ANN ARBOR HISTORIC DISTRICT COMMISSION

Staff Report

ADDRESS: 445 Second Street, Application Number HDC13-147

DISTRICT: Old West Side Historic District

REPORT DATE: September 6, 2013

REPORT PREPARED BY: Jill Thacher, Historic Preservation Coordinator

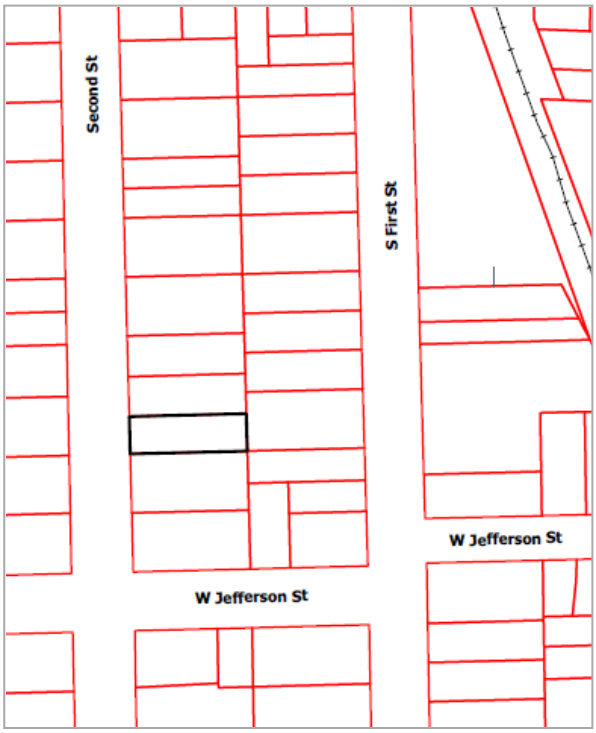
REVIEW COMMITTEE DATE: Monday, September 9 for the September 12, 2013 HDC meeting

	OWNER	APPLICANT
Name:	Bob Kuehne	same
Address:	445 Second St Ann Arbor, MI 48103	
Phone:	(734) 834-2696	

BACKGROUND: This two-story gable-fronter appears in the 1894 Polk City Directory as number 25 Second Street, the home of Gottleib H. Wild, a merchant tailor with a shop at 2 E Washington. In 1897, Frank Henderson, a laborer, lived in the home. It features a front entry porch and shallow eave overhangs, a cut stone foundation, and the massing is a narrow, deep rectangle.

LOCATION: The site is located on the east side of Second Street, south of West William and north of West Jefferson.

APPLICATION: The applicant seeks HDC approval to re-roof the house and front porch, relocate three attic vents from the south face to the north face of the roof, and install either a grid of ten or eighteen solar electric panels. The eighteen panel plan would necessitate the removal of two existing solar roof panels.



APPLICABLE REGULATIONS:

From the Secretary of the Interior's Standards for Rehabilitation:

(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.

From the Secretary of the Interior's Guidelines for Rehabilitating Historic Buildings:

Roofs

Recommended*:* Identifying, retaining, and preserving roofs--and their functional and decorative features—that are important in defining the overall historic character of the building.

Not Recommended: Changing the configuration of a roof by adding new features such as dormer windows, vents, or skylights so that the historic character is diminished.

Energy Efficiency

Recommended*:* Placing a new addition that may be necessary to increase energy efficiency on non-character-defining elevations.

Not Recommended: Designing a new addition which obscures, damages, or destroys character-defining features.

Mechanical Equipment

Recommended: Providing adequate structural support for new mechanical equipment.

Not Recommended: Failing to consider the weight and design of new mechanical equipment so that, as a result, historic structural members or finished surfaces are weakened or cracked.

Installing a new mechanical system so that character-defining structural or interior features are radically changed, damaged, or destroyed.

From the Ann Arbor Historic District Design Guidelines (other Guidelines may apply):

Solar

Appropriate: Mounting solar panels at grade or on ground pole mountings. In the absence of an appropriate ground-based mounting location, panels should be mounted on side or rear facing roof surfaces.

Installing mechanical and service equipment on the roof related to the solar units and their related devices so that they are inconspicuous from the public right-of-way and do not damage or obscure character-defining features.

For sloped roof installations, mounting solar panels parallel to and within 8" of roof surface.

Not Appropriate: Mounting solar panels and their related devices on primary elevations or roofs that face the primary elevation or in planes that are highly visible from the street view. This location has the highest impact on the historic character of the historic building and all other options should be thoroughly explored.

Any other alteration or installation procedure that will cause irreversible changes to historic features or materials.

STAFF FINDINGS:

1. The house currently has two solar hot water heater panels near the rear of the south facing roof. The application proposes to add either a grid of ten solar electric panels (five over five) in front of them, or to remove the two existing panels and expand the grid to eighteen (nine over nine). Staff feels that the proposed black-and-aluminum panels are not acceptable because they call more attention to themselves than is necessary. The contractor confirmed via email that black-on-black panels could instead be used for this project.

2. The new roof's color is not indicated in the application. To minimize the visibility of the solar panels, the roof should be black or nearly black to closely match the proposed panels.

3. Staff prefers the 18-panel array because it covers more of the roof and removes the two non-matching panels, but finds either proposal acceptable.

4. Staff believes that as conditioned in the proposed motion, the materials and design of the panels are compatible with the existing structure, neighboring buildings, and the surrounding historic district, and meet both the Secretary of the Interior's Standards and the *Ann Arbor Historic District Design Guidelines*.

POSSIBLE MOTIONS: (Note that the motion is only a suggestion. The Review Committee, consisting of staff and at least two Commissioners, will meet with the applicant on site and then make a recommendation at the meeting.)

I move that the Commission issue a certificate of appropriateness for the application at 445 South Second Street, a contributing property in the Old West Side Historic District, to re-roof the house and front porch, relocate three attic vents from the south face to the north face of the roof, and install either a grid of ten or eighteen solar electric panels, with the following conditions: the new roof must be black or very dark to match the new solar panels, and the solar panels must be black-on-black instead of black-on-aluminum. The work as conditioned is compatible in exterior design, arrangement, texture, material and relationship to the rest of the building and the surrounding area and meets *The Secretary of the Interior's Standards for Rehabilitation* and *Guidelines for Rehabilitating Historic Buildings,* in particular standards 2, 9 and 10 and the guidelines for roofs, energy efficiency, and mechanical systems, as well as the *Ann Arbor Historic District Design Guidelines*, particularly as they pertain to solar installations.

MOTION WORKSHEET:

I move that the Commission issue a Certificate of Appropriateness for the work at 445 Second

Street in the Old West Side Historic District

____ Provided the following condition(S) is (ARE) met: 1) STATE CONDITION(s)

The work is generally compatible with the size, scale, massing, and materials and meets the Secretary of the Interior's Standards for Rehabilitation, standard(S) number(S) *(circle all that apply)*: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

ATTACHMENTS: application, drawings, photo, technical information.

445 Second Street (2008 Survey Photo)

City of Ann Arbor

PLANNING & DEVELOPMENT SERVICES — PLANNING SERVICES

301 E. Huron Street | P.O. Box 8647 | Ann Arbor, Michigan 48107-8647
p. 734.794.6265 | f. 734.994.8312 | planning@a2gov.org

ANN ARBOR HISTORIC DISTRICT COMMISSION APPLICATION

Section 1: Property Being Reviewed and Ownership Information

Address of Property: 445 S. Second St, Ann Arbor

Historic District: Old West Side

Name of Property Owner *(If different than the applicant)*:
Bob Kuehne

Address of Property Owner: 445 S. Second St, Ann Arbor

Daytime Phone and E-mail of Property Owner: (734) 834-2696

Signature of Property Owner: [signature] Date: 5/23/13

Section 2: Applicant Information

Name of Applicant: Bob Kuehne

Address of Applicant: 445 S. Second St, Ann Arbor

Daytime Phone: (734) 834-2696 Fax:(____)_____

E-mail: rpk@blue-newt.com

Applicant's Relationship to Property: X owner ____architect ____contactor ____other

Signature of applicant: [signature] Date: 5/23/13

Section 3: Building Use (check all that apply)

✓ Residential ✓ Single Family _____ Multiple Family _____ Rental

_____ Commercial _____ Institutional

Section 4: Stille-DeRossett-Hale Single State Construction Code Act
(This item **MUST BE INITIALED** for your application to be **PROCESSED**)

Public Act 169, Michigan's Local Historic Districts Act, was amended April 2004 to include the following language: "*...the applicant has certified in the application that the property where the work will be undertaken has, or will have before the proposed completion date, a a fire alarm or smoke alarm complying with the requirements of the Stille-DeRossett-Hale Single State Construction Code Act, 1972 PA 230, MCL 125.1501 to 125.1531.*"

Please initial here: [initials]

Section 5: Description of Proposed Changes (attach additional sheets as necessary)

1. Provide a brief summary of proposed changes. Replacement of shingles on main house and front porch; re-location of three attic vents from south side of roof to north side; installation of solar electric panels on south facing roof; and potentially removal of existing solar thermal panels.

2. Provide a description of existing conditions. Existing shingles have aged to the point of needing replacement. Two solar hot water panels are installed on the south facing roof. There are three attic vents on the south roof that will be relocated.

3. What are the reasons for the proposed changes? Roof maintenance and homeowner desire to save money and support renewable energy initiatives.

4. Attach any additional information that will further explain or clarify the proposal, and indicate these attachments here.
Roof plans, picture, and solar panel specification included.

5. Attach photographs of the existing property, including at least one general photo and detailed photos of proposed work area.

STAFF USE ONLY

Date Submitted: _____ Application to _____ Staff or _____ HDC

Project No.: ____ **HDC**_____ Fee Paid: _____

Pre-filing Staff Reviewer & Date: _____ Date of Public Hearing: _____

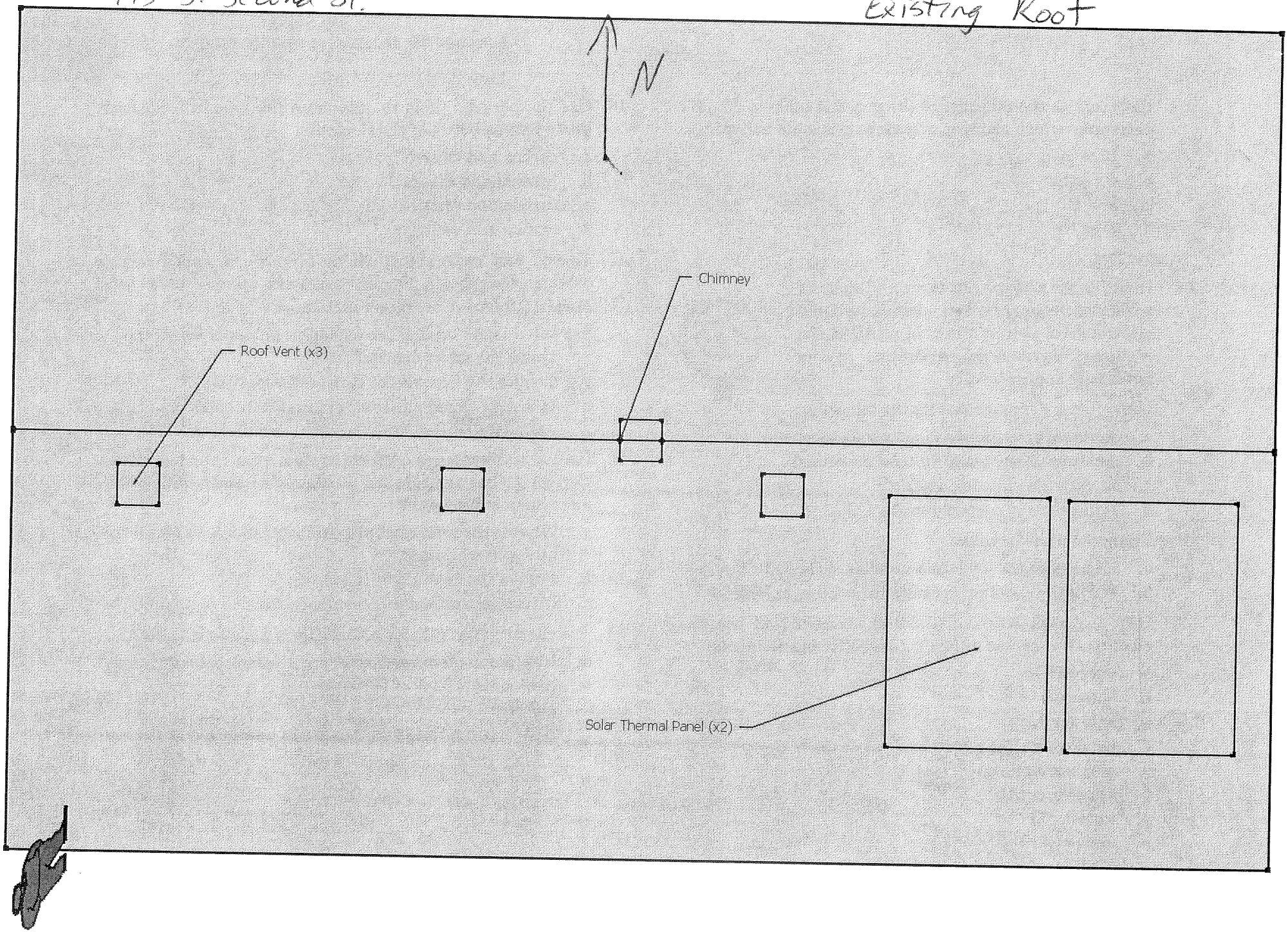
Application Filing Date: _____ Action: _____ HDC COA _____ HDC Denial

Staff signature: _____ _____ HDC NTP _____ Staff COA

Comments:

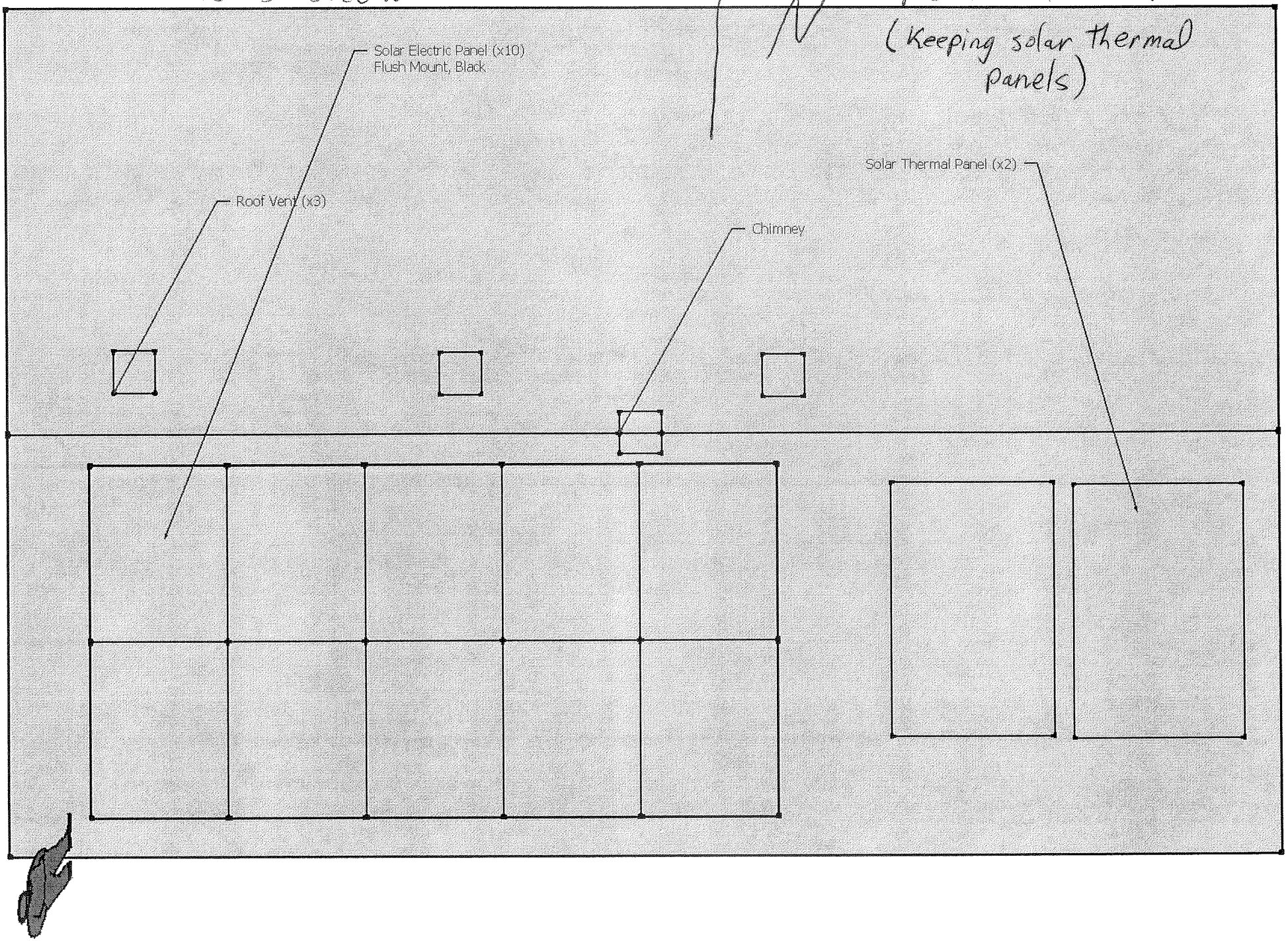
445 S. Second St.

Existing Roof



445 S. Second St

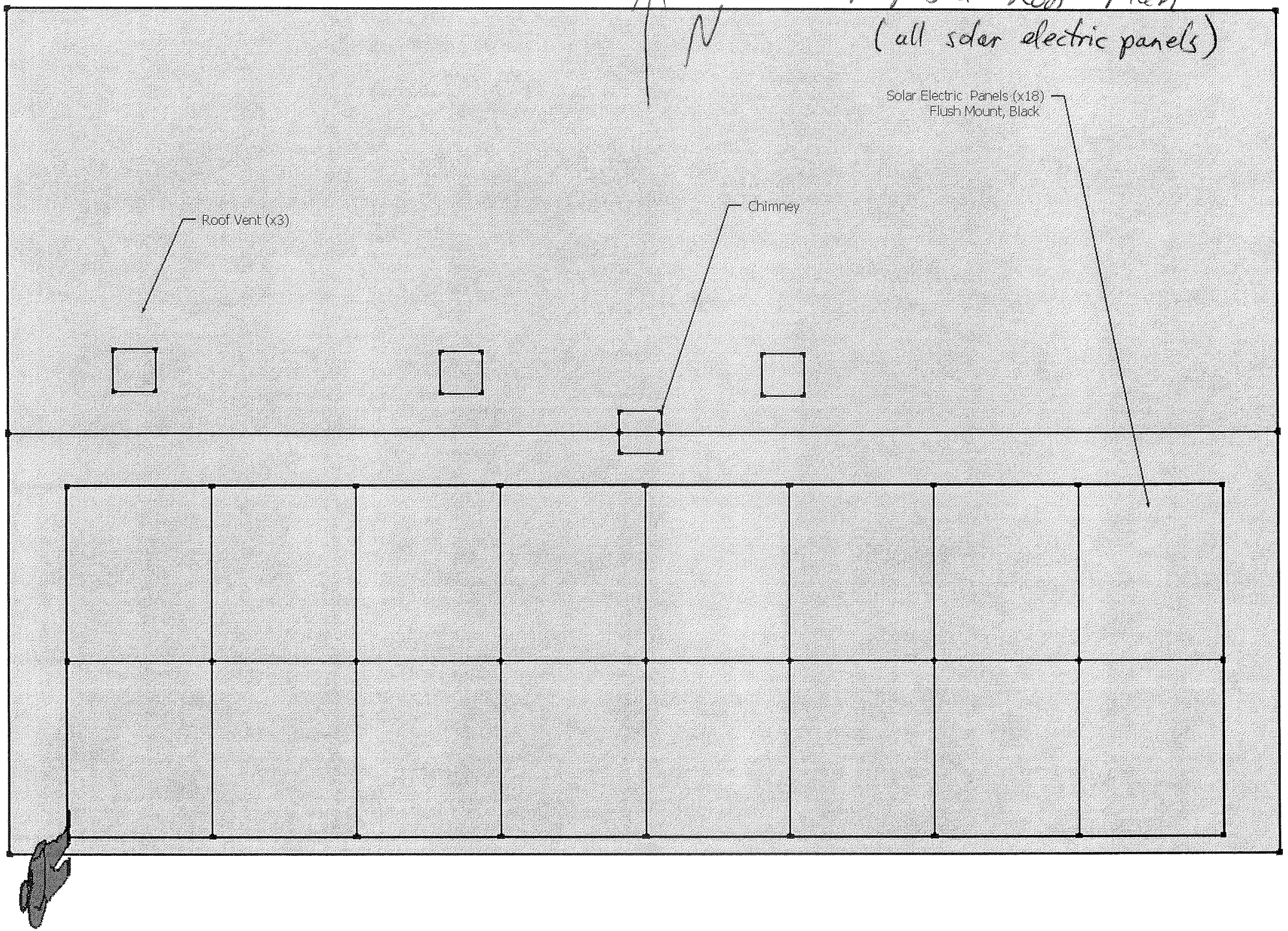
Proposed Roof Plan
(Keeping solar thermal panels)

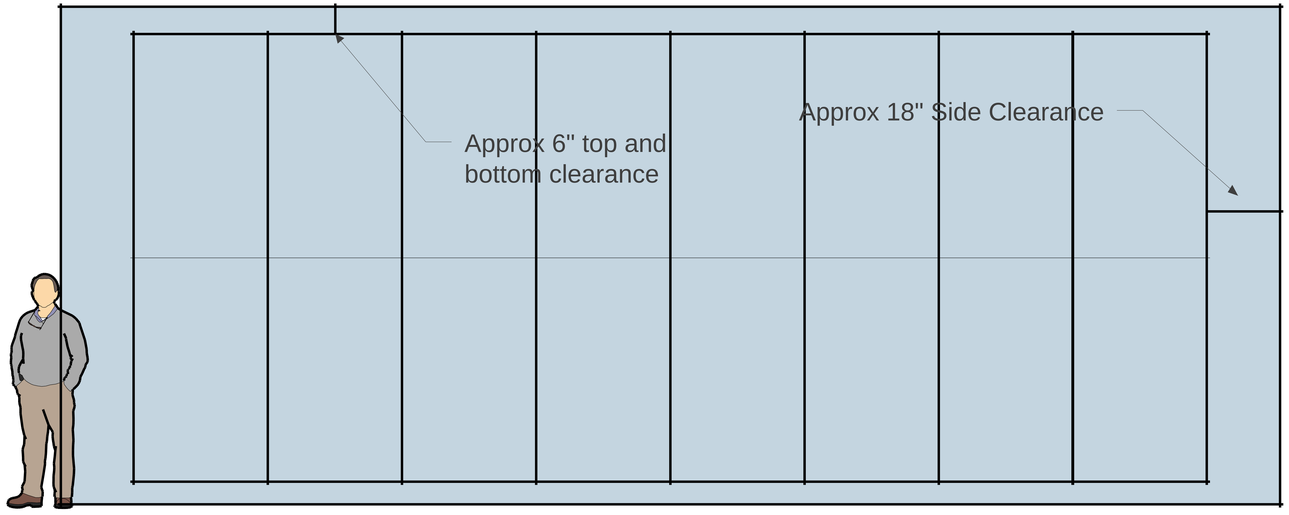


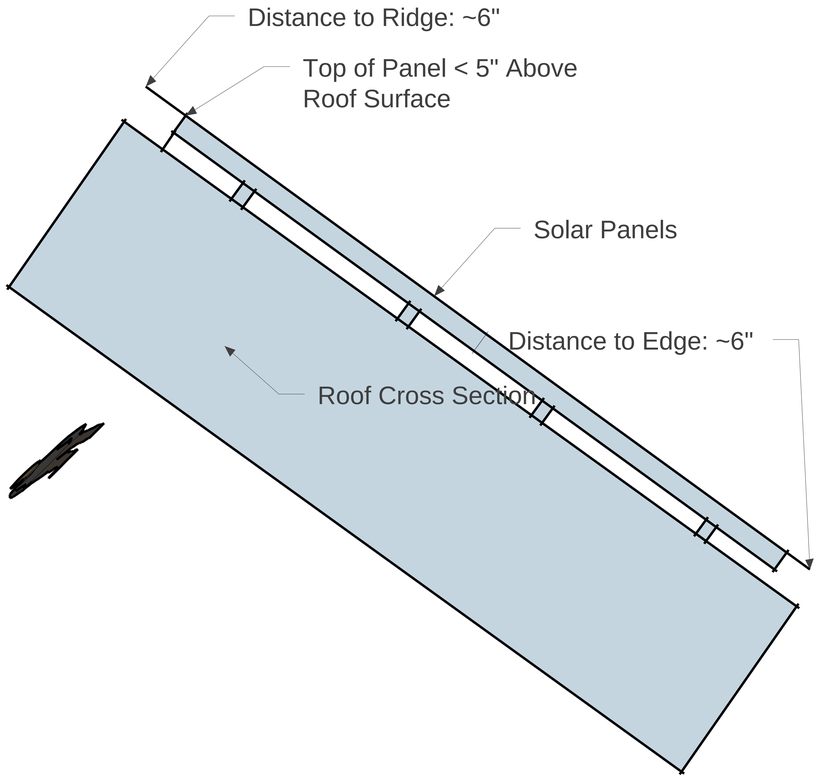
445 S. Second St

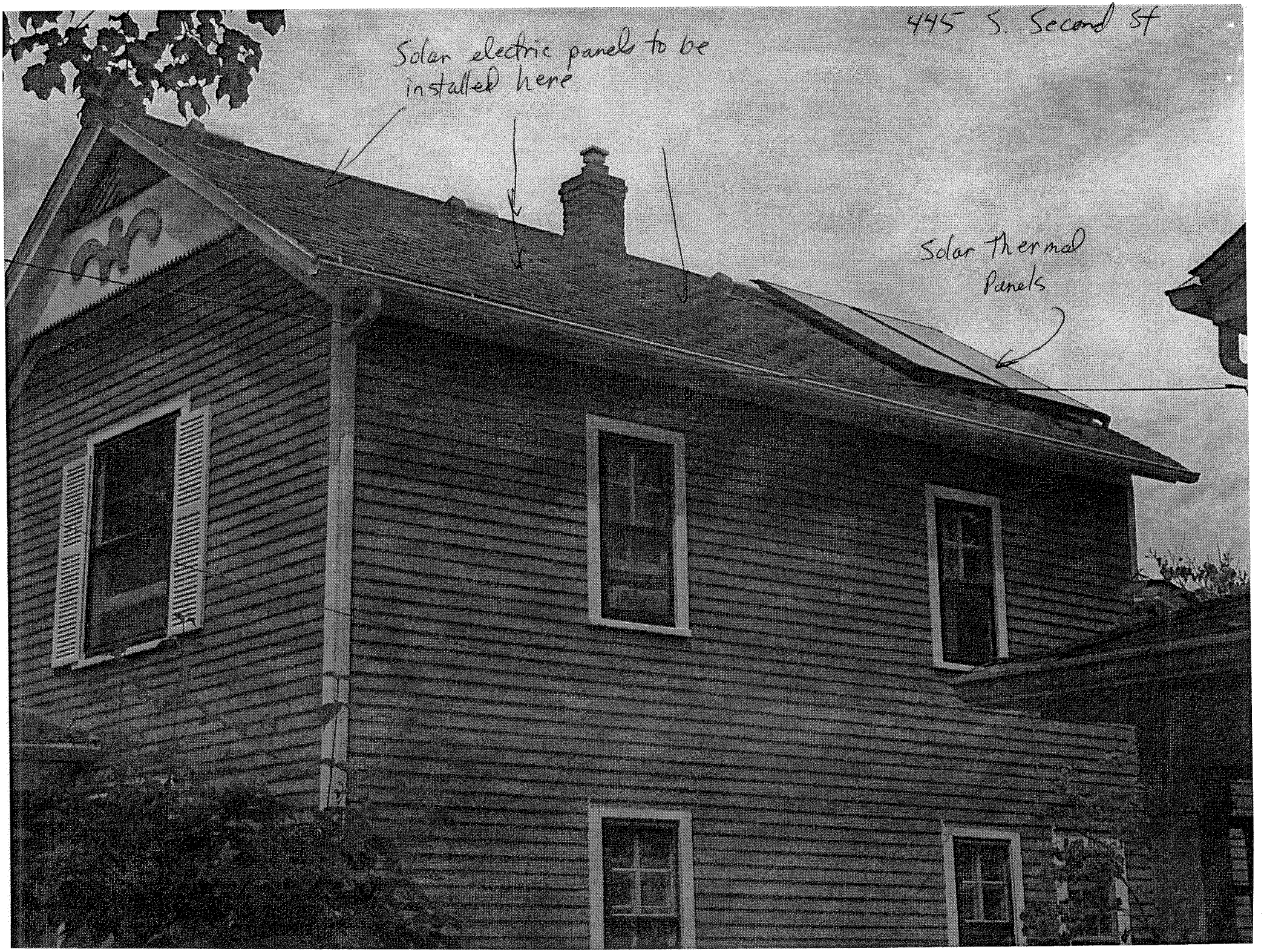
N

Proposed Roof Plan
(all solar electric panels)




Approx 6" top and
bottom clearance
Approx 18" Side Clearance


Distance to Ridge: ~6"
Top of Panel < 5" Above
Roof Surface
Solar Panels
Distance to Edge: ~6"
Roof Cross Section


445 S. Second St
Solar electric panels to be installed here
Solar Thermal Panels

Sunmodule™

SW 270 mono / Version 2.5 Frame

World-class quality
Fully-automated production lines and seamless monitoring of the process and material ensure the quality that the company sets as its benchmark for its sites worldwide.

SolarWorld Plus-Sorting
Plus-Sorting guarantees highest system efficiency. SolarWorld only delivers modules that have greater than or equal to the nameplate rated power.

25 years linear performance guarantee and extension of product warranty to 10 years
SolarWorld guarantees a maximum performance degression of 0.7% p.a. in the course of 25 years, a significant added value compared to the two-phase warranties common in the industry. In addition, SolarWorld is offering a product warranty, which has been extended to 10 years.*

*in accordance with the applicable SolarWorld Limited Warranty at purchase.
www.solarworld.com/warranty

- Qualified, IEC 61215
- Safety tested, IEC 61730
- Periodic Inspection

1)

ISO 9001
ISO 14001
Certified

Intertek

Made in USA

SolarWorld

We turn sunlight into power.

www.solarworld.com

Sunmodule™

SW 270 mono / Version 2.5 Frame

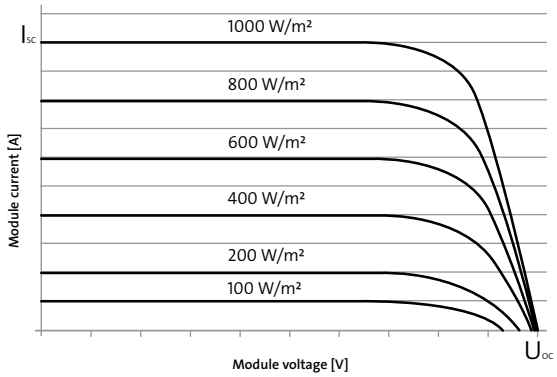
PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC)*

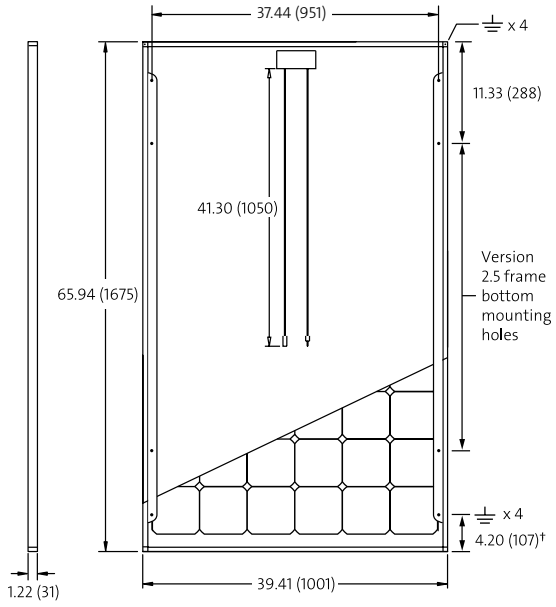
		SW 270
Maximum power	P_{max}	270 Wp
Open circuit voltage	V_{oc}	38.3 V
Maximum power point voltage	V_{mpp}	32.1 V
Short circuit current	I_{sc}	8.90 A
Maximum power point current	I_{mpp}	8.42 A

*STC: 1000W/m², 25°C, AM 1.5

THERMAL CHARACTERISTICS

NOCT	46 °C
TC I_{sc}	0.004 %/K
TC V_{oc}	-0.30 %/K
TC P_{mpp}	-0.45 %/K
Operating temperature	-40°C to 85°C





PERFORMANCE AT 800 W/m², NOCT, AM 1.5

		SW 270
Maximum power	P_{max}	194.9 Wp
Open circuit voltage	V_{oc}	34.5 V
Maximum power point voltage	V_{mpp}	28.9 V
Short circuit current	I_{sc}	7.19 A
Maximum power point current	I_{mpp}	6.74 A

Minor reduction in efficiency under partial load conditions at 25°C: at 200W/m², 95% (+/-3%) of the STC efficiency (1000 W/m²) is achieved.

COMPONENT MATERIALS

Cells per module	60
Cell type	Mono crystalline
Cell dimensions	6.14 in x 6.14 in (156 mm x 156 mm)
Front	tempered glass (EN 12150)
Frame	Clear anodized aluminum
Weight	46.7 lbs (21.2 kg)

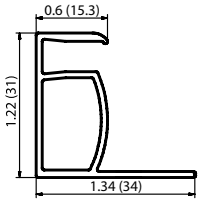
SYSTEM INTEGRATION PARAMETERS

Maximum system voltage SC II		1000 V
Max. system voltage USA NEC		600 V
Maximum reverse current		16 A
Number of bypass diodes		3
UL Design Loads*	Two rail system	113 psf downward 64 psf upward
UL Design Loads*	Three rail system	170 psf downward 64 psf upward
IEC Design Loads*	Two rail system	113 psf downward 50 psf upward

*Please refer to the Sunmodule installation instructions for the details associated with these load cases.

ADDITIONAL DATA

Power sorting[2]	-0 Wp / +5 Wp
J-Box	IP65
Connector	MC4 / KSK4
Module efficiency	16.10 %
Fire rating (UL 790)	Class C



VERSION 2.5 FRAME
- Compatible with both "Top-Down" and "Bottom" mounting methods
- ⏚ Grounding Locations:
  - 4 corners of the frame
  - 4 locations along the length of the module in the extended flange†

NEW! Black & Veatch validated PAN files now available. Ask your account manager for more information.

1) Sunmodules dedicated for the United States and Canada are tested to UL 1703 Standard and listed by a third party laboratory. The laboratory may vary by product and region. Check with your SolarWorld representative to confirm which laboratory has a listing for the product.
2) Measuring tolerance traceable to TUV Rheinland: +/- 2% (TUV Power Controlled).
3) All units provided are imperial. SI units provided in parentheses.

Sunfix plus®

The intelligent pitched roof mounting system

The SolarWorld Sunfix plus® pitched roof mounting system is optimized for simple and efficient installation of SolarWorld Sunmodule™ panels. The Sunfix plus sytem offers many value-added improvements ensuring trouble free assembly.

- For flush mounting to pitched roofs
- Multiple roofing applications: composition shingle, standing metal seam, flat or curved concrete tile
- Supports high wind and snow loads
- Pre-assembled hardware designed for fast and easy installation
- Preset rail lengths simplify planning and reduce material cut-off
- P.E. certified CA. 2010 Building Code, ASCE 7-05 & 2009 International Building Code

MADE IN USA

www.solarworld.com

SOLARWORLD

We turn sunlight into power.

Sunfix plus®

SW-01-5098US 10-2011

TECHNICAL SPECIFICATIONS

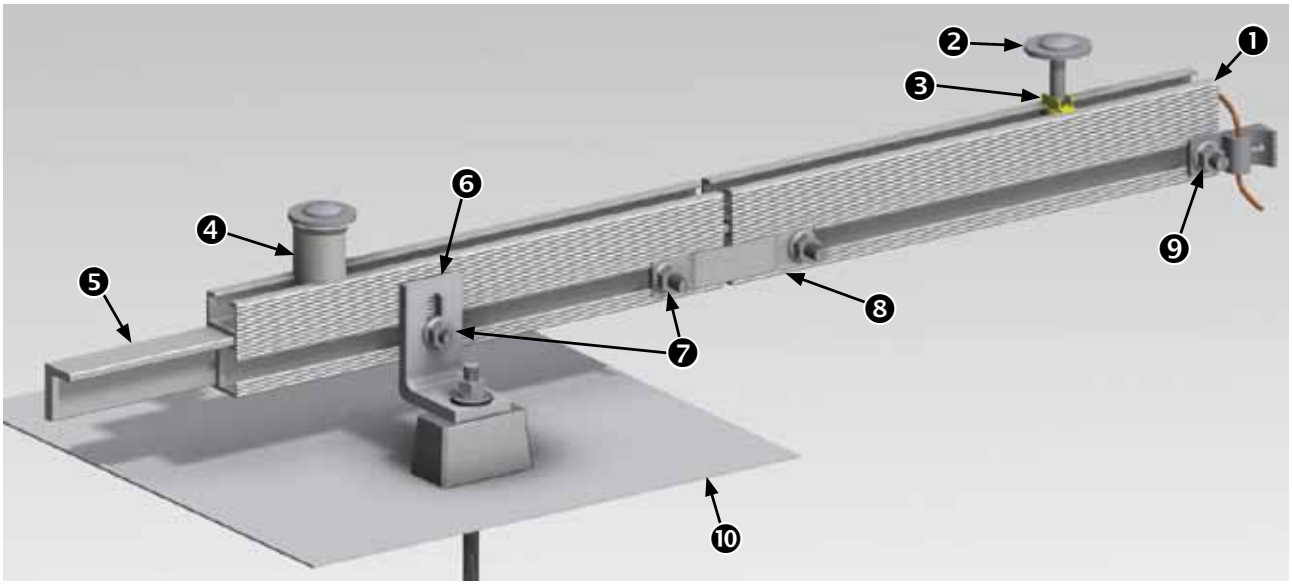
Array area weight	1.0 lb/ft²
Roof pitch	9° to 45°
Orientation	Portrait or landscape - flush to roof
Rail lengths	2, 3, and 4 module widths
Top clamps	M8 stainless steel - Torx T40 drive
Top clamp installation	Channel nut design - 15 ft-lbs torque
Top clamp colors	Silver or black
Splice bar	Aluminum, fastener free installation
Extruded material	6005-T5 aluminum alloy
Aluminum finish	Clear anodized

FEATURES

- Pre-assembled module 'top-clamp' hardware
- Top clamp with retainer stays in place during installation
- No field drilling of rails is required
- Splice bar with insertion stop - allows thermal expansion
- L-foot needed on only one side near rail splice bar
- Wire management stainless steel cable S clips available
- Anodized aluminum components resists oxidation affects
- Compatible with approved WEEB grounding devices
- 10 year limited warranty

COMPONENTS

❶ Sunfix plus rail (2 required) - 2 modules = 82", 3 modules = 122", 4 modules = 162"
❷ Top-clamp for 31 mm frame - M8 bolt
❸ Channel nut with bolt positioning retainer
❹ End clamp aluminum spacer - 31 mm
❺ Rail splice bar; joins rails together
❻ L-foot with dual adjustment slots & mating serrations
❼ T-bolt M8 x 20 stainless steel with serrated flange nut
❽ Rail splice ground jumper WEEB 8.0 pre-assembled with bolts
❾ Rail-equipment ground WEEB-lug 8.0 with bolt assembly
❿ Roof attachment/flashing - Quick Mount PV®

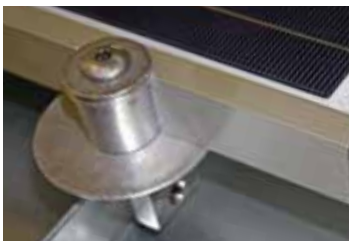


ROOF MOUNTING OPTIONS


Composition


Flat tile


S-Tile


Standing seam clamp