



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Sandra I. Heiler
Chairman

Date: November 18, 2019

MEMORANDUM

TO: Hadi Mansouri
Department of Permitting Services

FROM: Dan Bruechert
Historic Preservation Section
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit #893866: Solar Panel Installation

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** at the November 13, 2019 HPC meeting.

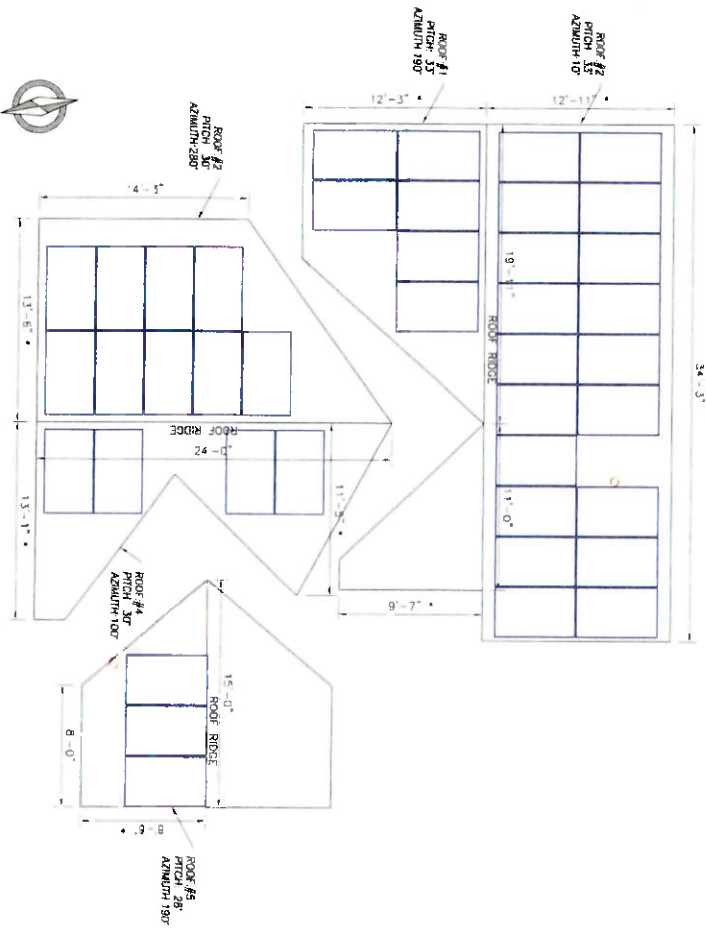
The HPC staff has reviewed and stamped the attached construction drawings.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Daryl Braithwaite
Address: 32 Hickory Avenue, Takoma Park

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete the applicant will contact Dan Bruechert at 301.563.3400 or Dan.bruechert@montgomeryplanning.org to schedule a follow-up site visit.





SOLAR PANEL LAYOUT

Scale: 1/8" = 1'-0"

- NOTES**
1. THE SYSTEM SHALL INCLUDE (a) LONG Green Energy Technology Co Ltd (RG-6000P-310M
 2. SNAPBACK SQUARE MOLLY RAIL W/ L BR INSTALLED IN ACCORDANCE WITH SNAPBACK INSTALLATION MANUAL.
 3. DIMENSIONS MARKED (*) ARE ALONG ROOF SLOPE.
 4. REFER TO STRUCTURAL DRAWING FOR SECTIONS MARKED AND ADDITIONAL NOTES.

APPROVED
 Montgomery County
 Historic Preservation Commission

Sandra L. Heiler

REVIEWED
 By Dan.Bruechert at 1:40 pm, Nov 18, 2019



Solar Energy World
 Because Tomorrow Matters
 Solar Energy World LLC
 5681 Main Street
 Ellicott City, MD 21075
 (888) 497-5233

This drawing is the property of Solar Energy World, Inc. The information herein is confidential and shall be used only for the project and site for which it was prepared. It shall not be used for any other project or site without the written permission of Solar Energy World, Inc. The information herein is not intended to constitute an offer of any product or service. The information herein is not intended to constitute an offer of any product or service. The information herein is not intended to constitute an offer of any product or service.

Project Name and Address
 Daryl Braithwaite
 32 Hickory Ave.
 Takoma Park, MD 20912
 12.71 kW

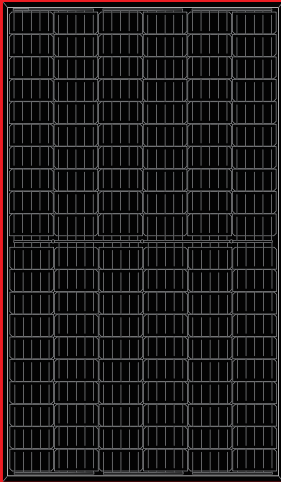
REV	DESCRIPTIONS	BY	DATE

Drawn by: DTK
 Date: 17-OCT-2019
 Scale: AS NOTED

A001

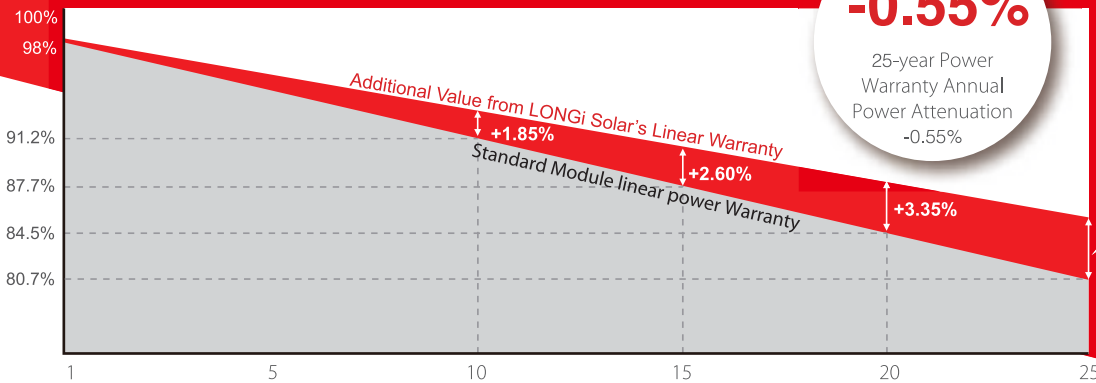
LR6-60HPB 300~320M

Hi-MO 3m
(Black)



**High Efficiency
Low LID Mono PERC with
Half-cut Technology**

10-year Warranty for Materials and Processing;
25-year Warranty for Extra Linear Power Output



-0.55%

25-year Power
Warranty Annual
Power Attenuation
-0.55%

+4.10%

Complete System and Product Certifications

- IEC 61215, IEC61730, UL1703
- ISO 9001:2008: ISO Quality Management System
- ISO 14001: 2004: ISO Environment Management System
- TS62941: Guideline for module design qualification and type approval
- OHSAS 18001: 2007 Occupational Health and Safety



* Specifications subject to technical changes and tests. LONGi Solar reserves the right of interpretation.

Positive power tolerance (0 ~ +5W) guaranteed

High module conversion efficiency (up to 19.1%)

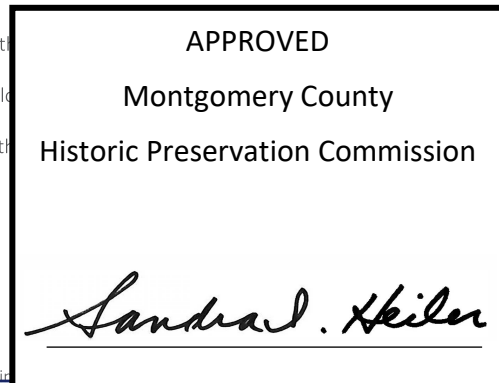
Slower power degradation enabled by Low LID Mono PERC technology: first year <2%, 0.55% year 2-25

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Reduced resistive loss with

Higher energy yield with l

Reduced hot spot risk with



LONGi

Room 801, Tower 3, Lujiazui Financial Center, 200001 Shanghai, China
Tel: +86 21 31222222 | Email: sales@longi-silicon.com | Facebook: www.facebook.com/LONGiSolar

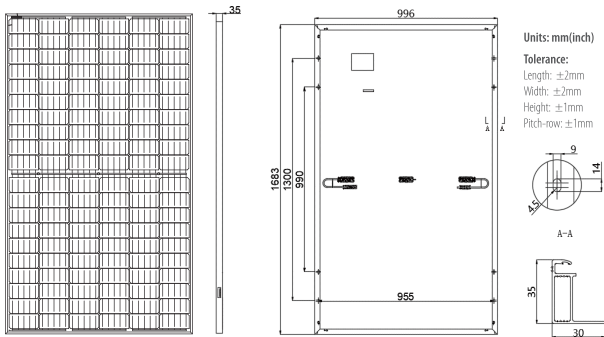
REVIEWED

By Dan.Bruechert at 1:40 pm, Nov 18, 2019

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi Solar have the sole right to make such modification at anytime without further notice; Demanding party shall be responsible for the validity of the technical data. This document is a non-binding part of lawful documentation duly signed by both parties.

LR6-60HPB 300~320M

Design (mm)



Mechanical Parameters

Cell Orientation: 120 (6×20)
 Junction Box: IP67, three diodes
 Output Cable: 4mm², 300mm in length
 length can be customized
 Glass: Single glass
 3.2mm coated tempered glass
 Frame: Anodized aluminum alloy frame
 Weight: 18.9kg
 Dimension: 1683×996×35mm
 Packaging: 30pcs per pallet
 180pcs per 20'GP
 780pcs per 40'HC

Operating Parameters

Operational Temperature: -40 C ~ +85 C
 Power Output Tolerance: 0 ~ +5 W
 Voc and Isc Tolerance: ±3%
 Maximum System Voltage: DC1000V (IEC / UL)
 Maximum Series Fuse Rating: 20A
 Nominal Operating Cell Temperature: 45±2 C
 Safety Class: Class II
 Fire Rating: UL type 1 or type 2

Electrical Characteristics

Test uncertainty for Pmax: ±3%

Model Number	LR6-60HPB-300M		LR6-60HPB-305M		LR6-60HPB-310M		LR6-60HPB-315M		LR6-60HPB-320M	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	300	222.2	305	225.9	310	229.6	315	233.4	320	237.1
Open Circuit Voltage (Voc/V)	39.8	37.1	40.1	37.4	40.3	37.7	40.6	37.9	40.9	38.2
Short Circuit Current (Isc/A)	9.70	7.82	9.78	7.88	9.86	7.94	9.94	8.01	10.02	8.08
Voltage at Maximum Power (Vmp/V)	32.9	30.4	33.1	30.6	33.3	30.8	33.7	31.1	33.9	31.3
Current at Maximum Power (Imp/A)	9.13	7.32	9.21	7.38	9.30	7.46	9.36	7.50	9.43	7.56
Module Efficiency(%)	17.9		18.2		18.5		18.8		19.1	

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25 C, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20 C, Spectra at AM1.5, Wind at 1m/s

Temperature Ratings (STC)

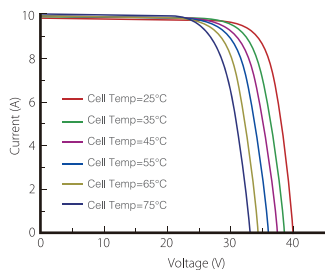
Temperature Coefficient of Isc: +0.057%/C
 Temperature Coefficient of Voc: -0.286%/C
 Temperature Coefficient of Pmax: -0.370%/C

Mechanical Loading

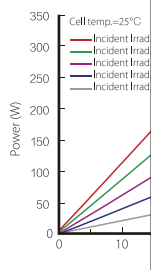
Front Side Maximum Static Loading: 5400Pa
 Rear Side Maximum Static Loading: 2400Pa
 Hailstone Test: 25mm Hailstone at the speed of 23m/s

I-V Curve

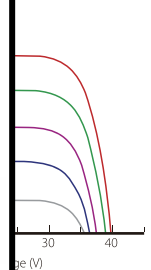
Current-Voltage Curve (LR6-60HPB-310M)



Power-Voltage Curve (LR6-60HPB-310M)



Current-Voltage Curve (LR6-60HPB-310M)



APPROVED
 Montgomery County
 Historic Preservation Commission

Sandra L. Skiler

REVIEWED

By Dan.Bruechert at 1:41 pm, Nov 18, 2019



Room 801, Tower 3, Lujiazui Financial Plaza, No.826 Century Avenue, Pudong Shanghai, 200120, China
 Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGI Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGI Solar have the sole right to make such modification at anytime without further notice; Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

SNAPNRACK UR-40 RACKING SYSTEM SHOWN MOUNTED ON ULTRA FOOT WITH UNIVERSAL END CLAMPS. FOR TILE ROOFING USE SNAPNRACK TILE REPLACEMENT, UNIVERSAL TILE HOOK, OR FLAT TILE HOOK SYSTEMS.

STANDARD LAG SCREW SPEC ASSUMES $\frac{5}{16}$ " \varnothing LAG SCREW WITH $2\frac{1}{2}$ " MIN. EMBEDMENT INTO STRUCTURAL MEMBER.

TORQUE ALL FASTENERS TO 10-16 FT-LBS

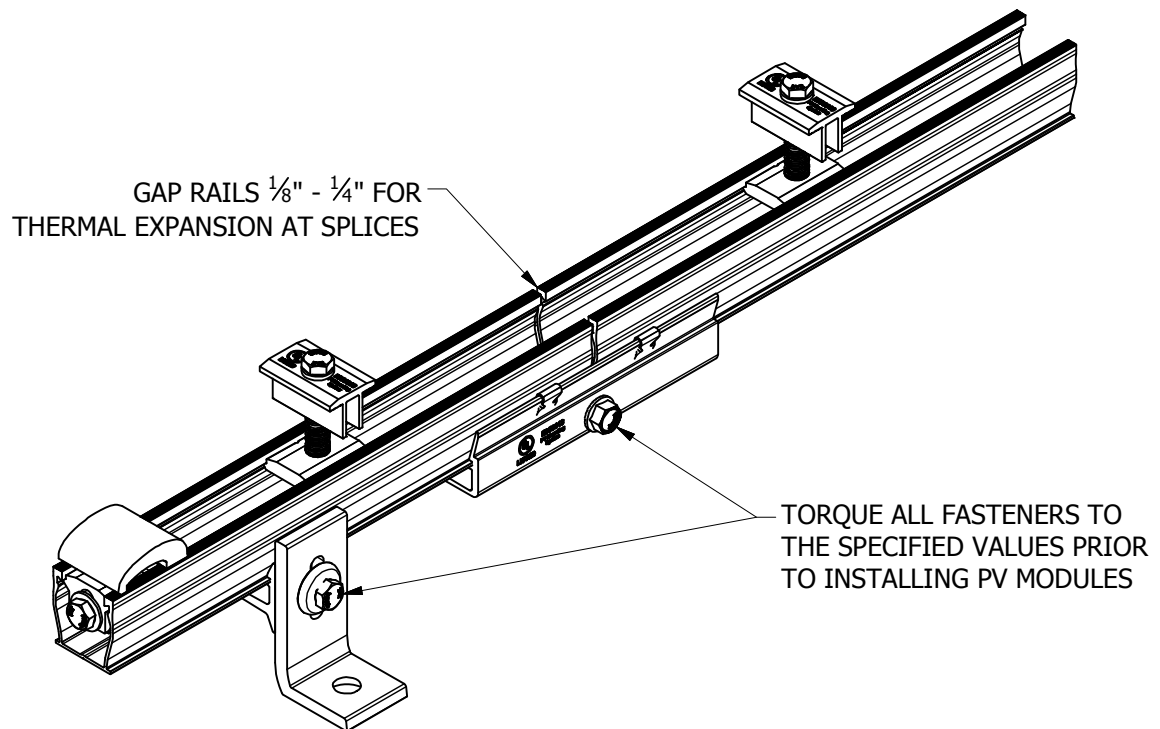
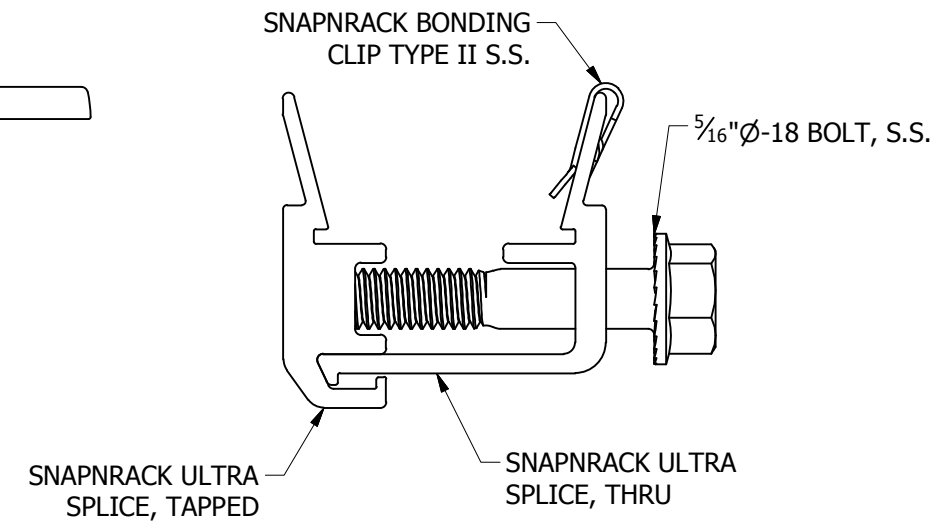
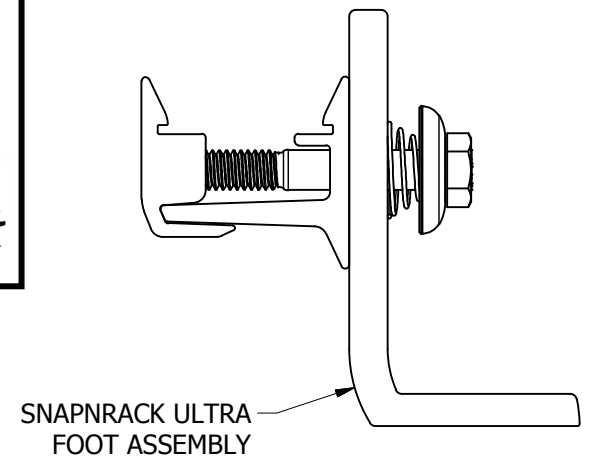
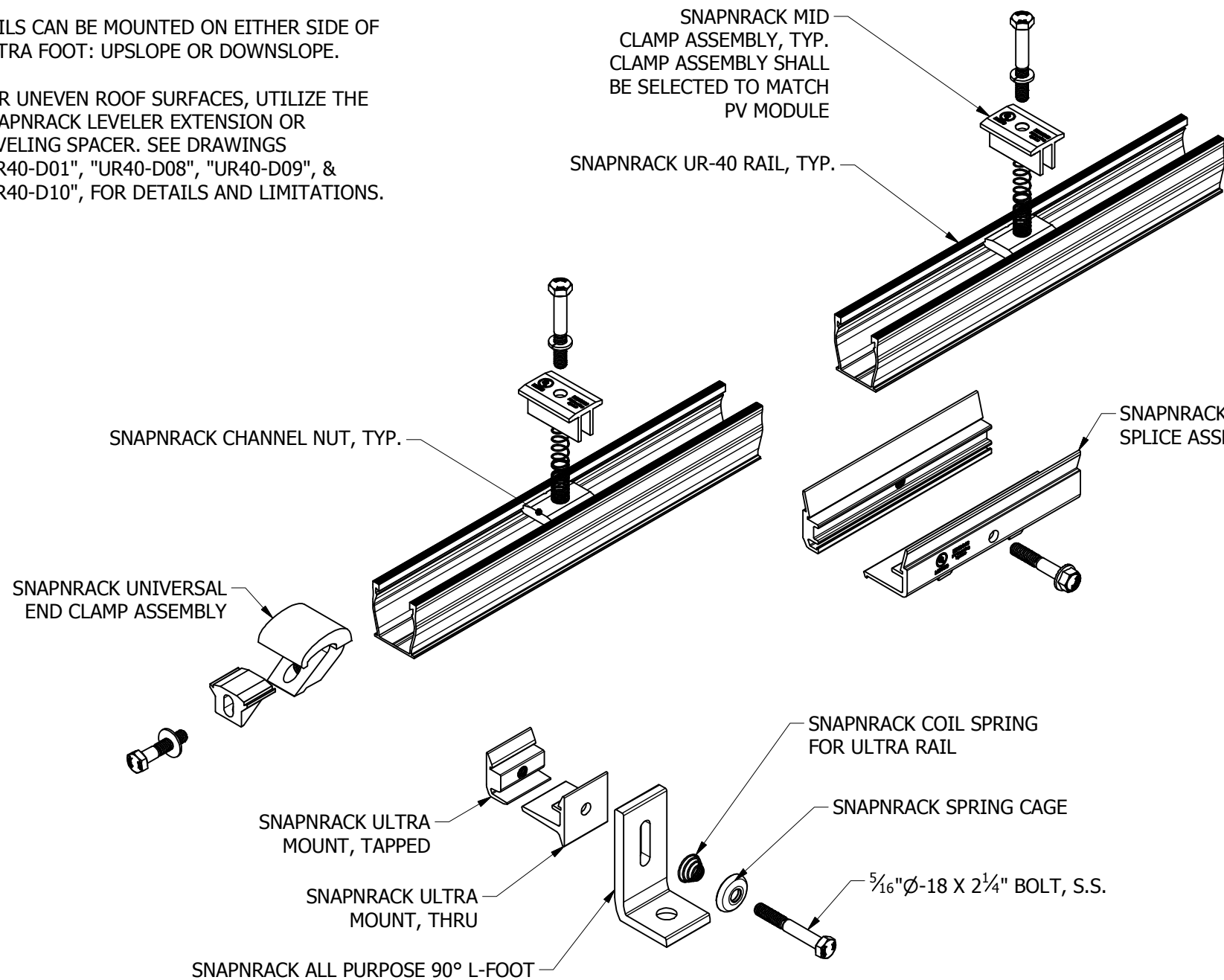
RAILS CAN BE MOUNTED ON EITHER SIDE OF ULTRA FOOT: UPSLOPE OR DOWNSLOPE.

FOR UNEVEN ROOF SURFACES, UTILIZE THE SNAPNRACK LEVELER EXTENSION OR LEVELING SPACER. SEE DRAWINGS "UR40-D01", "UR40-D08", "UR40-D09", & "UR40-D10", FOR DETAILS AND LIMITATIONS.

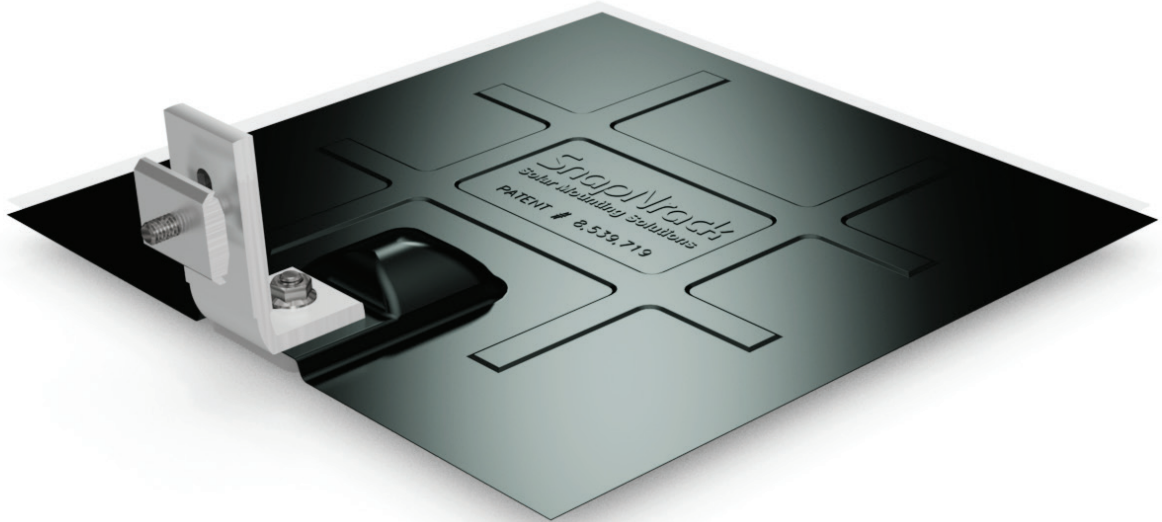
APPROVED
Montgomery County
Historic Preservation Commission
Sandra L. Heiler

REVISION:		
A	11/30/2017	NEW DETAIL MA

REVIEWED
By Dan.Bruechert at 1:41 pm, Nov 18, 2019



Flashed L Foot



Reliable & Weatherproof Roof Attachment



Cutting of shingles not required



Preassembled, snap-in hardware reduces installation time



Single tool installation, using a standard 1/2" socket



In 2'



Start Installing the Flashed L Foot Today!

REVIEWED

By Dan.Bruechert at 1:41 pm, Nov 18, 2019

RESOURCES
DESIGN
WHERE TO BUY

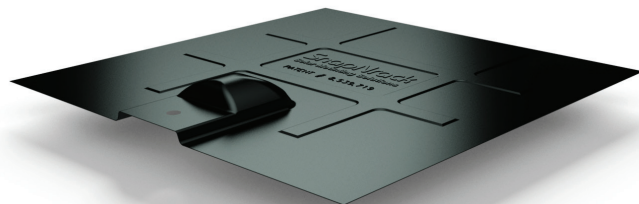
snapnrack.com/resources
snapnrack.com/configurator
snapnrack.com/where-to-buy

SnapNrack Series 100 Flashed L Foot Kit

is an industry-leading, weatherproof solution for attaching to composition shingle roofs. The Flashed L Foot provides a fully flashed method for mounting the SnapNrack Series 100 system. The combination of Series 100 and the Flashed L foot is guaranteed to improve labor times and ensure the highest quality install possible.

Flashing

- Available in black galvanized steel or aluminum for enhanced corrosion resistance
- L Foot is attaches to bottom edge of flashing, removing the need for shingle cutting
- Innovative stamped features provide increased rigidity

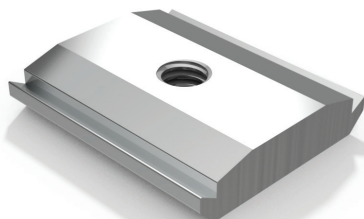
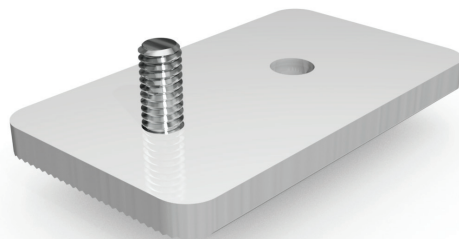


L Foot

- Engineered for maximum adjustability with the ability to orient in any direction
- Vertical adjustability up to 3" using available spacers

L Foot Base

- Provides a long lasting watertight seal over the life of the system that does not rely on rubber (elastomeric seals) that will degrade over time
- Easily installs with off-the-shelf lag screws



Channel Nut

- Provides snap-in installation to the rail channel with no drilling required
- Wide range of adjust to final tightening

APPROVED
Montgomery County
Historic Preservation Commission

in rail prior

Quality. Performance.

ation.

SnapNrack solutions are focused on simplifying the intuitive products and the best wire man

REVIEWED

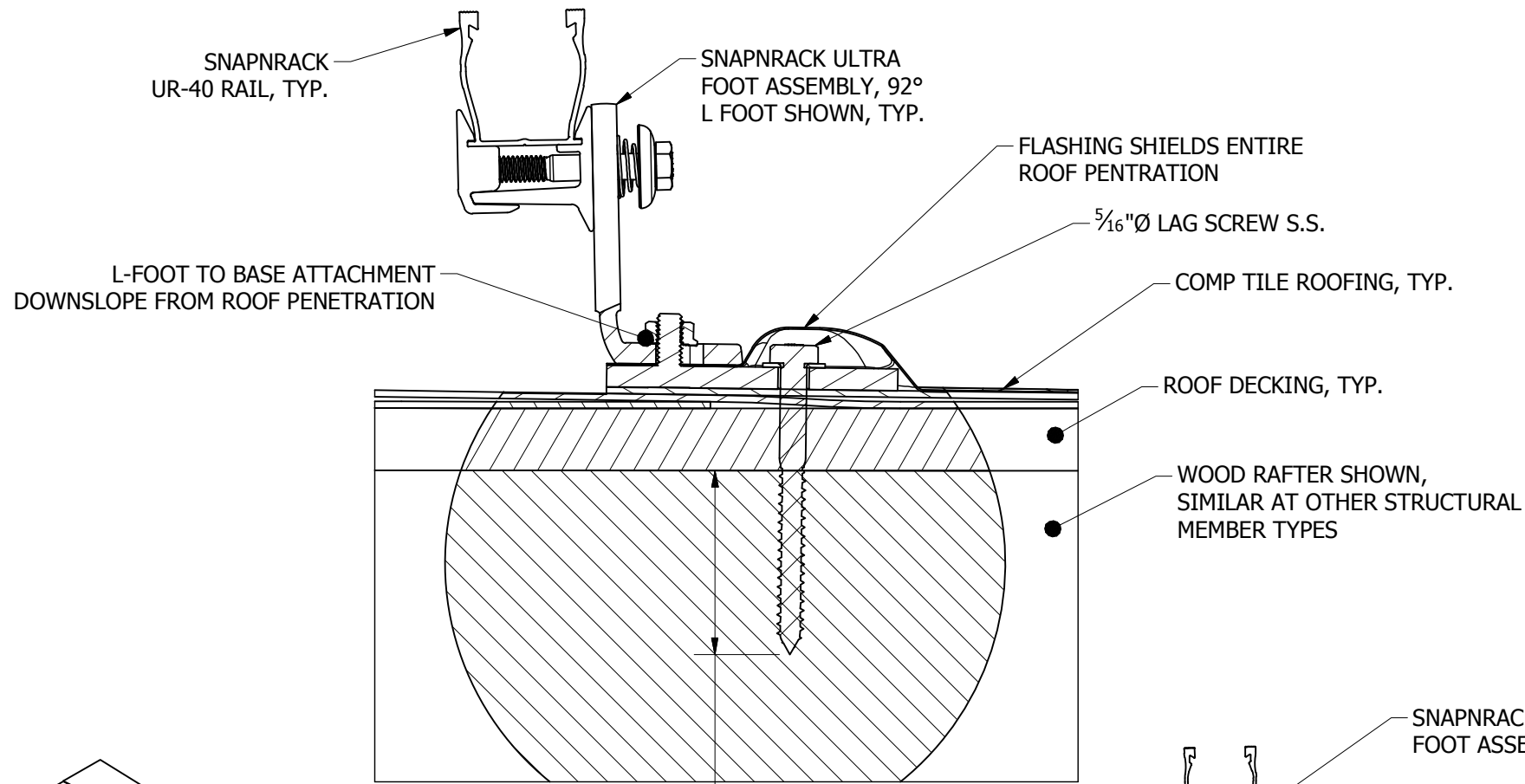
By Dan.Bruechert at 1:41 pm, Nov 18, 2019

SnapNrack
Solar Mounting Solutions

SNAPNRACK UR-40 PENETRATION DETAIL
FOR COMP FLASHED L-FOOT ON BASE

5/16"Ø LAG SCREW MUST EMBED A MINIMUM
OF 2 1/2" INTO THE ROOF STRUCTURAL MEMBER.

FOR LEVELING DETAILS, PLEASE SEE SNAPNRACK
DETAIL DRAWING "UR40-D01, L-FOOT LEVELING"

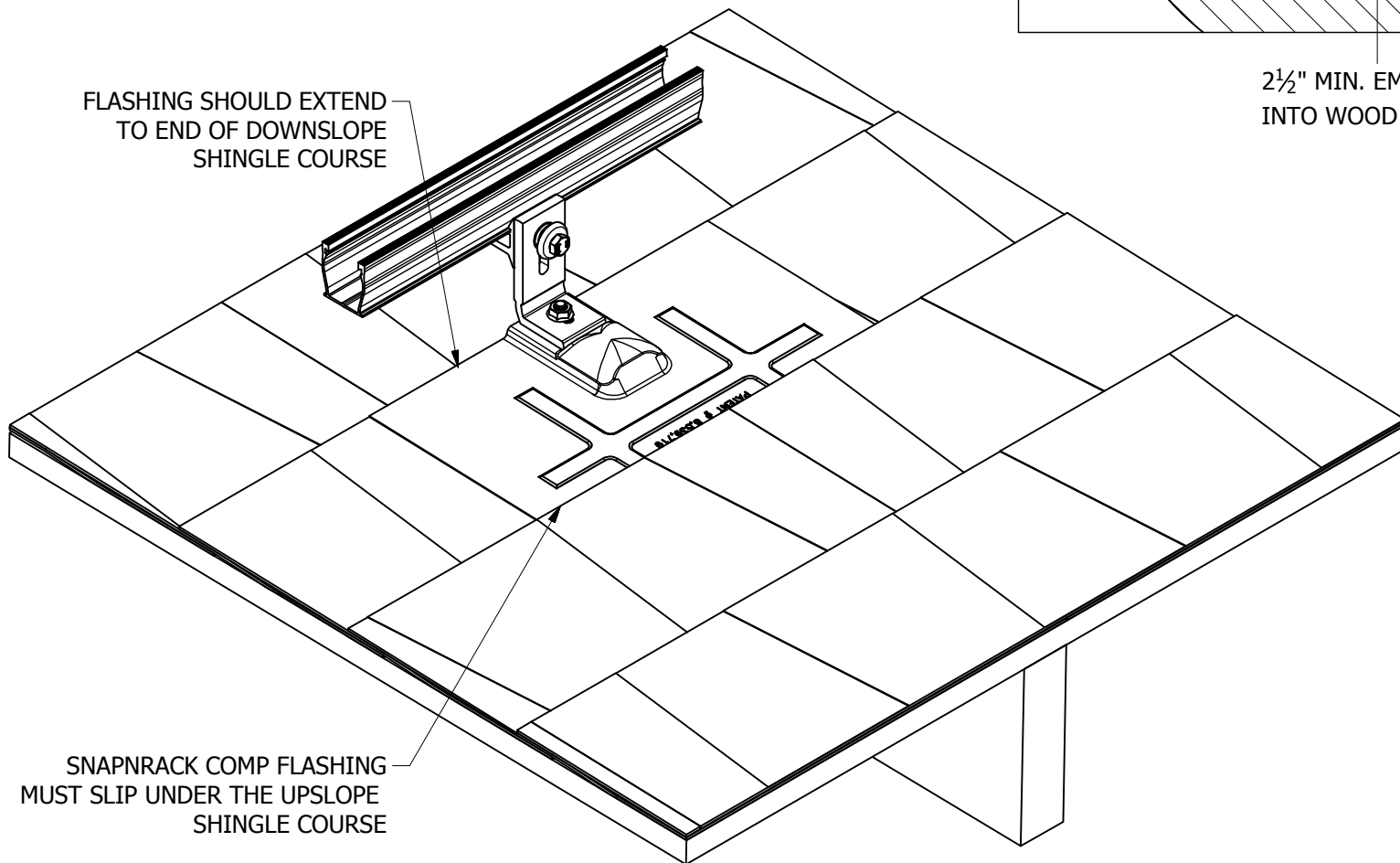


REVISION:	A	11/30/2017	NEW DETAIL	MA

APPROVED
Montgomery County
Historic Preservation Commission
Sandra L. Heiler

REVIEWED
By Dan.Bruechert at 1:41 pm, Nov 18, 2019

FLASHING SHOULD EXTEND
TO END OF DOWNSLOPE
SHINGLE COURSE



SNAPNRACK COMP FLASHING
MUST SLIP UNDER THE UPSLOPE
SHINGLE COURSE

INSTALLED VIEW

2 1/2" MIN. EMBEDMENT
INTO WOOD MEMBER

