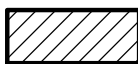


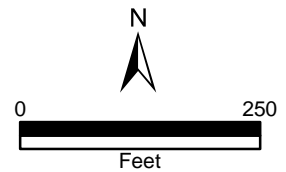
**9-C-20-HZ**  
**APPLICATION FOR CERTIFICATE OF APPROPRIATENESS**



**1219 Luttrell St. 37917**  
**Fourth and Gill H-1**

Original Print Date: 9/1/2020  
 Knoxville/Knox County Planning -- Historic Zoning Commission

Petitioner: Brett Burdick





# Staff Report - Certificate of Appropriateness Application

Knoxville Historic Zoning Commission

File Number: 9-C-20-HZ

**PROPERTY LOCATION:** 1219 Luttrell St. / Parcel ID 81 L L 008

**DISTRICT:** Fourth and Gill H-1

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**MEETING DATE:** 9/17/2020

**APPLICANT:** Brett Burdick

**LEVEL OF WORK:** Level II. Major repair or replacement of materials or architectural elements

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**PROPERTY DESCRIPTION:** Bungalow, c.1910

One-story frame residence with a front-gable roof, an exterior of wood weatherboard siding, and a foundation clad in rusticated concrete block. A 2/3rds width, front-gable roof porch projects from the left side of the façade. The porch is supported by square wood columns (grouped in 3s) on piers clad in rusticated concrete block. Roof features wide eave overhangs and triangular wood brackets.

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► **DESCRIPTION OF WORK:**

After-the-fact review of one array of six solar panels and proposed addition of one array of three solar panels. House has a front-gable roof with a small shed-roof bay projecting from the side (south) elevation, towards the rear. Previously-installed panels are located on rear gable roof section, with a portion of the array on the shed roof. Proposed array will be located towards the rear of the primary front-gable roof slope. Proposed panels measure 65" wide by 118" long and will project approximately 2" above the roof slope. No additional equipment accompanies this proposal.

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► **APPLICABLE DESIGN GUIDELINES:**

Fourth and Gill Design Guidelines, adopted by the Knoxville City Council on April 20, 1999 and June 29, 1999.

Roofs

5. Do not use solar collectors, modern skylights, or inappropriate structures on roof planes that are visible from the street. Do not install them where they interfere with decorative roof elements. If they are installed, they should not comprise more than 3% of the total roof surface.

Mechanical Systems

3. If used, solar collectors should not be visible from public streets.

**PROPOSED SOLAR PANEL GUIDELINES FOR FOURTH & GILL (see Comments):**

Contemporary solar additions to building roofs have no historic counterpart and make a strong impact of the visual character of existing buildings. While both goals of historic preservation and energy conservation are important, care must be taken that one is not achieved at the expense of the other.

In designing and obtaining permission to install solar technology on a historic home, applicant is to consider the



# Staff Report - Certificate of Appropriateness Application

Knoxville Historic Zoning Commission

File Number: 9-C-20-HZ

following preferences and requirements for design and placement of solar devices. These provisions are designed to minimize irreversible visual and structural impact of the devices on the historic appearance of the building.

Historic Zoning Commission is under no obligation to approve projects that do not adhere strictly to these guidelines, and may require that more preferred alternatives be pursued as a condition of project approval.

#### Requirements:

Solar technology should not be visible from public streets or, if visible, should be installed on an accessory building, a rear facing elevation, or a side elevation that does not face onto a public street.

#### Exception:

In the event that street-facing elevations are the only reasonable placement possible, the solar installation should be non-reflective and fully integrated with the building envelope or cladding.

In all cases, regardless of the location of the solar installation -

1. Solar collectors and mounting systems should be compatible in color to the property's roof materials.
2. Framing equipment associated with the installation of solar technology, including brackets, edging around solar collectors, and other metal features, should be treated, color clad, or covered to be made as unobtrusive as possible and to minimize contrast between the solar collectors and equipment and any roofing materials.
3. Slope, elevation and position relative to existing architectural features should be minimally visible from public streets.
4. Historic roofing materials or features, including dormers and chimneys, may not be irrevocably altered or removed for the solar installation.
6. For roof-mounted solar installations:
  - a. On a sloped roof:

The solar equipment should be mounted parallel to the roof slope and not more than six inches above the roof, as measured vertically from the top of the equipment to the roof surface. With the provided exception of building-integrated solar technologies, solar equipment should not be located forward of any point of a roof slope facing a public street or closer than 1/3 the depth of the main body of the roof if there is no slope toward the street (see diagrams)
  - b. On a flat roof:

The equipment should be set back from the roof edge, and visibility from ground level should be minimal

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#### COMMENTS:



# Staff Report - Certificate of Appropriateness Application

Knoxville Historic Zoning Commission

File Number: 9-C-20-HZ

The proposed guidelines for solar panels date to 2012 and were reviewed and accepted by the Fourth and Gill Neighborhood Organization Board of Directors at that time, but they were not officially approved and adopted by City Council. It is anticipated that these guidelines will be included in the next Design Guidelines update effort to be approved by City Council. They have been applied in other evaluations of solar panels in Fourth and Gill, including the August 2016 review of panels at 813 Deery St (8-K-16-HZ) and 831 Deery St (3-J-20-HZ).

## **STAFF FINDINGS:**

1. The house is a contributing structure to the Fourth and Gill National Register Historic District and local overlay.
2. The existing array of panels is located to the rear (west) of the house, and the second array is proposed to be placed adjacent to the existing panels on the right (east) side. The neighborhood-approved guidelines for solar panels encourage that panels should "not be visible from public streets, or, if visible, should be installed on an accessory building, a rear-facing elevation, or a side elevation that does not face onto the public street." Further recommendations on placement encourage new panels to "not be located forward of any point of a roof slope facing a public street or closer than 1/3 the depth of the main body of the roof, if there is no slope toward the street." While the proposed panels (and the existing array) are somewhat visible from the public right-of-way, their placement is appropriate under these guidelines.
3. The proposed array will be somewhat visible from Luttrell Street. The existing roof is grey asphalt shingles. The proposed panels are black and would benefit from an anti-reflective coating to reduce visibility.
4. The proposed panels are 2" thick and will be installed flush to the roof slope. The existing array extends across two roof slopes, so the array is not flush to the roof slope and the side of the panels are clearly visible from the public right-of-way. At the tallest point (between the two roof intersections), the solar equipment does not appear to exceed more than 6" above the roof surface, narrowly meeting the design guidelines. However, guidelines encourage that framing equipment "including brackets, edging around solar collectors, and other metal features should be treated, color clad, or covered to be made as unobtrusive as possible and to minimize contrast between the solar connectors and any roofing materials."
5. No historic roofing material or features will be altered or removed for installation of the solar panels or associated equipment. No changes to the existing roof or siding of the house will be necessary to support the installation of the panels.

## **STAFF RECOMMENDATION:**

Staff recommends approval of the work as proposed, with the condition that the applicant explore further options to reduce visibility on the existing panel framework (treatments, color-cladding, or covering, etc) and the proposed panels (anti-reflective treatments, etc) with approval by staff.



# DESIGN REVIEW REQUEST

- DOWNTOWN DESIGN (DK)
- HISTORIC ZONING (H)
- INFILL HOUSING (IH)

Applicant

Date Filed

Meeting Date (if applicable)

File Number(s)

## CORRESPONDENCE

All correspondence related to this application should be directed to the approved contact listed below.

- Owner
- Contractor
- Engineer
- Architect/Landscape Architect

Name

Company

Address

City

State

Zip

Phone

Email

## CURRENT PROPERTY INFO

Owner Name (if different from applicant)

Owner Address

Owner Phone

Property Address

Parcel ID

Neighborhood

Zoning

## AUTHORIZATION

Staff Signature

Please Print

Date

Applicant Signature

Please Print

Date

# REQUEST

## DOWNTOWN DESIGN

**Level 1:**

- Signs     Alteration of an existing building/structure

**Level 2:**

- Addition to an existing building/structure

**Level 3:**

- Construction of new building/structure     Site design, parking, plazas, landscape

**See required Downtown Design attachment for more details.**

Brief description of work: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## HISTORIC ZONING

**Level 1:**

- Signs     Routine repair of siding, windows, roof, or other features, in-kind; Installation of gutters, storm windows/doors

**Level 2:**

- Major repair, removal, or replacement of architectural elements or materials     Additions and accessory structures

**Level 3:**

- Construction of a new primary building

**Level 4:**

- Relocation of a contributing structure     Demolition of a contributing structure

**See required Historic Zoning attachment for more details.**

Brief description of work: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## INFILL HOUSING

**Level 1:**

- Driveways, parking pads, access point, garages or similar facilities     Subdivisions

**Level 2:**

- Additions visible from the primary street     Changes to porches visible from the primary street

**Level 3:**

- New primary structure  
 Site built     Modular     Multi-Sectional

**See required Infill Housing attachment for more details.**

Brief description of work: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## STAFF USE ONLY

**ATTACHMENTS**

- Downtown Design Checklist  
 Historic Zoning Design Checklist  
 Infill Housing Design Checklist

**ADDITIONAL REQUIREMENTS**

- Property Owners / Option Holders

**Level 1:** \$50 • **Level 2:** \$100 • **Level 3:** \$250 • **Level 4:** \$500

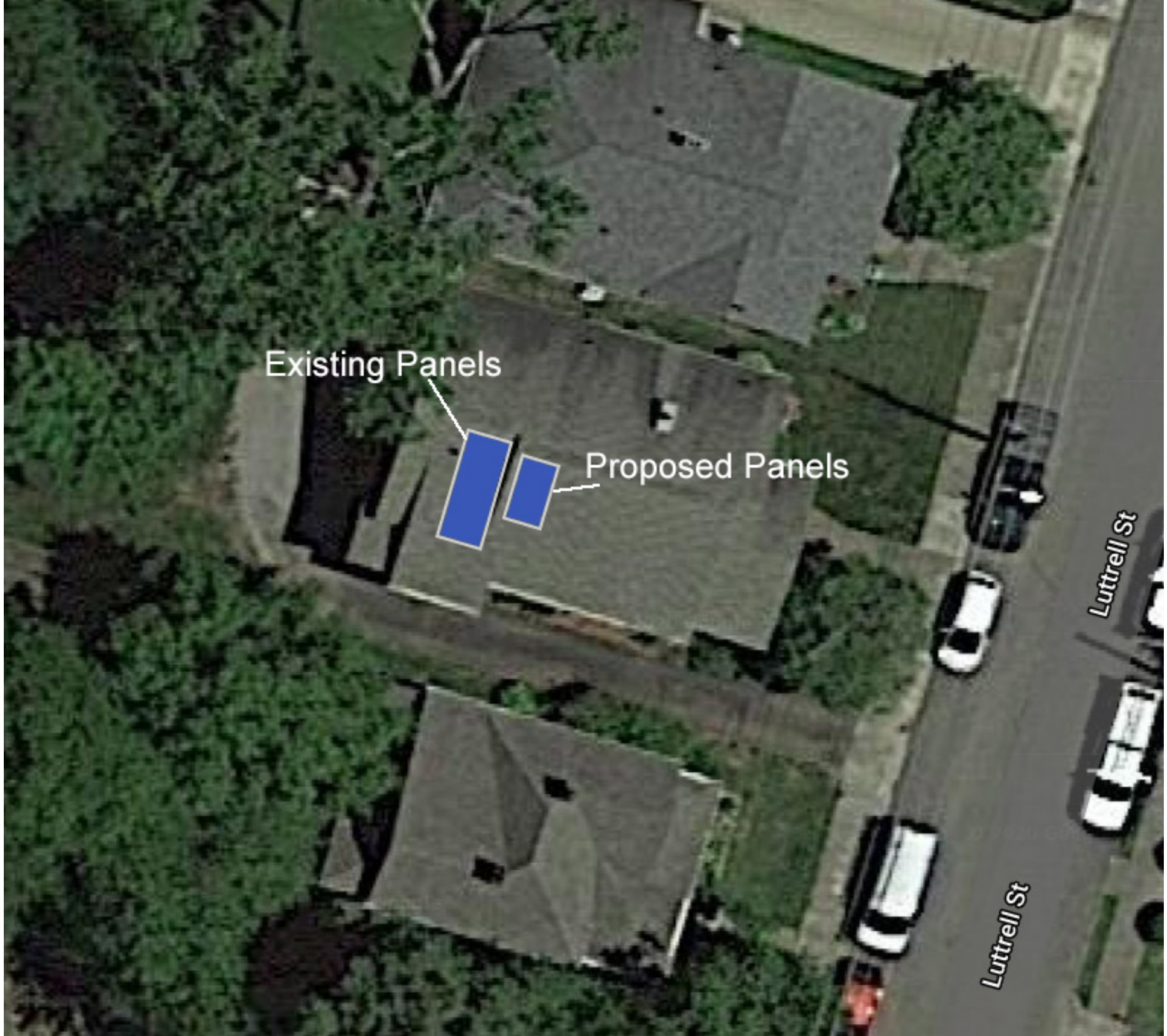
**FEE 1:**

**FEE 2:**

**FEE 3:**

**TOTAL:**





Existing Panels

Proposed Panels

Luttrell St

Luttrell St

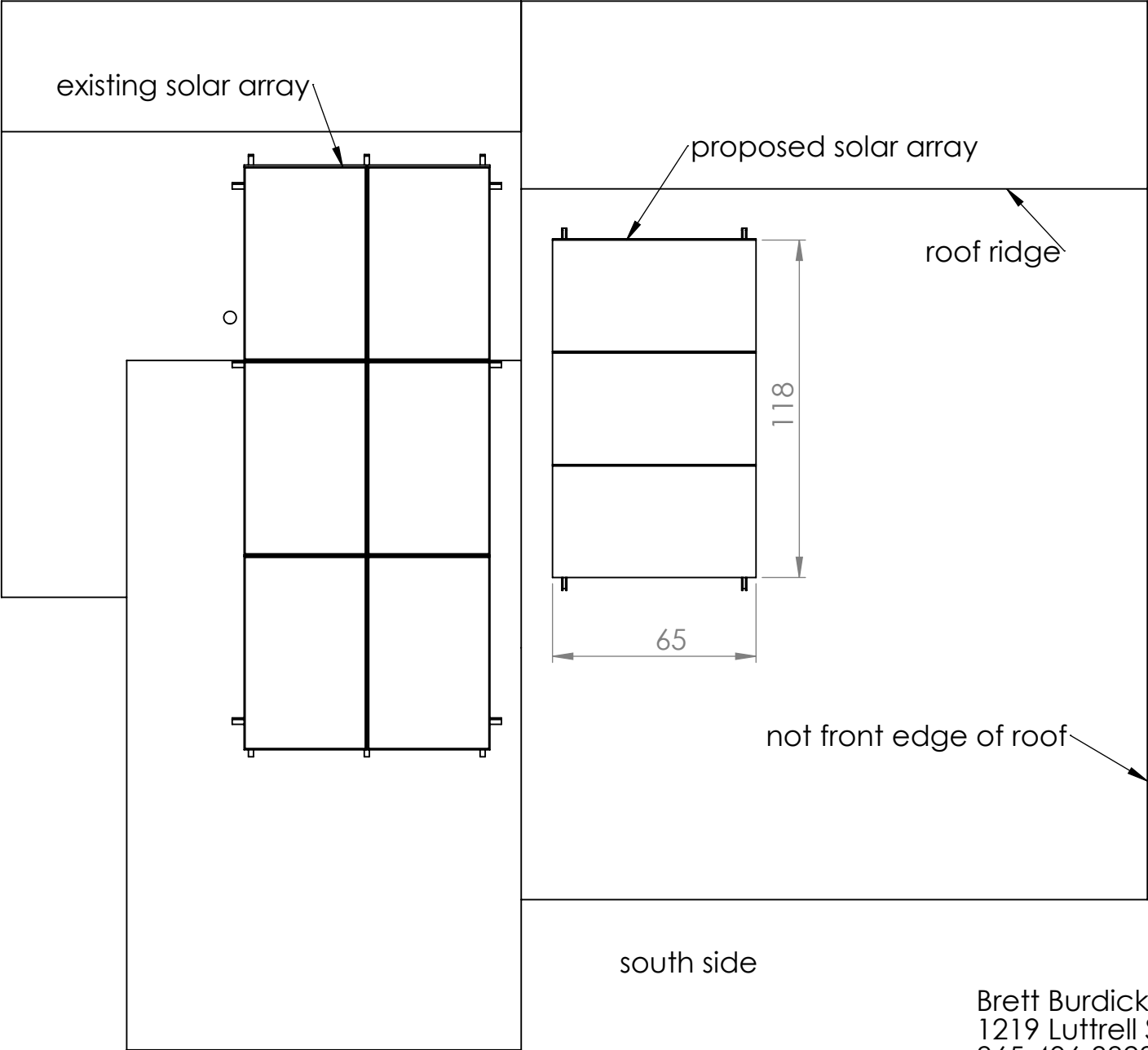




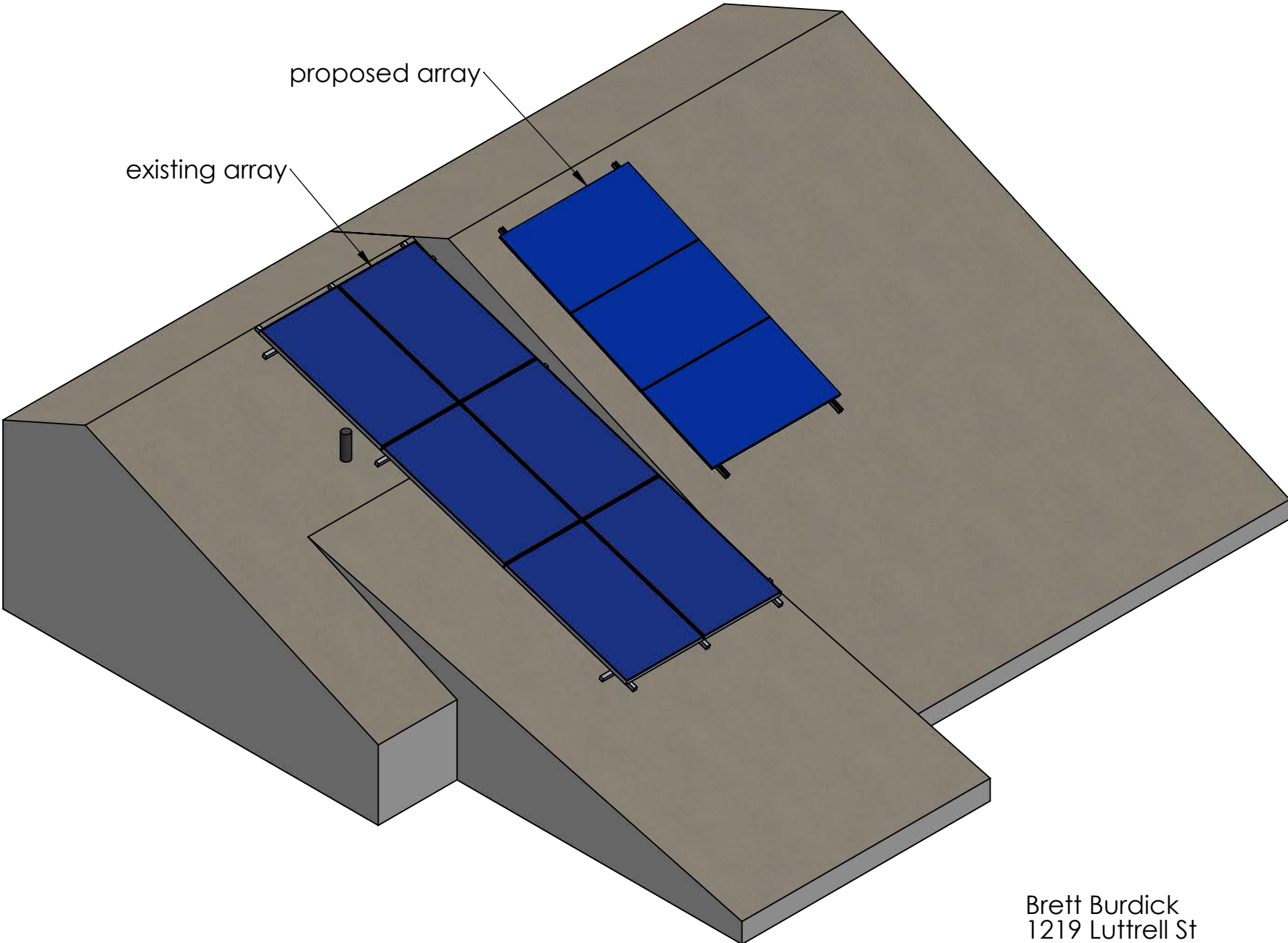
Proposed Panels



north side



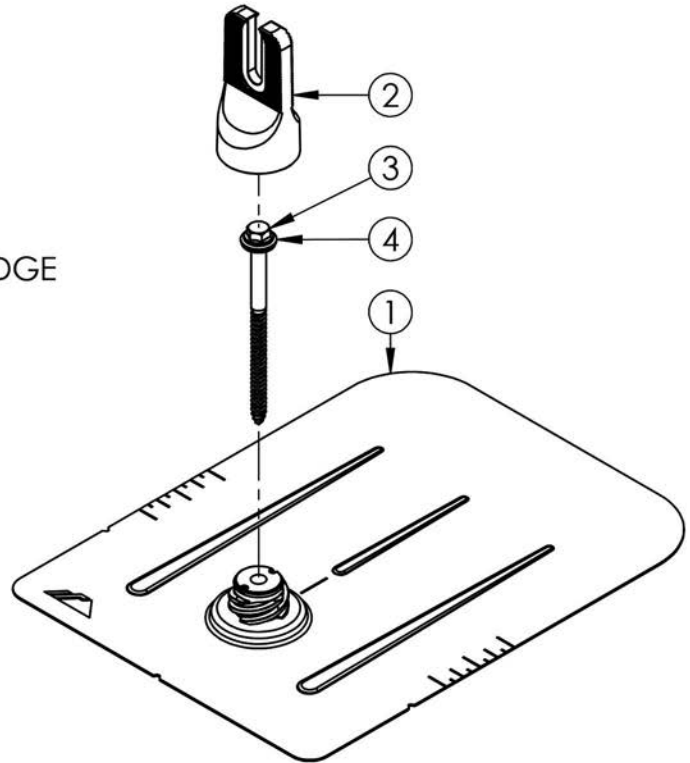
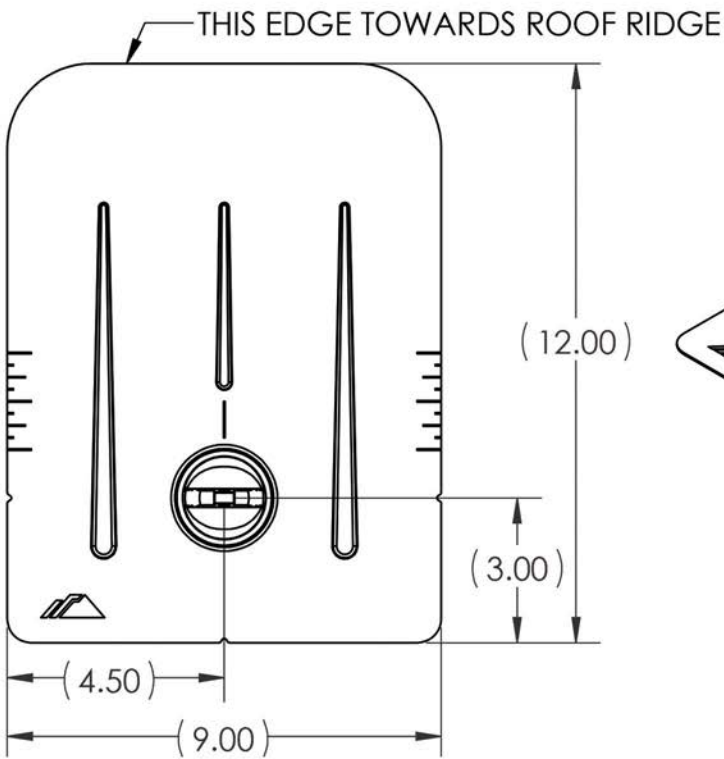
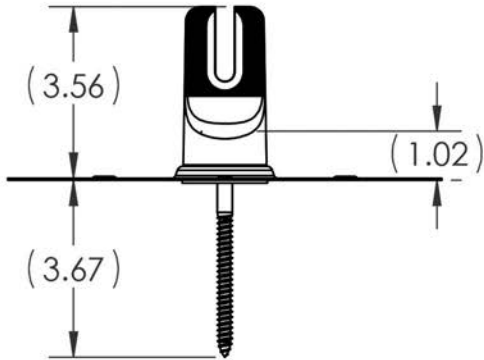
Brett Burdick  
 1219 Luttrell St  
 865-406-3828



existing array

proposed array

Brett Burdick  
1219 Luttrell St  
865-406-3828



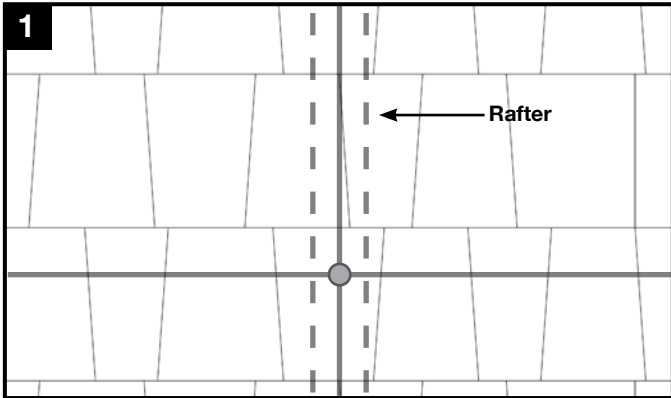
NO.	DESCRIPTION
1	ASSY, FLASHING, MILL OR BLACK
2	ASSY, CAP, MILL OR BLACK
3	BOLT LAG 5/16 X 4.75"
4	WASHER, EPDM BACKED

KIT, FLASHFOOT2		
SIZE <b>A</b>	DO NOT SCALE DRAWING	
SCALE: 1:4	WEIGHT: 0.88 lbs	SHEET 1 OF 1

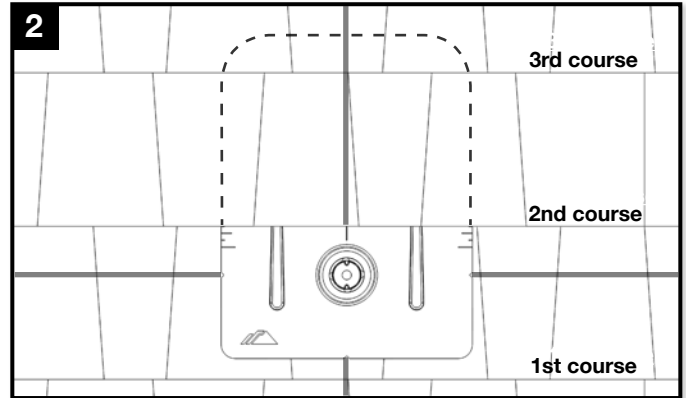


# Installation

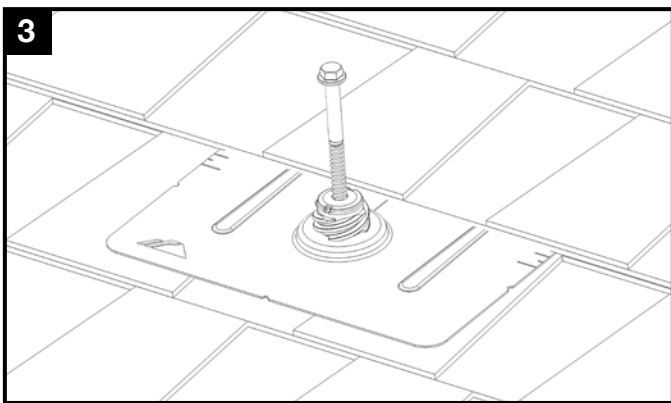
**Tools Required:** tape measure, chalk line, stud finder, roofing bar, caulking gun, driver with 1/4" bit and 7/16" hex socket.



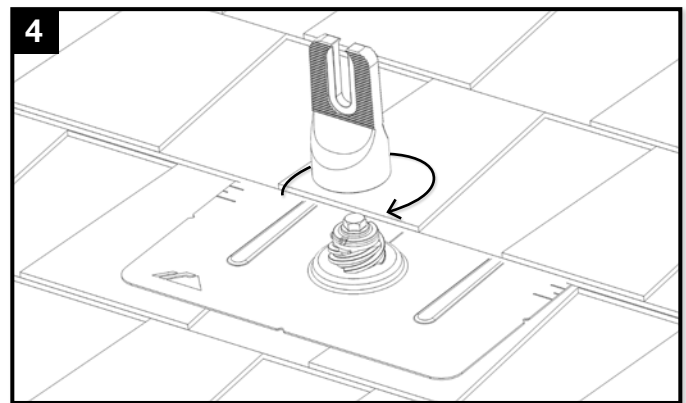
Locate rafters and snap vertical and horizontal lines to mark flashing locations. Drill 1/4" pilot holes, then fill with roofing manufacturer's approved sealant.



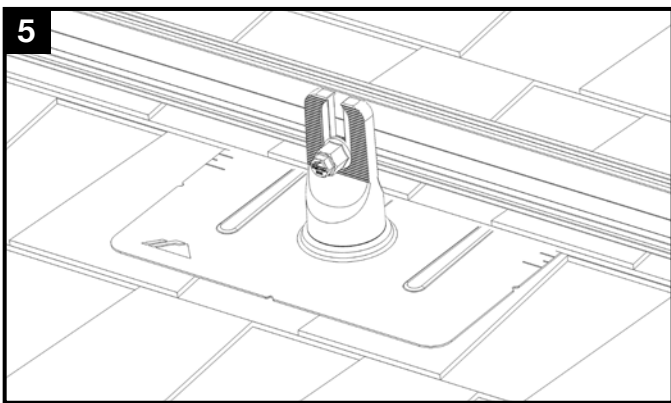
Slide flashing, between 1st and 2nd course, so the top is at least 3/4" above the edge of the 3rd course and the bottom is above the edge of the 1st course.



Line up pilot hole with flashing hole and insert lag bolt with bonded washer through flashing. Tighten lag bolt until fully seated.



Place Cap onto flashing in desired orientation for E/W or N/S rails and rotate 180 degrees. FlashFoot 2 is now installed and ready for IronRidge XR Rails.



Attach rails to either side of the open slot using bonding hardware. Level rail at desired height, then torque to 250 in-lbs (21 ft-lbs).

## Structural Certification

Designed and Certified for Compliance with the International Building Code & ASCE/SEI-7.

## Water Seal Ratings

Water Sealing Tested to UL 441 Section 27 "Rain Test" and TAS 100-95 "Wind Driven Rain Test" by Intertek. Ratings applicable for composition shingle roofs having slopes between 2:12 and 12:12. Tested and evaluated without sealant. Any roofing manufacturer approved sealant is allowed.

## UL 2703

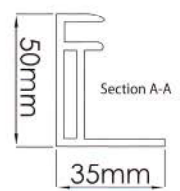
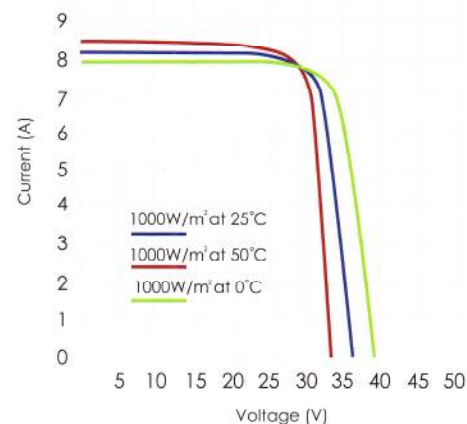
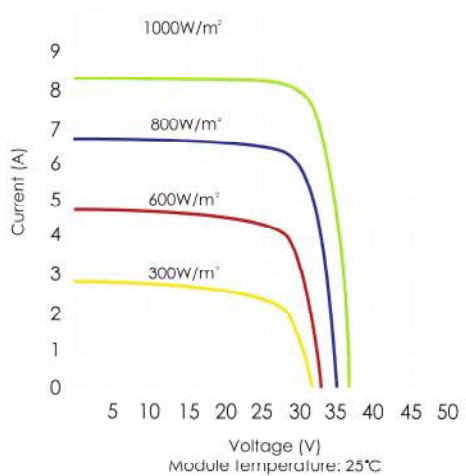
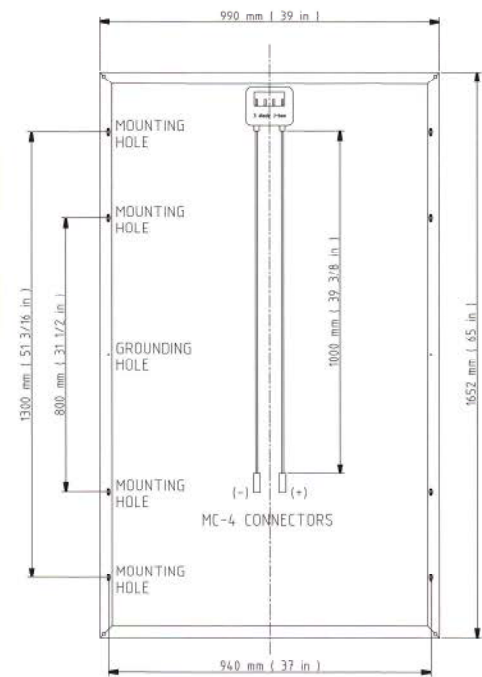
Conforms to UL 2703 Mechanical and Bonding Requirements. See IronRidge Flush Mount Installation Manual for full ratings.

# SPECIFICATIONS

Cells	Polycrystalline silicon solar cells 156mm x 156mm
Cells Number	60 (6x10)
Dimensions (mm) (in)	1652 x 990 x 50 / 65 x 39 x 2
Weight (kg) (lb)	24/53

## TEMPERATURE COEFFICIENTS

NOCT (°C)	50
Current Temperature Coefficient $\alpha_{I_{SC}}$ (%/°C)	+0.09
Voltage Temperature Coefficient $\beta_{V_{OC}}$ (%/°C)	-0.37
Temperature Coefficient $\gamma_{P_{MAX}}$ (%/°C)	-0.48



**WARRANTY:**  
 Modules are UL Certified  
 5-years product warranty  
 10-years performance at 90% power output  
 25-years performance at 80% power output

**NOTE:**  
 1. STC: Irradiance 1000W/m<sup>2</sup>, Module temperature 25°C, AM =1.5  
 2. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%

**KEMERY COMPANY**  
 2985 HODGES SWITCH RD.  
 STRAWBERRY PLAINS, TN 37871  
 Ph.865-933-6261 fax 865-983-7034  
 Email jkemery998@aol.com

# POLYCRYSTALLINE PV MODULE 60 CELLS

## ELECTRICAL CHARACTERISTICS

MODEL	1 STH-215P	1 STH-220P	1 STH-225P	1 STH-230P
Max Power Pm (W)	215	220	225	230
Max Power Voltage Vm (V)	29.0	29.3	29.6	29.9
Max Power Current Im (A)	7.35	7.47	7.58	7.65
Open Circuit Voltage Voc (V)	36.3	36.6	36.9	37.1
Short Circuit Current Isc (A)	7.84	7.97	8.09	8.18
Cell Efficiency	15.2%	15.6%	15.6%	16.4%
Module Efficiency	13.2%	13.5%	13.8%	14.0%
Maximum System Voltage (V)	600(UL)			
Power Tolerance	± 3%			

## COMPONENTS & MECHANICAL DATA

Front Glass	Low iron, 4mm tempered
Junction Box	MIM Slim, IP-65 rated, UL approved
Diode	15A
Output Cables	1m cable (39 3/8 in), 12AWG, UL approved
Connectors	MC-4, IP-67, UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA (0.46 thickness)
Back Foil	Black or White (UV Protected)
Temperature Range	-40°C to + 90°C



### KEMERY COMPANY

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STRAWBERRY PLAINS, TN 37871  
Ph.865-933-6261 fax 865-983-7034  
Email jkemery998@aol.com

671 N Plano Rd Suite 202  
Richardson, Texas 75081

Phone: 972-231-1158

Fax: 972-231-0873

E-mail: 1soltech@1soltech.com