ARMS LENGTH IMPROVED
**Date:** 07/28/1982
**Price:** $125,000
**Deed1:** /05903/ 00301
**Deed2:**

**Exemption Information**

<table>
<thead>
<tr>
<th>Partial Exempt Assessments:</th>
<th>Class</th>
<th>07/01/2020</th>
<th>07/01/2021</th>
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<tbody>
<tr>
<td>County:</td>
<td>000</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>State:</td>
<td>000</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Municipal:</td>
<td>000</td>
<td>0.00</td>
<td>0.00</td>
</tr>
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**Special Tax Recapture:** None

**Homestead Application Information**

<table>
<thead>
<tr>
<th>Homestead Application Status: Approved</th>
<th>11/12/2014</th>
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**Homeowners' Tax Credit Application Information**

<table>
<thead>
<tr>
<th>Homeowners' Tax Credit Application Status: No Application</th>
<th>Date:</th>
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</thead>
</table>