

MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION
STAFF REPORT

Address:	3904 Washington Street, Kensington	Meeting Date:	10/9/2024
Resource:	Secondary Resource Kensington Historic District	Report Date:	10/2/2024
Applicant:	Al Carr Henry Carrasco, American Home Contractors (Agent)	Public Notice:	9/25/2024
Review:	HAWP	Tax Credit:	No
Permit Number:	1086622	Staff:	Laura DiPasquale
PROPOSAL:	Installation of solar shingle roof		

STAFF RECOMMENDATION

Staff recommends that the HPC **approve** the HAWP application.

ARCHITECTURAL DESCRIPTION

SIGNIFICANCE: Secondary Resource within the Kensington Historic District
STYLE: Colonial Revival
DATE: c. 1935

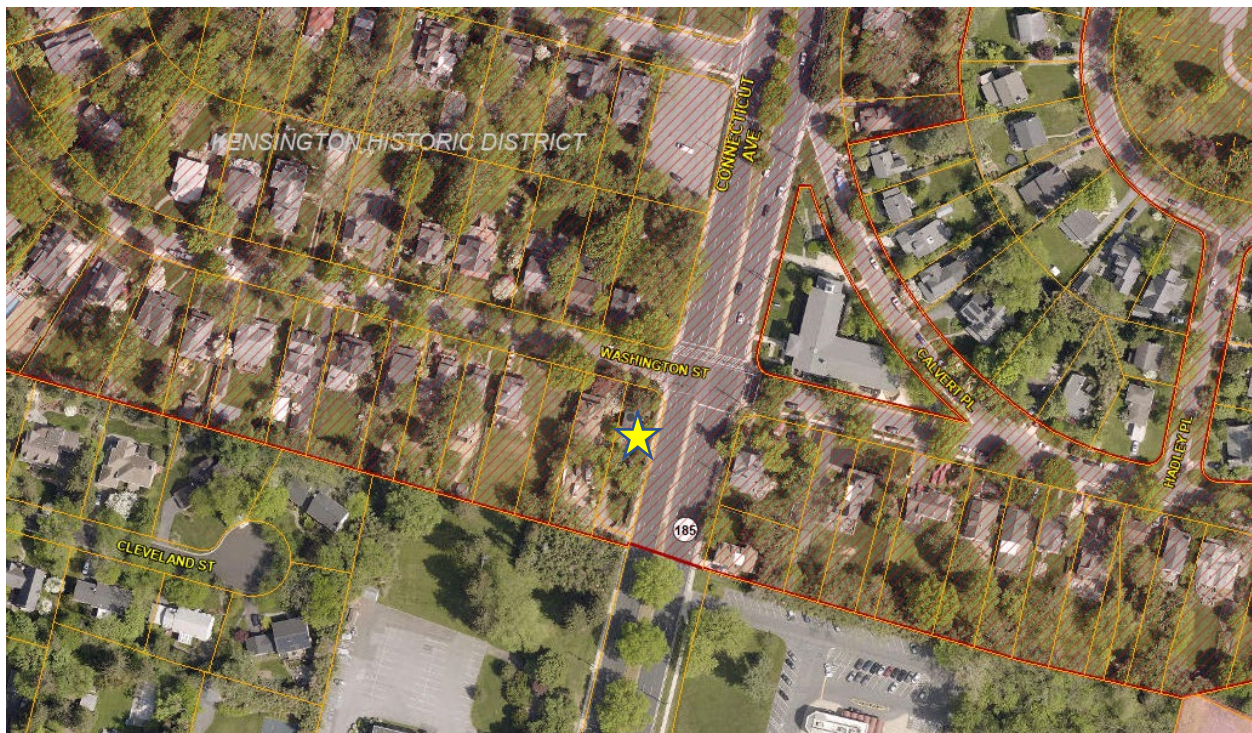


Figure 1: Aerial view of 3904 Washington Street, Kensington, located at the southwest corner of Washington Street and Connecticut Avenue. The southern property line borders the district boundary.

PROPOSAL

The applicant proposes to remove the existing three-tab asphalt shingle roof and replace it with a solar shingle roof.

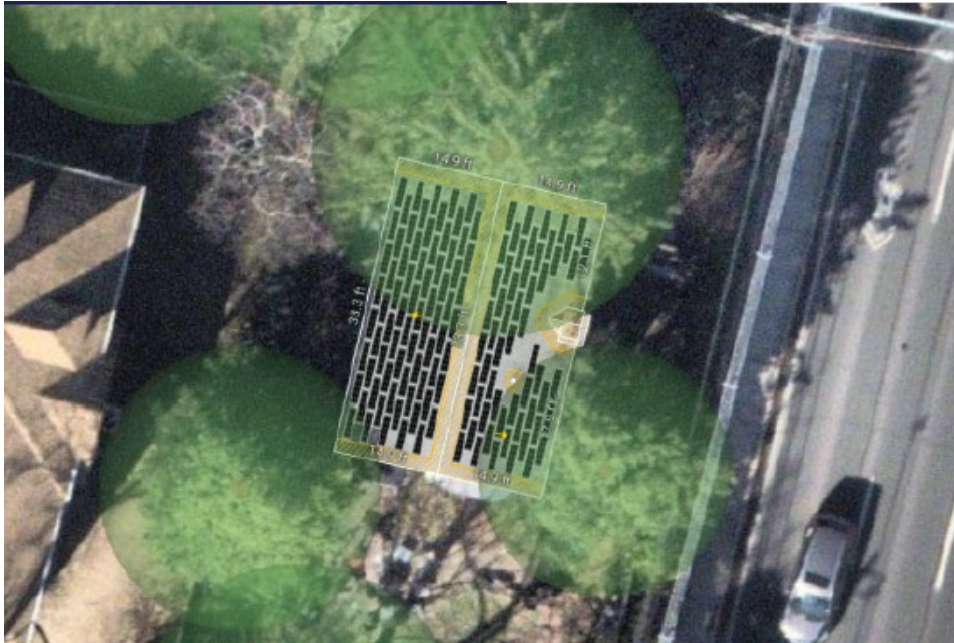


Figure 2: Aerial view of the proposed photovoltaic roof at 3904 Washington Street.

APPLICABLE GUIDELINES

When reviewing alterations and new construction within the Kensington Historic District several documents are to be utilized as guidelines to assist the Commission in developing their decision. These documents include the *Approved & Adopted Amendment to the Master Plan for Historic Preservation: Kensington Historic District, Atlas #31/6 (Amendment)*; *Vision of Kensington: A Long-Range Preservation Plan (Vision)*; *Montgomery County Code Chapter 24A (Chapter 24A)*; and the *Secretary of the Interior's Standards for Rehabilitation (Standards)*. The pertinent information in these documents is outlined below.

Approved & Adopted Amendment to the Master Plan for Historic Preservation: Kensington Historic District, Atlas #31/6

According to the Guidelines, a Historic District as identified....shall consist of the entire area represented by all of the historic resources with their appurtenances and environmental setting. Non-historic properties within the boundaries of the Historic District are also subject to regulation, as they are considered appurtenances and part of the environmental setting of the historic resources of the District.

In regard to the properties identified as secondary resources--that is visually contributing, but non-historic structures or vacant land within the Kensington District--the Ordinance requires the Preservation Commission to be lenient in its judgment of plans for contemporary structures or for plans involving new construction unless such plans would seriously impair the historic or architectural value of surrounding resources or impair the character of the district.

Vision of Kensington: A Long-Range Preservation Plan

The HPC formally adopted the planning study, *Vision of Kensington: A Long-Range Preservation Plan*,

and is directed by the Executive Regulations, which were approved by the County Council, to use this plan when considering changes and alterations to the Kensington Historic District. The goal of this preservation plan as noted on Page 1 "was to establish a sound database of information from, which to produce a document that would serve the HPC, M-NCPPC, their staff and the community in wrestling with the protection of historic districts amidst the pressures of life in the 21st century." The plan provides a specific physical description of the district as it is; an analysis of character-defining features of the district; a discussion of the challenges facing the district; and a discussion of proposed strategies for maintaining the character of the district while allowing for appropriate growth and change.

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
 - (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
- (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.)

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 read 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.
- 10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Historic Preservation Commission Policy No. 20-01: Addressing Emergency Climate Mobilization Through The Installation of Roof-Mounted Solar Panels

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.

STAFF DISCUSSION

Staff supports the proposed solar shingle roof installation and recommends approval.

The subject property is a steep corner lot at the intersection of Washington Street and Connecticut Avenue improved with a simple two-story Colonial-revival style frame dwelling constructed circa 1935.. The eastern slope of the front-gable roof faces Connecticut Avenue and is visible across the busy intersection (*Figure 3*), but visibility of the roof is minimal from the sidewalk along Connecticut Avenue, and limited along Washington Street. As a Secondary resource in the Kensington Historic District, the *Amendment* states that the HPC should be lenient in its judgment of plans unless such plans would seriously impair the character of the district. The existing asphalt shingle roof is in poor condition and has no historical significance; its removal will not be detrimental to the character of the building or the surrounding district.



Figure 3: View west towards 3904 Washington Avenue from the intersection of Washington Street and Connecticut Avenue, September 2024 (Historic Preservation Office).

In place of the existing roof sheathing, the applicant proposes to install Tesla solar shingles. The new shingles will be larger than the existing asphalt shingles, measuring 15 inches by 44.875 inches. A typical three-tab shingle is 12 inches by 36 inches, though those shingles are divided so that each visible rectangle is 5 inches by 12 inches. In locations that are not conducive to collecting solar energy, metal ‘dummy’ shingles that look the same, but lack the photovoltaics will be installed to maintain a uniform appearance (*Figure 4*). While the proposed shingles are noticeably larger, staff does not find this difference in dimension to be detrimental to the character of the subject property or the surrounding district, particularly given the limited visibility of the roof owing to its elevated location of the house and the simplicity of its gable roof. The application does not propose to remove any historic materials, and the new roof would follow the shape of the existing roof, leaving the essential form of the roof intact if removed in the future, satisfying *Standards 2 and 10*.



Figure 4: Details of the PV tiles (left) and metal tiles (right).



Figure 5: View east along Washington Street towards the subject property. Visibility of the western roof slope would be possible in the future if existing trees are removed.

As solar shingles are a relatively new technology, the HPC has only reviewed one such application previously, at 54 Walnut Avenue, Takoma Park. This application was approved at the HPC's April 22, 2020 meeting (*Figure 6*).¹



Figure 6: 54 Walnut Avenue, Takoma Park, showing the HPC-approved Tesla solar shingle roof. Google Streetview.

¹ HAWP #909007 for roof replacement (solar), approved by the HPC on April 22, 2020: https://mcatlas.org/tiles/06_HistoricPreservation_PhotoArchives/HAWP/4-22-2020/54%20Walnut%20Avenue.%20Takoma%20Park%20-%20909007%20-%20Approval%20Letter.pdf

A second local example of an installed solar shingle roof is at 1946 Seminary Rd., Silver Spring, which is not historically designated. Staff visited that site previously and observed that the solar shingle roof was more reflective than an asphalt shingle roof, but that the uniform appearance of the solar shingle roof surface blended into the architecture of the house. Because there is only one material on the roof and it has uniform reflectivity, it did not seem out of place the way some roof-mounted solar arrays can.



Figure 7: 1946 Seminary Rd., Silver Spring (across from the fire station) is one of the first solar shingle installations in the county.

After full and fair consideration of the applicant's submission, staff finds the proposal is consistent with the Criteria for Issuance in Chapter 24A-8(b), (1), (2), and (d), having found the proposal is consistent with the *Secretary of the Interior's Standards for Rehabilitation #2, 9 and 10*, the *Vision of Kensington: A Long-Range Preservation Plan*, and the HPC's 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), and (6) and Chapter 24A-8(d), having found that the proposal will not substantially alter the exterior features of the historic resource and is compatible in character with the purposes of Chapter 24A;

the *Vision of Kensington: A Long-Range Preservation Plan*;

and with the *Secretary of the Interior's Standards for Rehabilitation # 2, 9, and 10*;

and with the *Historic Preservation Commission Policy No. 20-01: Addressing Emergency Climate Mobilization Through The Installation of Roof-Mounted Solar Panels*;

and with the general condition that the applicant shall present an electronic set of drawings, if applicable, to 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 HPC as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the HPC 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 301-495-2167 or laura.dipasquale@montgomeryplanning.org to schedule a follow-up site visit.



**APPLICATION FOR
HISTORIC AREA WORK PERMIT**
HISTORIC PRESERVATION COMMISSION
301.563.3400

FOR STAFF ONLY:
HAWP# _____
DATE ASSIGNED _____

APPLICANT:

Name: _____ E-mail: _____
Address: _____ City: _____ Zip: _____
Daytime Phone: _____ Tax Account No.: _____

AGENT/CONTACT (if applicable):

Name: _____ E-mail: _____
Address: _____ City: _____ Zip: _____
Daytime Phone: _____ Contractor Registration No.: _____

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property _____

Is the Property Located within an Historic District? Yes/District Name _____
 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:

- | | | |
|---|--|--|
| <input type="checkbox"/> New Construction | <input type="checkbox"/> Deck/Porch | <input type="checkbox"/> Shed/Garage/Accessory Structure |
| <input type="checkbox"/> Addition | <input type="checkbox"/> Fence | <input type="checkbox"/> Solar |
| <input type="checkbox"/> Demolition | <input type="checkbox"/> Hardscape/Landscape | <input type="checkbox"/> Tree removal/planting |
| <input type="checkbox"/> Grading/Excavation | <input type="checkbox"/> Roof | <input type="checkbox"/> Window/Door |
| | | <input type="checkbox"/> 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 _____
Date

HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFYING
[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address	Owner's Agent's mailing address
Adjacent and confronting Property Owners mailing addresses	

Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

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

Work Item 1: _____	
Description of Current Condition:	Proposed Work:

Work Item 2: _____	
Description of Current Condition:	Proposed Work:

Work Item 3: _____	
Description of Current Condition:	Proposed Work:

**HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS**

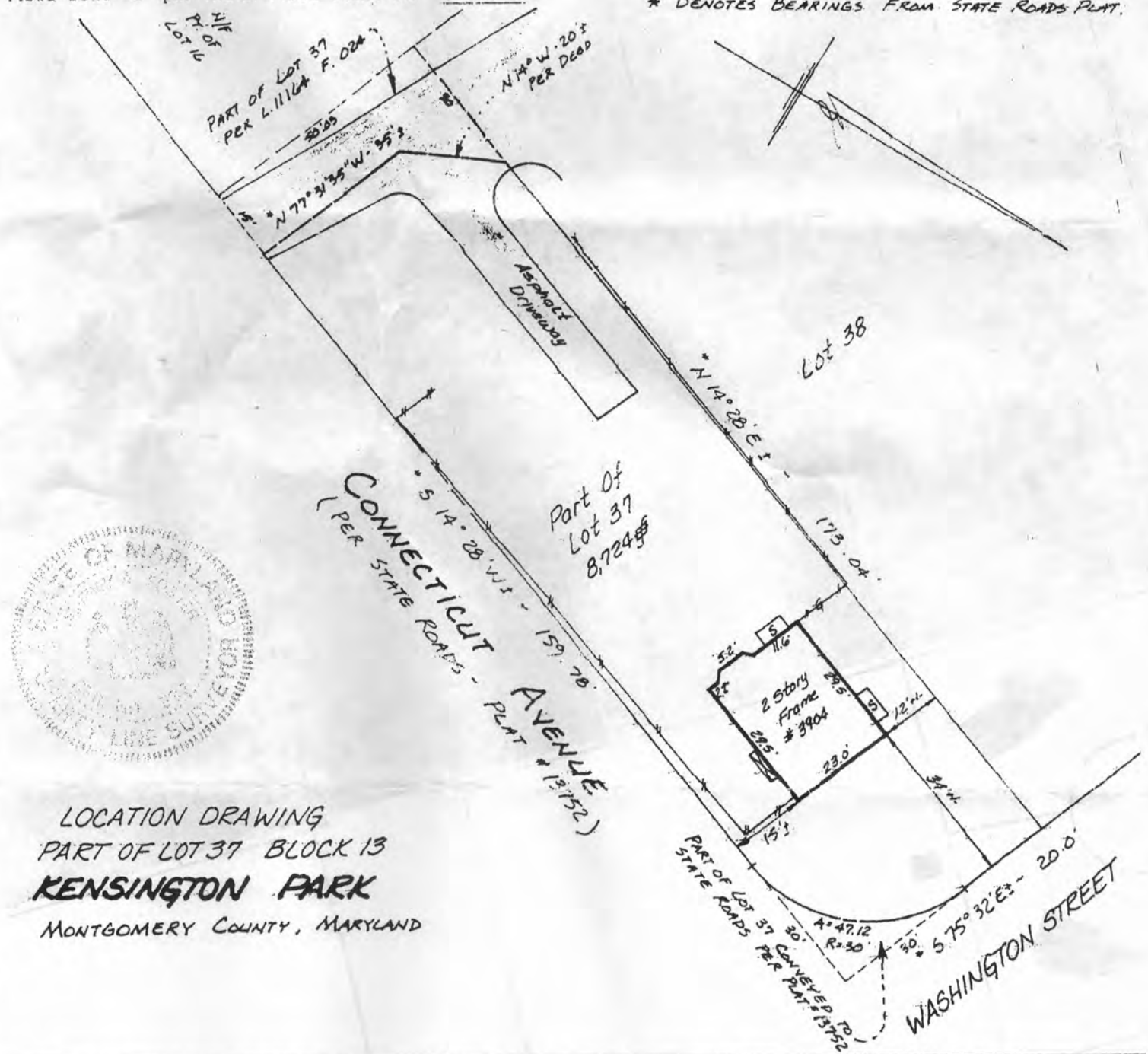
	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/Parking Area	*	*		*	*	*	*
Grading/Excavation/Landscaping	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/Door Changes	*	*	*	*	*		*
Masonry Repair/Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

2. This plan is not to be relied upon for the establishment or location of fences, garages, buildings, or other existing or future improvements.
3. This plan does not provide for the accurate identification of property boundary lines, but such identification may not be required for the transfer of title or securing financing or re-financing.
4. Building line and/or Flood Zone information is taken from available sources and is subject to interpretation of originator.


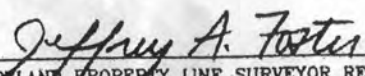
Setback distances as shown to the principal structure from property lines are approximate. The level of accuracy for this drawing should be taken to be no greater than plus or minus **2.5 FEET**.

Flood Zone "C" per H.U.D. Flood Panel No. **0175C**

* DENOTES BEARINGS FROM STATE ROADS PLAT.



LOCATION DRAWING
PART OF LOT 37 BLOCK 13
KENSINGTON PARK
MONTGOMERY COUNTY, MARYLAND

SURVEYOR'S CERTIFICATE		REFERENCES		SNIDER & ASSOCIATES SURVEYORS - ENGINEERS LAND PLANNING CONSULTANTS 2 Professional Drive, Suite 216 Gaithersburg, Maryland 20879 301/948-5100, Fax 301/948-1286	
"THE INFORMATION SHOWN HEREON HAS BEEN BASED UPON THE RESULTS OF A FIELD INSPECTION PURSUANT TO THE DEED OR PLAT OF RECORD. EXISTING STRUCTURES SHOWN HAVE BEEN FIELD LOCATED BASED UPON MEASUREMENTS FROM PROPERTY MARKERS FOUND OR FROM EVIDENCE OF LINES OF APPARENT OCCUPATION."		PLAT BK. B			DATE OF LOCATIONS: _____
		PLAT NO. 4			SCALE: 1"=30'
 MARYLAND PROPERTY LINE SURVEYOR REG. NO. 507		LIBER 11164		WALL CHECK: _____	DRAWN BY: ROB
		FOLIO 024		HSE. LOC.: 10-27-97	JOB NO.: 97-3018

3904 Washington St HAWP September 16, 2024 photo attachment

HAWP attachments



Western face of roof as viewed from 2nd floor window of 3906 Washington Street

3904 Washington St HAWP September 16, 2024 photo attachment



Shingle damage near the northeast corner of the roof caused by a spruce tree branch



South side of the house



West side of the house



North side of the house



North side of the house from Washington street



North/West sides of house from up Washington Street



East side of the house from Connecticut Ave median



Interior water intrusion from leaky roof over rear bay window

UPDATED 8/22 TESLA SOLAR ROOF

AUG 22, 2024



ALFRED CARR

alfred.carr@gmail.com
(301) 641-8460

3904 Washington Street
Kensington, Maryland
20895



INTRODUCTION

Hi Alfred,

We appreciate the opportunity to provide more information regarding your upcoming solar project. We LOVE helping people pay less for electricity while generating value for decades!

The unique advantage of the solar systems we offer is that you may be able to receive the federal tax benefit (along with any other incentives you may qualify for) on the ENTIRE project due to our unique building-integrated solar roof system. We have been serving this region for over 35 years and you can be confident we stand behind every promised warranty and will work hard to exceed your expectations along the way. Our unique partnerships combined with our experienced installation crew allow us to provide you with the highest quality system backed by an industry leading warranty on both the products and the workmanship.

We look forward to continuing the conversation and assisting you every step of the way. Below are a number of links to helpful information regarding the tax incentives you may receive for completing this solar project. Building Integrated Photo Voltaic Systems (BIPV) may qualify for the Investment tax credit, along with state and local incentives.

Information regarding the ITC can be found in the links below:

<https://www.energy.gov/sites/prod/files/2020/01/f70/Guide%20to%20Federal%20Tax%20Credit%20for%20Residential%20Solar%20PV.pdf>

<https://www.seia.org/initiatives/solar-investment-tax-credit-itc>

Local county incentives may also be applicable for your upcoming project. A database of State Incentives for Renewables & Efficiency® can be found in the link below:

<https://www.dsireusa.org/>

Our quote for this project along with our terms and conditions are provided below.

Henry Carrasco
henry.carrasco@amhomeco.com
774-222-3187

American Home Contractors
MD Office: 11820 W Market Pl, Suite F, Fulton, MD 20759
VA Office: 14155 Sullyfield Cir Suite A, Chantilly, VA 20151

Contractor licenses include:

MIC #31337-03
DPOR #2705166638 (Class A, specializations: ELE, AES, CIC, HIC)
DCRA #420322000516
WV060859
DE-2022-000006999
PA176302

MARYLAND

11820 W Market Place, Suite F
Fulton, MD 20759
Phone: (301) 209-7000



VIRGINIA

14155 Sullyfield Circle, Suite A
Chantilly, VA 20151
Phone: (703) 242-5000

Installing Peace of Mind Since 1986



BEFORE

AFTER

SOLAR TILES

The cutting edge of solar technology.

Fully-integrated solar that camouflages the active tiles to harness the power of the sun without sacrificing your roof's aesthetic.



SOLAR SHINGLES

A "hybrid" solar roof that incorporates solar technology into traditional roofing materials and processes, using nailable solar shingles which lay flush against the roof deck, providing durability and protection that looks great.



SOLAR PANELS

Traditional design meets modern tech. "Grid lines" are now a thing of the past, allowing for more solar production along with an industry-topping 40 year warranty. Sits on top of an existing roof.



PLUS TESLA POWERWALL, SMART PANELS, EV CHARGERS



MHIC #31337-03; DPOR #2705166638; DCRA #420322000516
WV060859; DE-2022-000006999; PA176302



"All work, materials, and final product met or exceeded our expectations. We now have a house that has been self-powered since the commissioning and operation of the solar system. This company does it all, and does it well. If you are looking for this kind of contractor, you can't do better than AHC in my opinion."

- Greg B.



"This company has been providing me with great customer service, expert advise, and quality support since 2017. Nothing but positive experiences and the company of choice for all of your roofing needs."

- Cecelia B.



"AHC Teams are, simply put, just incredible! From the beginning, when their solar team helped plan everything out, to their incredible roofing team, to the electric install - all very professional, friendly, and knowledgeable. Every question I asked was thoughtfully answered, and every concern given deliberate attention. Thank you, very much!"

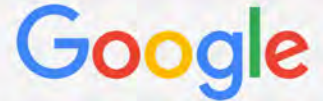
- Daniel C.



"American Home Contractors did an excellent job. They were timely, consultative, helpful, tidy in their work, and went the extra mile to ensure everything was done well and to my satisfaction."

- Dennis W.

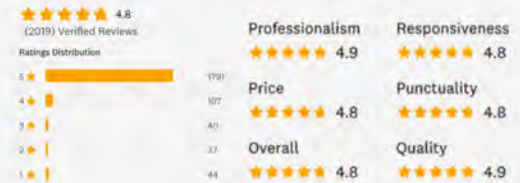
**OVER 8,000
ONLINE REVIEWS!**



MD 4.9 ★★★★★ 2,489 reviews

VA 4.9 ★★★★★ 1,819 reviews

BBB Rating & Accreditation



★★★★★ 161 reviews



Neighborhood Favorite

Facebook GuildQuality

4.9/5

4.8/5

367 votes

205 votes

American Home Contractors is a Certified Installer

Since 2020

T E S L A

S O L A R R O O F

C E R T I F I E D I N S T A L L E R



Distinguished
Customer Experience



Exceptional
Installation Quality



Extensive
Product Knowledge

Thank you for accelerating the world's transition to sustainable energy





BEFORE



AFTER



BEFORE



AFTER





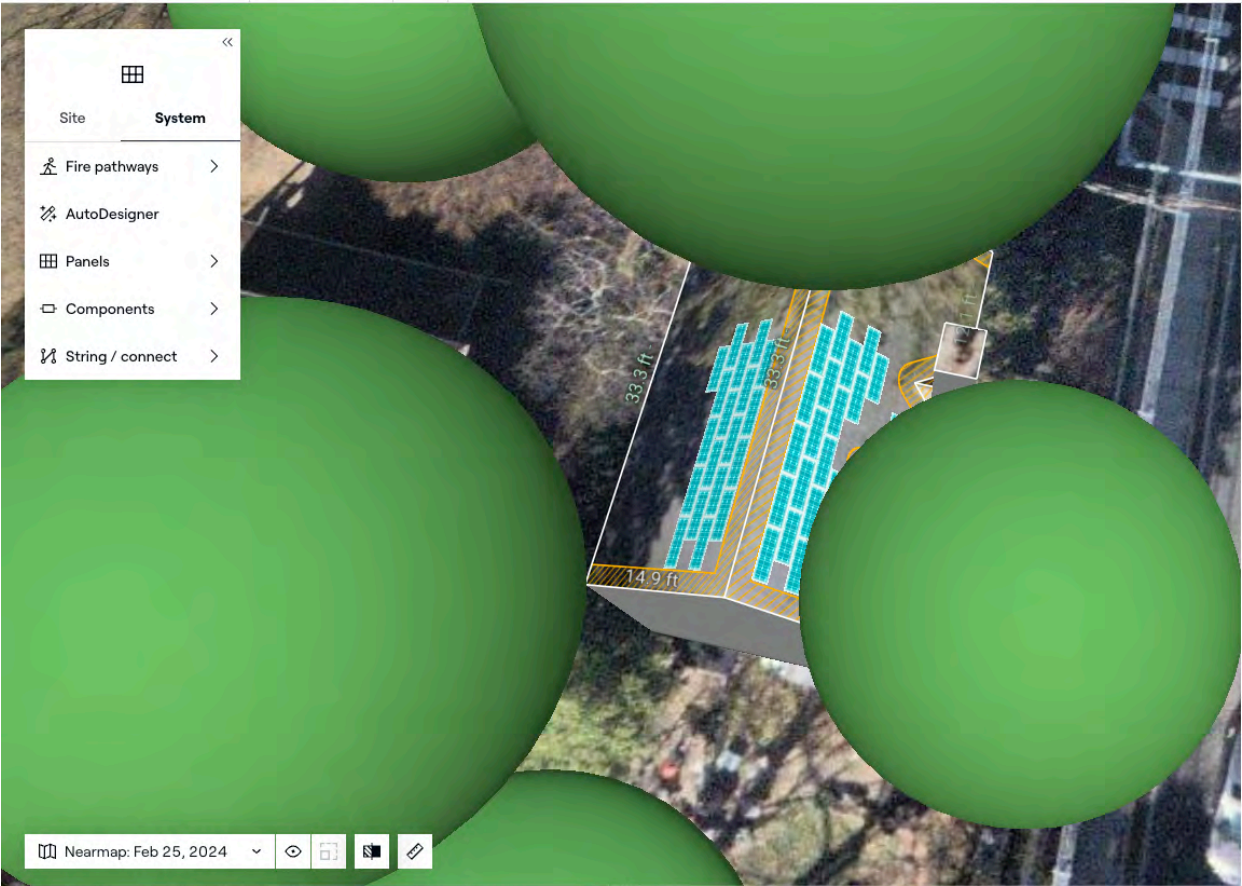








- Site
- System**
- Fire pathways >
- AutoDesigner
- Panels >
- Components >
- String / connect >



Production | Utility Bill Savings

ANNUAL PRODUCTION

56	1,337kWh	-
Panels	Energy	Energy Offset



⚠ LIDAR shading is disabled ⓘ

Advanced ▾



Advanced Weather Protection System

TESLA SOLAR ROOF

INSTALLING PEACE OF MIND SINCE
1986



TEAR OFF & DISPOSAL

Tarp the house for protection, then strip roof down to the plywood, removing all prior shingles and nails.

INSPECT WOOD SHEATHING

Identify signs of rot/damage. Replace damaged wood as needed at additional cost.



INSTALL NEW DRIP EDGE

Install new drip edge to total perimeter of roof.

Drip Edge

TESLA UNDERLAYMENT

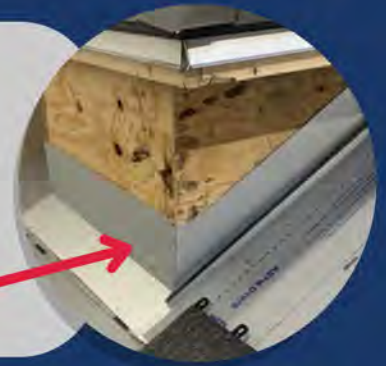
Install Tesla ice & water shield underlayment at all eaves, valleys, and penetrations.



DECK-LEVEL FLASHING

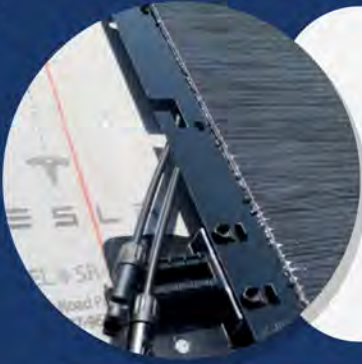
Install deck level flashing.

Metal Flashing



STARTER TILES

Install the first row of tiles to all eaves and perimeter edges.



INSTALL TILES

A mix of inactive metal, and active photovoltaic glass tiles.



WIRING THE SOLAR TILES

Linking the active glass tiles to one another to create the solar array.

(Similar to combining strands of holiday lights to make one, large strand.)



HIP/RIDGE CAPS

Install Tesla ice & water shield underlayment at all eaves, valleys, and penetrations.



PIPE & VENT FLASHING

Replace all pipe and vent flashing.



CLEARING OF DEBRIS

Magnetic rakes are used to pick up loose nails. Gutters, yards, and driveway will be inspected and cleared of debris.



WIRING

Running wires from the tiles into the attic, then out the side of the house, down to the inverter(s).

(All wiring will be contained within metal conduit.)



CONVERT DC TO AC CURRENT

Install inverter(s), wire into electrical panel.



TESLA POWERWALL

Install two or more Tesla Powerwall units, if desired.



ELECTRIC

CONNECT TO TESLA APP

Connect to The TESLA app to visualize, monitor, and adjust energy consumption.



At American Home Contractors, we share your excitement for renewable energy solutions and are eager to begin working on your Solar Roof project. Your journey toward energy independence starts TODAY!



TESLA
CERTIFIED INSTALLER
SOLAR ROOF | POWERWALL



Tesla Solar Roof

SR72T3R with SR-SAUL-1 or SR-SAUL-4

Solar Roof is a building-integrated photovoltaic system that is an aesthetically unparalleled solar energy solution. The seamless combination of energy-producing and non-energy-producing tiles allows a Solar Roof to be fully integrated and customizable to various roof shapes and sizes.

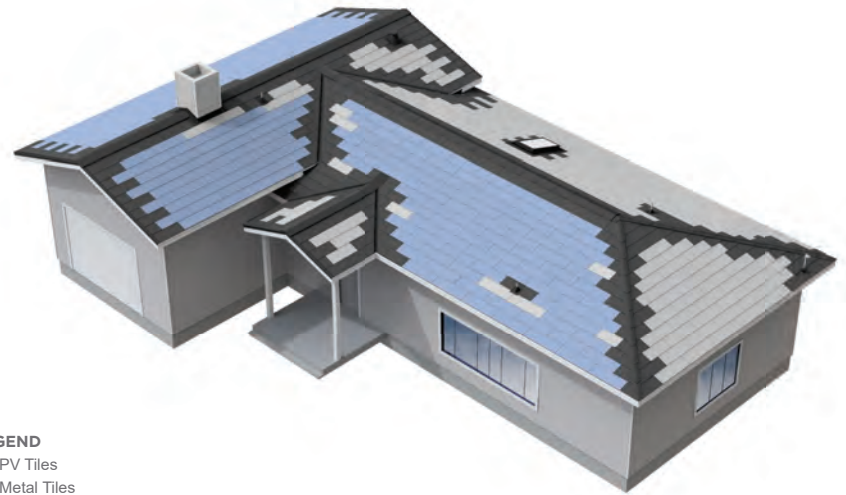


SR72T3R with SR-SAUL-1 or SR-SAUL-4 Solar Roof & PV Tile

T E S L A

SOLAR ROOF SYSTEM

Solar Roof PV Tiles function in fundamentally the same way as traditional roof-mounted PV systems. Sunlight is converted to DC electricity at each individual tile. Individual tiles are connected in series to form a complete PV "string." One or more strings connect in parallel at an inverter to convert power to AC electricity. Metal Tiles and PV tiles are used in conjunction with flashings to complete the roofing system.



LEGEND

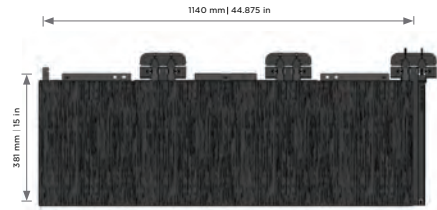
- PV Tiles
- Metal Tiles
- Metal Flashings

SR72T3R with SR-SAUL-1 or SR-SAUL-4 Solar Roof & PV Tile

T E S L A

PV Tile Specifications

Electrical Characteristics		System Certifications & Compliance	
Model Name	SR72T3R	UL 61730 (UL Listed)	
Test Method	STC	UL 9703 (UL Listed)	
Max Power, P _{MAX}	72 W	UL 1741 (UL/ETL Listed)	
Open Circuit Voltage, V _{OC} per diode	14.20 V	UL 3741 (UL/ETL Listed)	
Short Circuit Current, I _{SC}	6.80 A	UL 790 Class A (UL Listed)	
Max Power Voltage, V _{MP}	11.30 V	TAS100 (PRI Listed)	
Max Power Current, I _{MP}	6.30 A	UL 7103 (UL Listed)	
STC	1000 W/m ² , 25°C, AM 1.5 spectrum	ASTM D1970 / ICC AC188	
		WUI Compliant Roof Assembly, IBHS Fortified Roof Compliant	
		California Cool Roof Compliant Roof Assembly	
Mechanical Loading		Temperature Rating (STC)	
Wind Rating	Up to 86.72 m/s 194mph V _{ref} ASTM D3161 Class F (UL Listed)	Temperature Coefficient of I _{sc}	0.038% /°C
Roof Snow Load	Up to 1280 kg/m ² 263 lbs/ft ² surface-normal Up to 270 kg/m ² 55 lbs/ft ² shear	Temperature Coefficient of V _{OC}	-0.266% /°C
Hailstone Rating	UL 2218 Class 4	Temperature Coefficient of P _{MAX} (W)	-0.372% /°C
Mechanical Parameters			
Cells	14		
Junction Box	IP68, 1 diode		
Cable	12 AWG PV Wire,		
Connector	Staubli MC4 type PV-KST4/6II-UR or type PV-KST4-EVO2 (male) and Staubli MC4 type PV-KBT4/6II-UR or type PV-KBT4-EVO2 (female)		
Principal Materials	Glass, Polymers, Fiberglass and Silicon		
Height From Deck	35.3 mm 1.357 in		
Installed System Weight	16.31 kg/m ² 3.34 psf		
Roof Pitch Range	2:12+		
Dimension	381 mm x 1140 mm x 6.2 mm 15 in x 44.875 in x 0.25 in		
Operation Parameters			
Operational Temperature	40 °C / -40 °F up to 85 °C / 185° F		
Power Output Tolerance	-0 /+5%		
Max System Voltage	DC 1000 V (IEC/UL) for installations above 2000m but below 3000m the system voltage is 877 V		
Max Series Fuse Rating	10 A		
Safety Class	Class II		
Fire Rating	UL 7103/UL 790 Class A		
Limited Warranties			
Module Warranty	25 years		
Wind Warranty	139 mph		
The power output capacity of your Solar Roof will be at least 95% of maximum rated output power of the Solar Roof system at 5 years after install. The power output capacity will decline by no more than 0.5% per year for the following 20 years. This warranty covers the power your Solar Roof will produce under standard test conditions.			



Metal Tile

MODEL #SRMTT-3R

Metal Tiles are installed anywhere on the roof that does not produce electricity. Metal Tiles can be installed below, adjacent to, or above PV Tiles.

Validated to: UL 1897, UL 2218 Class 4, UL 7103, UL 790 Class A, ASTM D3161 Class F, TAS100

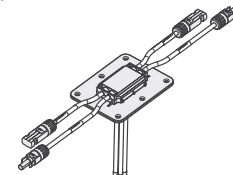


Front View

Other System Components

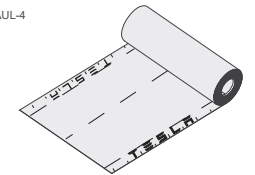
PASS THROUGH BOX

Model #SRPTB-4
UL 1741, File #E318357



UNDERLAYMENT

Model # SR-SAUL-1 & SR-SAUL-4
ASTM D1970/ICC AC48
ICC AC188
ASTM E108 Class A





Roof Measurements

3904 Washington Street
KENSINGTON, MD 20895



[VIEW 3D MODEL](#)

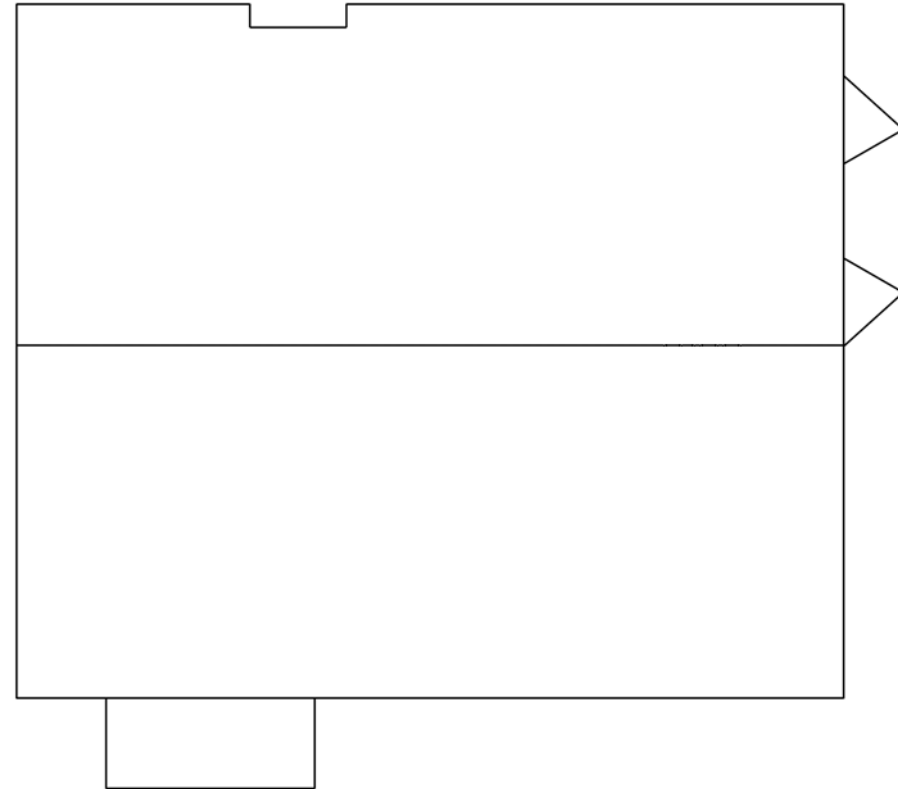


Roof Measurements

3904 Washington Street, Kensingt...

ROOF SUMMARY

Roof	Area	Total	Length
Roof Facets	923 ft ²	6	-
Ridges / Hips	-	3	35' 3"
Valleys	-	0	-
Rakes	-	6	68' 6"
Eaves	-	7	73' 5"
Flashing	-	3	14'
Step Flashing	-	4	9' 4"
Drip Edge/Perimeter	-	-	141' 11"



Roof Pitch*	Area	Percentage
9 / 12	872 ft ²	94.47%
7 / 12	30 ft ²	3.25%
11 / 12	21 ft ²	2.28%

Example Waste Factor Calculations

	Zero Waste	+5%	+10%	+15%	+20%
Area	923 ft ²	969 ft ²	1015 ft ²	1061 ft ²	1108 ft ²
Squares	9 ¹ / ₃	10	10 ¹ / ₃	10 ² / ₃	11 ¹ / ₃

The table above provides the total roof area of a given property using waste percentages as noted. Please consider that area values and specific waste factors can be influenced by the size and complexity of the property, captured image quality, specific roofing techniques, and your own level of expertise. Additional square footage for Hip, Ridge, and Starter shingles are not included in this waste factor and will require additional materials. This table is only intended to make common waste calculations easier and should not be interpreted as recommendations.

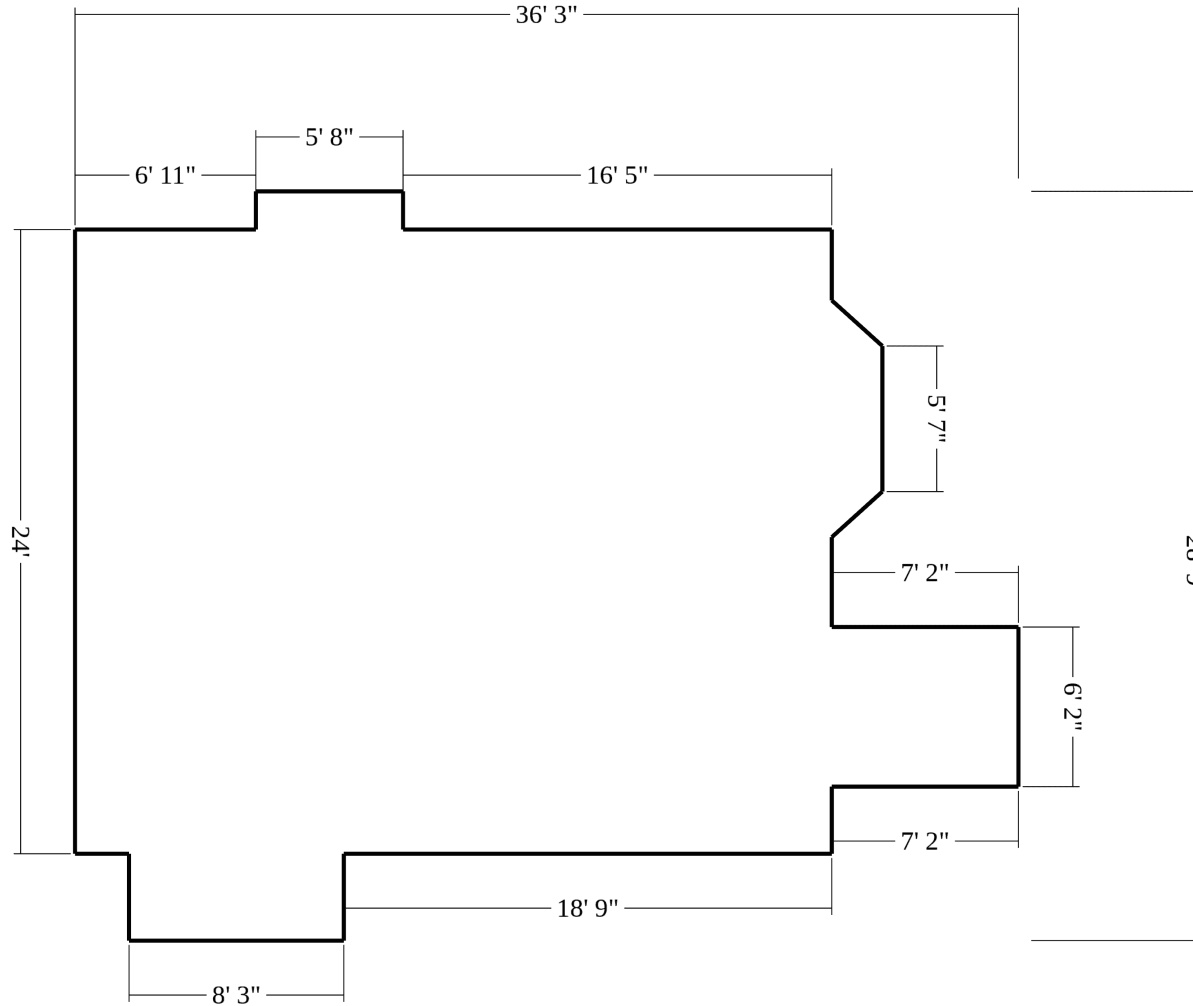


Roof Measurements

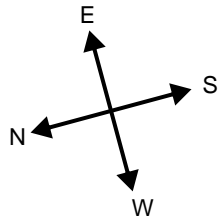
3904 Washington Street, Kensingt...

FOOTPRINT

BACK



FRONT



Number of Stories: > 1
Footprint Perimeter: 131' 8"
Footprint Area: 790 ft²



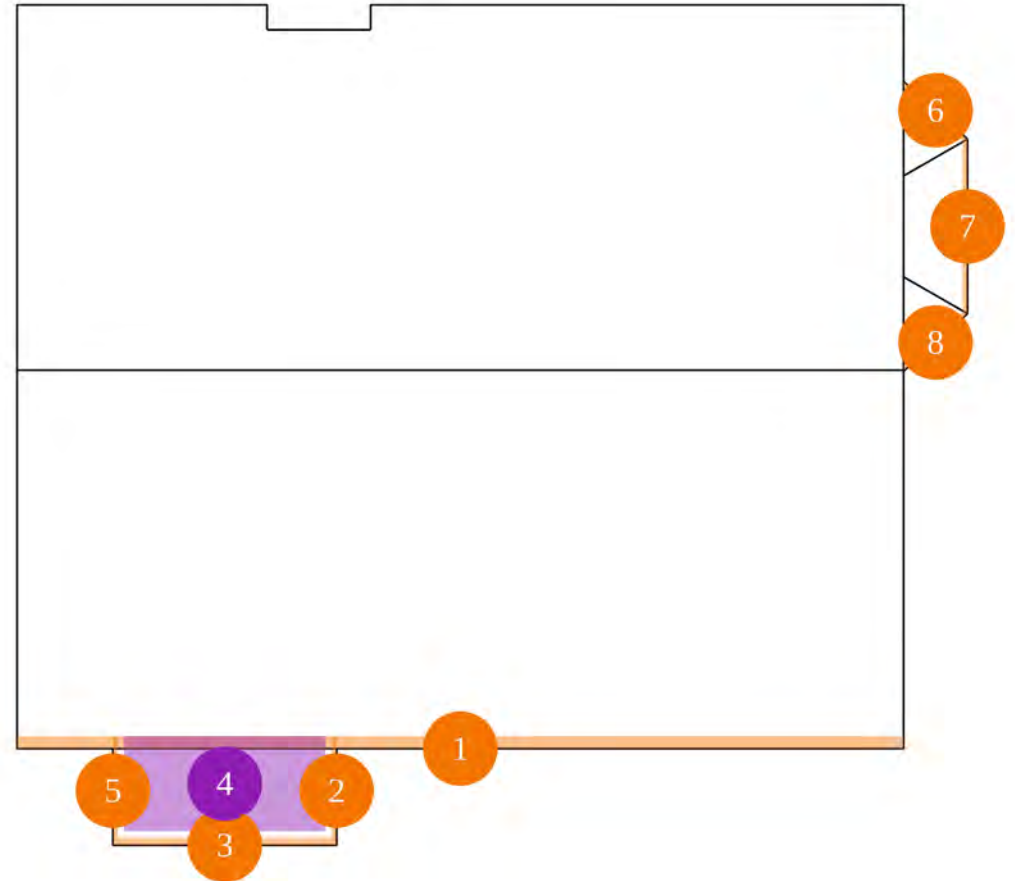
Roof Measurements

3904 Washington Street, Kensingt...

SOFFIT

Soffit Summary

Depth	Type	Count	Total Length	Total Area
1" - 6"	rakes	2	8' 3"	1 ft ²
	eaves	5	45' 10"	15 ft ²
24" - 48"	eaves	1	6' 7"	21 ft ²
Totals			60' 8"	37 ft²





Roof Measurements

3904 Washington Street, Kensington...

SOFFIT

Soffit Breakdown

num	Type	Depth	Length	Area	Pitch
1	eave	5"	29' 1"	12 ft ²	9 / 12
2	rake	2"	4' 1"	1 ft ²	7 / 12
3	eave	3"	7'	2 ft ²	7 / 12
4	eave	37"	6' 7"	21 ft ²	7 / 12
5	rake	2"	4' 1"	1 ft ²	7 / 12
6	eave	2"	2' 1"	0 ft ²	11 / 12
7	eave	2"	5' 7"	1 ft ²	11 / 12
8	eave	2"	2' 1"	0 ft ²	11 / 12

Ø Feature is too small to label on the plan diagram



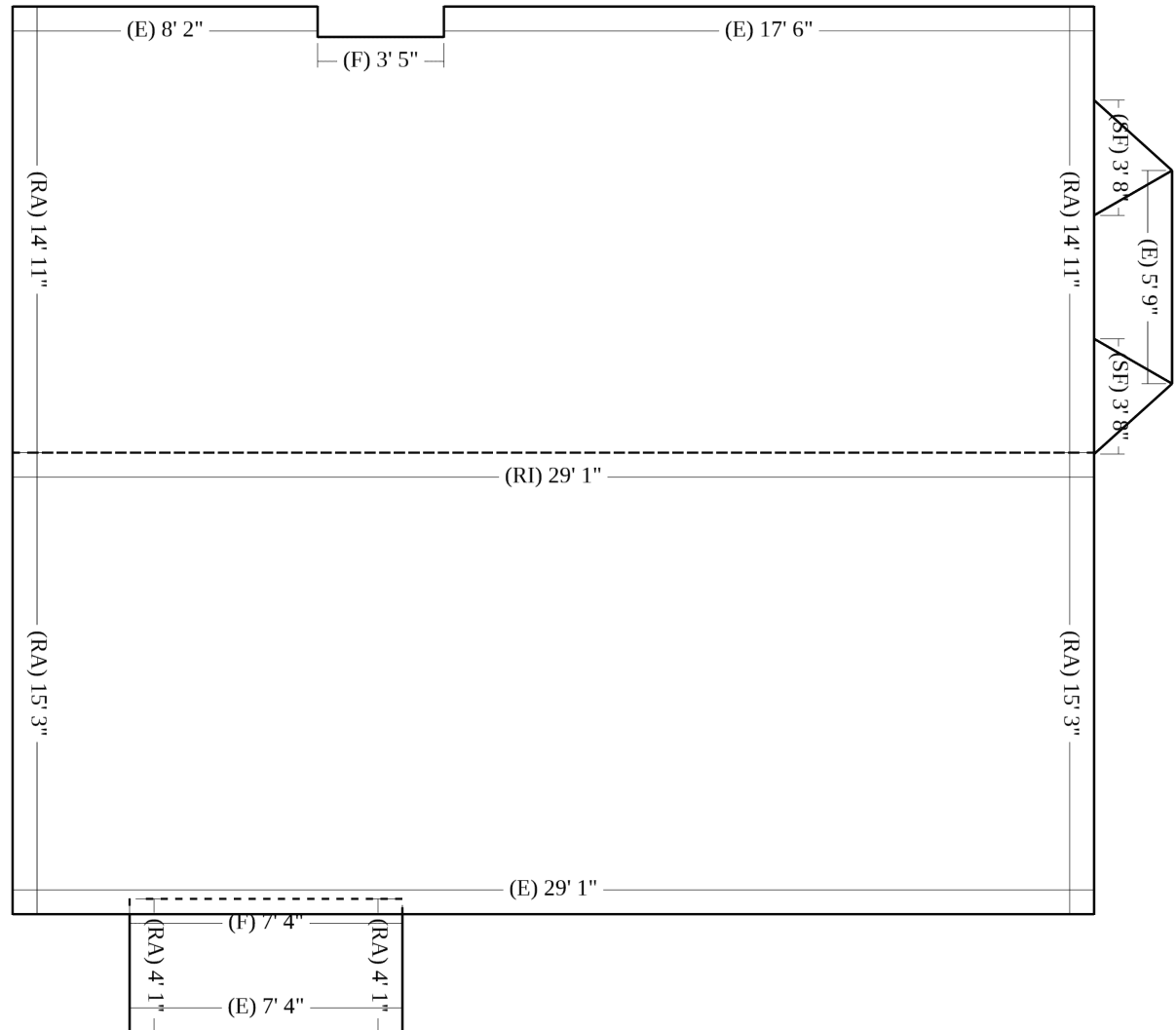
Roof Measurements

3904 Washington Street, Kensingt...

ROOF MEASUREMENTS

Roof	Length
Ridges (RI)	29' 1"
Hips (H)	6' 3"
Valleys (V)	-
Rakes (RA)	68' 6"
Eaves (E)	73' 5"
Flashing (F)*	14'
Step Flashing (SF)*	9' 4"
Transition Line (TL)	-

*Please view the 3D model for more detail (e.g. flashing, step flashing and some other roof lines may be difficult to see on the PDF)





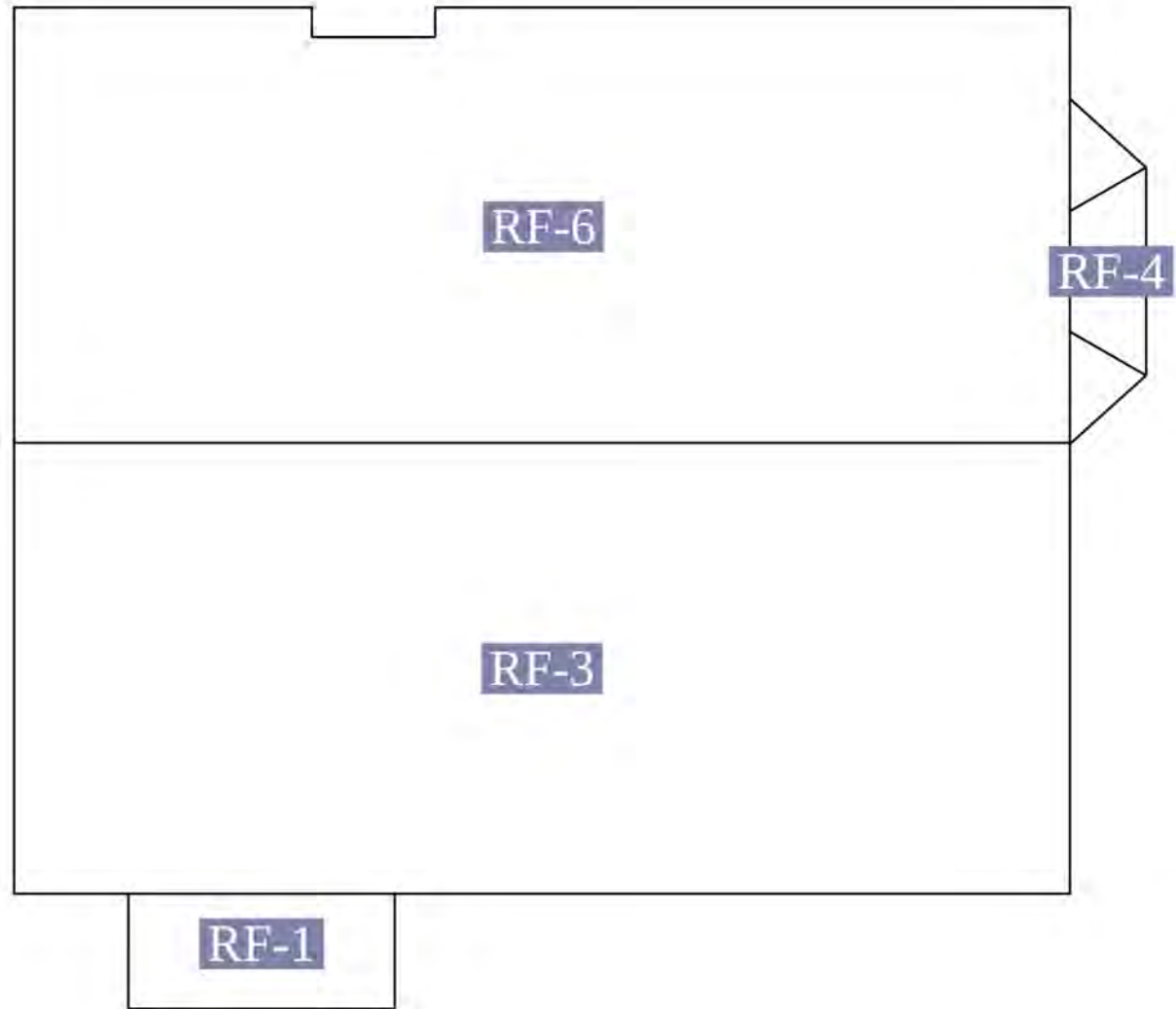
Roof Measurements

3904 Washington Street, Kensingt...

ROOF FACETS

Roof Facets

Facet	Area	Pitch
RF-1	30 ft ²	7/12
RF-2	4 ft ²	11/12
RF-3	443 ft ²	9/12
RF-4	13 ft ²	11/12
RF-5	4 ft ²	11/12
RF-6	429 ft ²	9/12

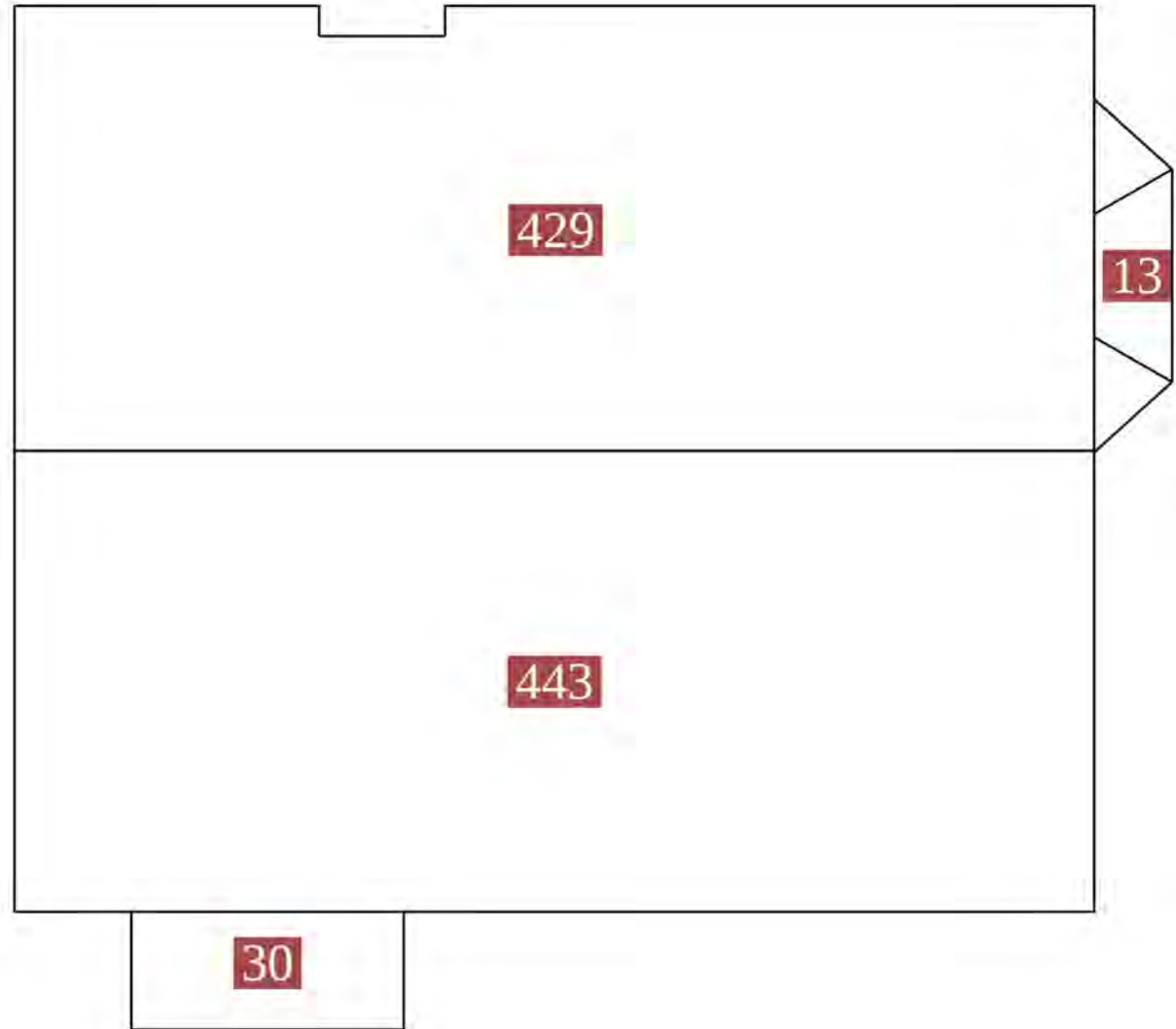




Roof Measurements

3904 Washington Street, Kensingt...

ROOF AREA



Roof	Facets	Total
Total	6	923 ft ²

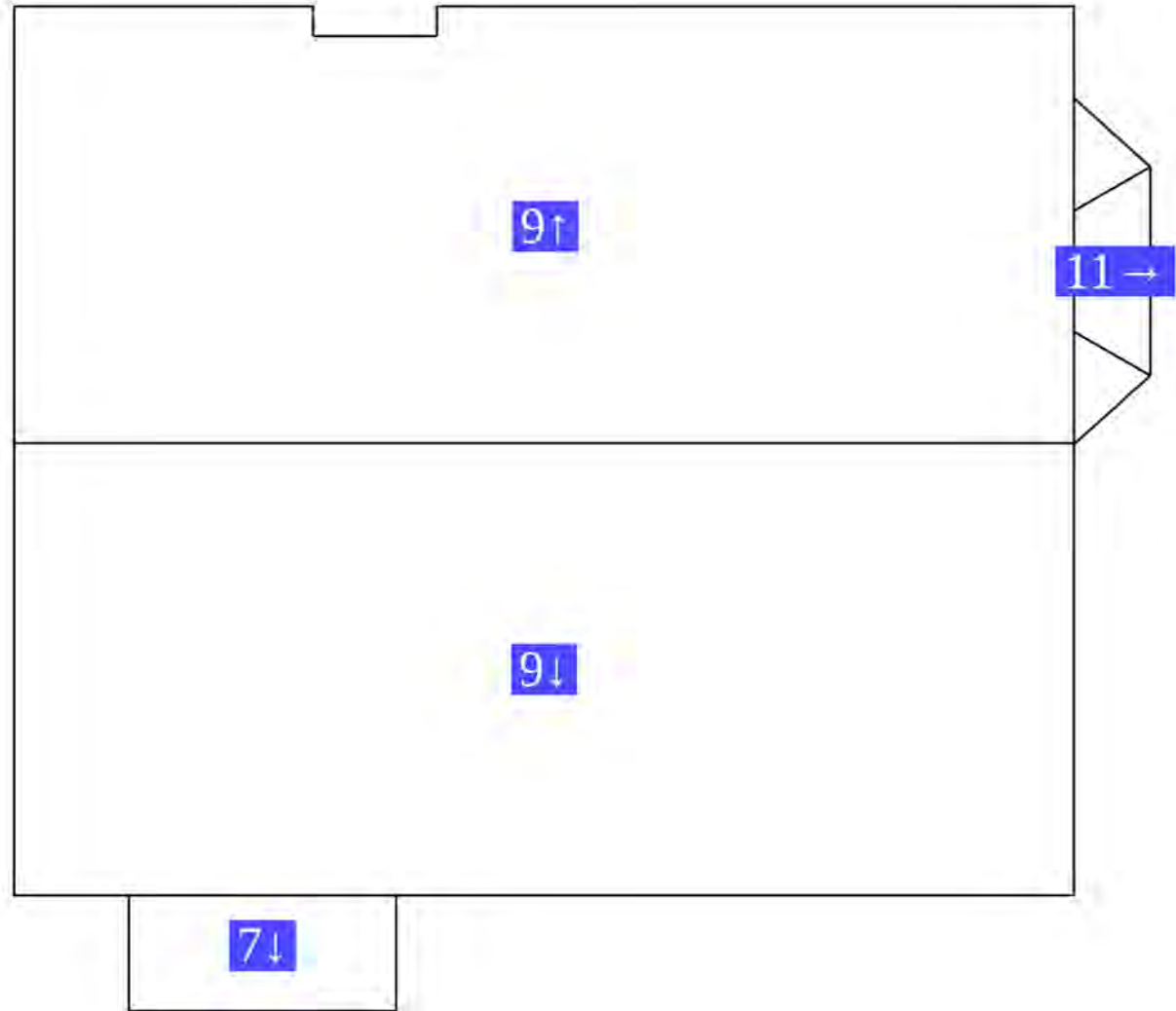


Roof Measurements

3904 Washington Street, Kensingt...

ROOF PITCH

Roof Pitch	Area	Percentage
9 / 12	872 ft ²	94.47%
7 / 12	30 ft ²	3.25%
11 / 12	21 ft ²	2.28%





Roof Measurements

3904 Washington Street, Kensingt...

PHOTOS



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Roof Measurements

3904 Washington Street, Kensingt...

PHOTOS

