



CAMBRIDGE HISTORICAL COMMISSION

831 Massachusetts Avenue, 2nd Fl., Cambridge, Massachusetts 02139
Telephone: 617 349 4683 Fax: 617 349 3116 TTY: 617 349 6112
E-mail: histcomm@cambridgema.gov URL: http://www.cambridgema.gov/Historic

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MAR 10 2016

APPLICATION FOR CERTIFICATE

CAMBRIDGE HISTORICAL COMMISSION

1. The undersigned hereby applies to the Cambridge Historical Commission for a Certificate of **(check one box)**: Appropriateness, Nonapplicability, or Hardship, in accordance with Chapter 40C of the Massachusetts General Laws and/or Chapter 2.78 of the Municipal Code.
2. Address of property: 2 Berkeley Pl. , Cambridge, Massachusetts
3. Describe the proposed alteration(s), construction or demolition in the space provided below:
(An additional page can be attached, if necessary).
See attached sheets.

I certify that the information contained herein is true and accurate to the best of my knowledge and belief. **The undersigned also attests that he/she has read the statements printed on the reverse.**

Name of Property Owner of Record: Virginia Coleman	
Mailing Address: 2 Berkeley Pl.	
Telephone/Fax: 617-547-4921	E-mail: vfloodcoleman@gmail.com
Signature of Property Owner of Record: <u>Virginia Coleman</u> (Required field; application will not be considered complete without property owner's signature)	
Name of proponent, if not record owner: Darnell Coleman (SunBug Solar)	
Mailing Address: 411A Highland Ave, Suite 312. Somerville, MA 02144	
Telephone/Fax: (617)372-5174-cell (617)412-3062-fax	E-mail: darnell.coleman@sunbugsolar.com

(for office use only):		
Date Application Received: <u>3/10/16</u>	Case Number: <u>3573</u>	Hearing Date: <u>4/7/16</u>
Type of Certificate Issued: _____	Date Issued: _____	

Darnell Coleman
Residential Project Manager



To: Cambridge Historic Commission
Re: The Coleman Residence Proposed Solar PV Project

To Whom It May Concern:

The following is a description of the proposed Solar PV System at the Coleman residence, located at:

2 Berkeley Pl. Cambridge, MA 02138

This project will consist of (15) LG 300 Neon all-black solar PV modules, (15) SolarEdge p300 power optimizers, (1) SolarEdge SE3800A-240v inverter, and the SnapNRack Rail Mounting System. Refer to the attached Equipment Schedule for further information.

The array will be installed on the southwestern facing roof, on the driveway side, and would be visible from Craigie Street only at one specific location, and then only when there are no leaves on the trees. Modules, rail, and flashings are all black in color, keeping the array one consistent color. All mounting rail ends will be cut flush with the edges of the modules. The layout & pictures are attached for visual aid.

The wiring for the array will be concealed underneath the modules so there will be no conduits or exposed wiring on the roof. The 3/4" metal electrical conduit would stub out of the west gable end of the upper main roof, run along the eaves toward the driveway, then follow alongside an existing downspout to the foundation level

A utility mandated AC Disconnect switch would be located on the exterior of the home to be able to de-energize the system in the event of an emergency. The switch will likely be next to the utility meter. The switch is grey, and matches the appearance of the existing utility meter equipment.

The inverter and production meter will be located in the basement of the residence, where we will interconnect the electrical output of the system to a circuit breaker in the main panel.

No features of the home are anticipated to be in need of repair or replacement before construction of the system commences.

Darnell Coleman
Residential Project Manager

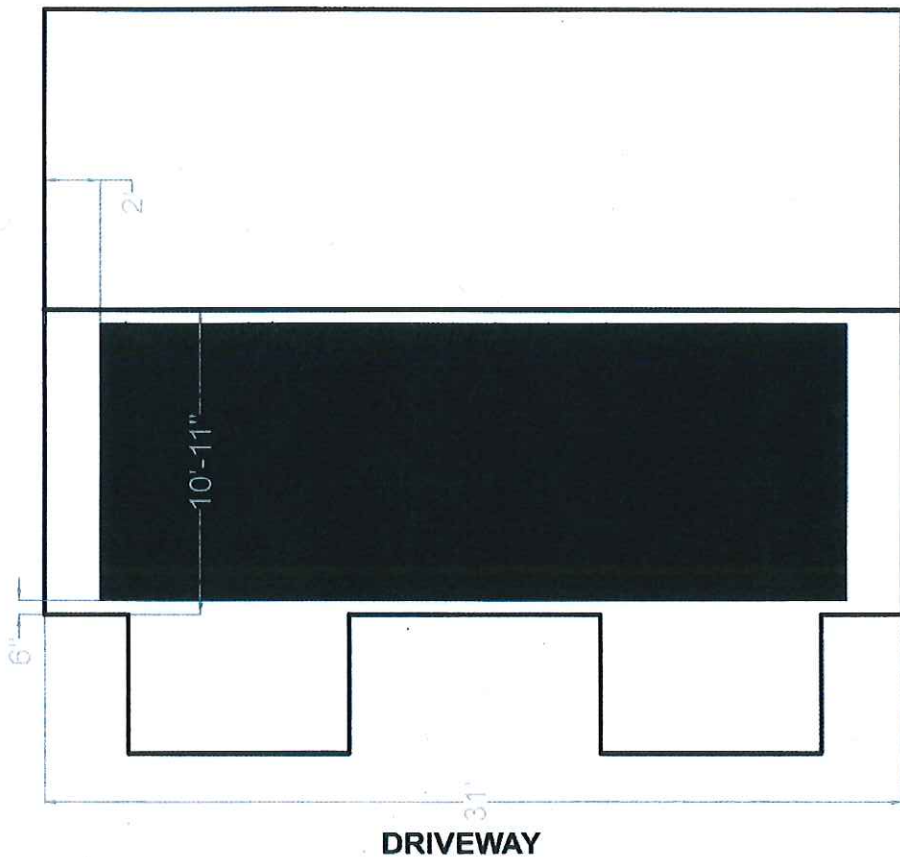
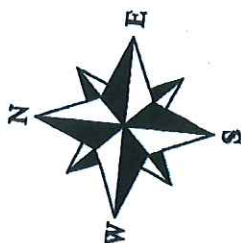
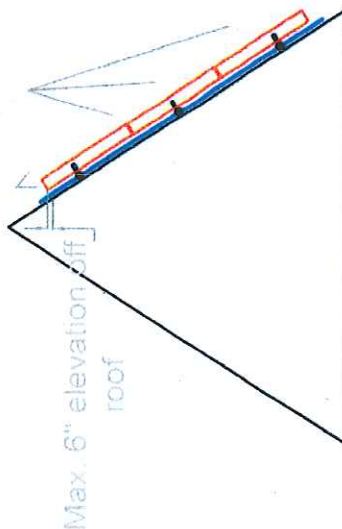
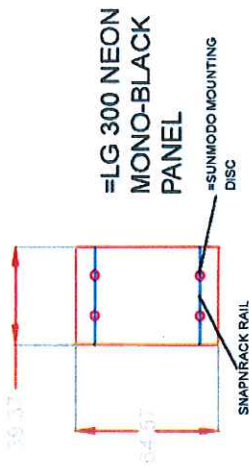


Equipment Schedule (See Attached Spec Sheets for Major Components):

- (15) LG 300 Neon 2 Mono - Black
- (15) SolarEdge P300 Optimizers
- (1) Solar Edge SE5000A-208/240v Inverter
- (1) SnapNRack Racking System
- (~48) SunModo Mounting Discs
- (~48) SunModo flashing, black
- (~48) SunModo L Brackets
- Necessary SnapNRack Hardware for Assembling Rail to Mounts
- Bare 6AWG Grounding Wire (For Between Rows of Rails)
- Grounding Lugs
- PV Wire for home runs to transition box (~20' total)
- SolaDeck Box for transition to THHN wire
- THHN Wire, 10AWG, Black, Red, (40')
- THHN Wire, 8AWG, Green (40')
- 3/4" EMT Conduit (40')
- Assorted hardware for mounting conduit (mineralacs, straps, screws)
- Plywood for equipment board (approximately 4'x4' sheet)
- 2x4" lumber for building equipment board
- (1) GE Electrical Production Meter
- (1) GE Electrical Production Meter Base
- (1) GE (or equivalent) Outdoor rated unfused 30A disconnect
- (1) Murray 20A double pole circuit breaker

15 PANELS

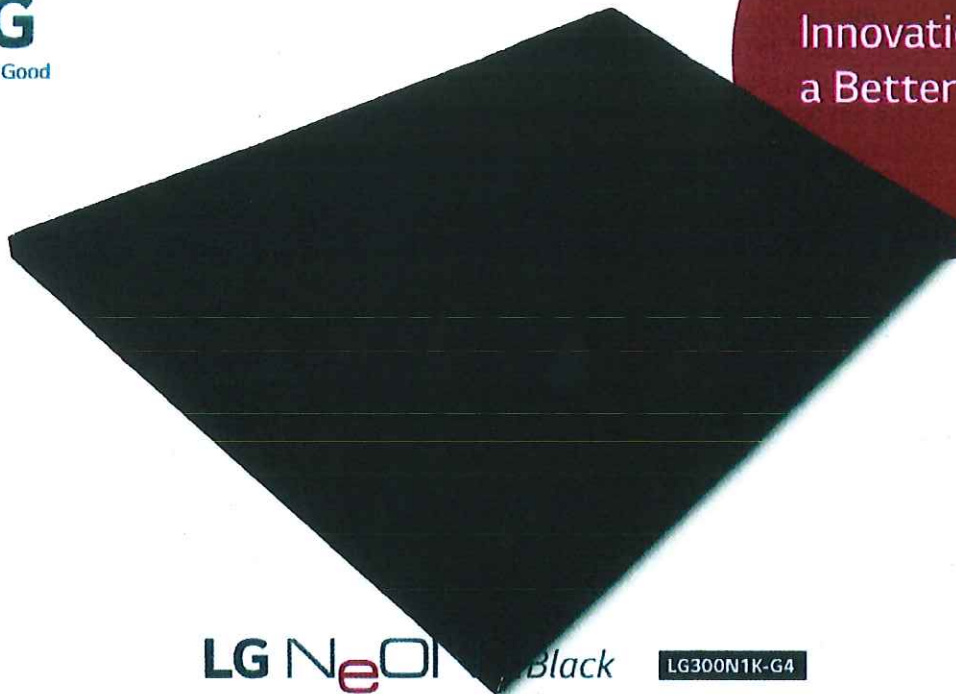
ARRAY SHOWN:
 (15) LG 300 NEON MONO-BLACK PANELS
 (15) SOLAREEDGE P300 OPTIMIZERS



2 BERKELEY PL.

SUNBUG CONTACT: D. COLEMAN, PROJECT MANAGER DARNELL.COLEMAN@SUNBUGSOLAR.COM 617-372-5174		CUSTOMER: VIRGINIA COLEMAN, 2 BERKELEY PL, CAMBRIDGE, MA	DWG #: VC[01]
DATE: 03-01-16	DRAWN BY: DGC	DWG TYPE: IFC OFFSET ARRAY LAYOUT	REV: 03.01

SunBug Solar
 411A Highland Ave, Suite 312
 Somerville, MA 02144



LG NeON[™] 2 Black

LG300N1K-G4

60 cell

LG's new module, NeON[™] 2 Black, adopts Cello technology. Cello technology replaces 3 busbars with 12 thin wires to enhance power output and reliability. NeON[™] 2 Black demonstrates LG's efforts to increase customer's values beyond efficiency. It features enhanced warranty, durability, performance under real environment, and aesthetic design suitable for roofs.



Enhanced Performance Warranty

LG NeON[™] 2 has an enhanced performance warranty. The annual degradation has fallen from -0.7%/yr to -0.6%/yr. Even after 25 years, the cell guarantees 2.4% more output than the previous NeON[™] modules.



High Power Output

Compared with previous models, the LG NeON[™] 2 has been designed to significantly enhance its output efficiency, thereby making it efficient even in limited space.



Aesthetic Roof

LG NeON[™] 2 has been designed with aesthetics in mind, thinner wires that appear all black at a distance. The product may increase the value of a property with its modern design.



Outstanding Durability

With its newly reinforced frame design, LG has extended the warranty of the NeON[™] 2 for an additional 2 years. Additionally, LG NeON[™] 2 can endure a front load up to 6000 Pa, and a rear load up to 5400 Pa.



Better Performance on a Sunny Day

LG NeON[™] 2 now performs better on sunny days thanks to its improved temperature coefficient.



Double-Sided Cell Structure

The rear of the cell used in LG NeON[™] 2 will contribute to generation, just like the front; the light beam reflected from the rear of the module is reabsorbed to generate a great amount of additional power.

About LG Electronics

LG Electronics is a global player who has been committed to expanding its capacity, based on solar energy business as its future growth engine. We embarked on a solar energy source research program in 1985, supported by LG Group's rich experience in semi-conductor, LCD, chemistry, and materials industry. We successfully released the first Mono X[™] series to the market in 2010, which were exported to 32 countries in the following 2 years, thereafter. In 2013, NeON[™] (previously known as Mono X[™] NeON) won "Intersolar Award", which proved LG is the leader of innovation in the industry.

Mechanical Properties

Cells	6 x 10
Cell Vendor	LG
Cell Type	Monocrystalline / N-type
Cell Dimensions	156.75 x 156.75 mm / 6 x 6 inch
# of Busbar	12 (Multi Wire Busbar)
Dimensions (L x W x H)	1640 x 1000 x 40 mm 64.57 x 39.37 x 1.57 inch
Front Load	6000 Pa / 125 psf
Rear Load	5400 Pa / 113 psf
Weight	17.0 ± 0.5 kg / 37.48 ± 1.1 lbs
Connector Type	MC4, MC4 Compatible, IP67
Junction Box	IP67 with 3 Bypass Diodes
Length of Cables	2 x 1000 mm / 2 x 39.37 inch
Glass	High Transmission Tempered Glass
Frame	Anodized Aluminum

Certifications and Warranty

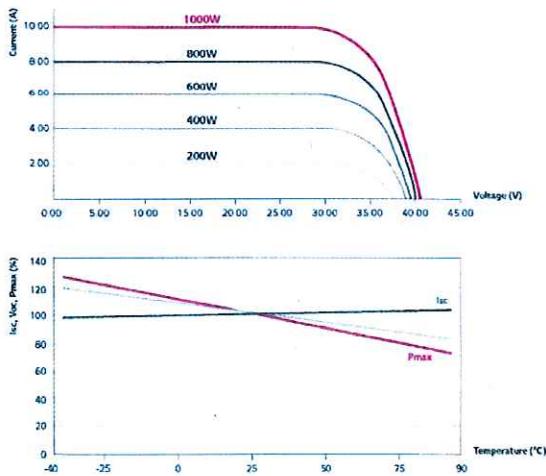
Certifications (In Progress)	IEC 61215, IEC 61730-1/-2, UL 1703, ISO 9001, IEC 62716 (Ammonia Test), IEC 61701 (Salt Mist Corrosion Test)
Module Fire Performance	Type 2 (UL 1703)
Product Warranty	12 years
Output warranty of Pmax (measurement Tolerance ± 3%)	Linear warranty*

* 1) 1st year 98%, 2) After 2nd year 0.6% annual degradation, 3) 83.6% for 25 years

Temperature Coefficients

NOCT	46 ± 3 °C
Pmpp	-0.38 %/°C
Voc	-0.28 %/°C
Isc	0.02 %/°C

Characteristic Curves



Electrical Properties (STC *)

Maximum Power (Pmpp)	300 W
MPP Voltage (Vmpp)	32.5
MPP Current (Impp)	9.26
Open Circuit Voltage (Voc)	39.7
Short Circuit Current (Isc)	9.70
Module Efficiency (%)	18.3
Operating Temperature (°C)	-40 ~ +90
Maximum System Voltage (V)	1000
Maximum Series Fuse Rating (A)	20
Power Tolerance (%)	0 ~ +3

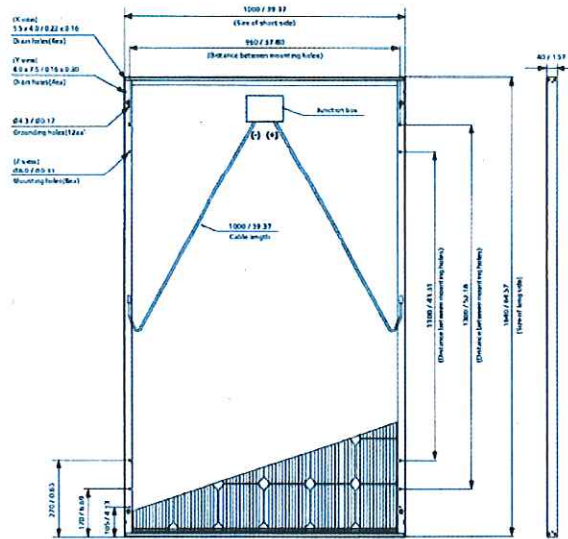
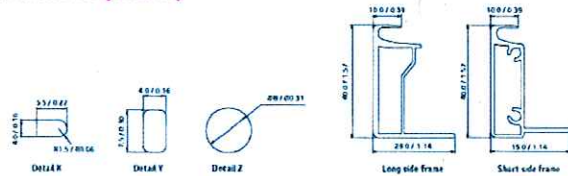
* STC (Standard Test Condition) Irradiance: 1000 W/m², Module Temperature: 25 °C, AM 1.5
 * The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion
 * The typical change in module efficiency at 200 W/m² in relation to 1000 W/m² is -3.0%.

Electrical Properties (NOCT*)

Maximum Power (Pmpp)	300 W
MPP Voltage (Vmpp)	218
MPP Current (Impp)	29.5
Open Circuit Voltage (Voc)	36.5
Short Circuit Current (Isc)	7.83

* NOCT (Nominal Operating Cell Temperature) Irradiance 800 W/m², ambient temperature 20 °C, wind speed 1 m/s

Dimensions (mm/in)



* The distance between the center of the mounting/grounding holes



North America Solar Business Team
 LG Electronics USA, Inc
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Contact: lg.solar@lge.com
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Product specifications are subject to change without notice.
 DS-N2-60-K-G-F-EN-50427

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 01/04/2015

Innovation for a Better Life



Drill pilot holes

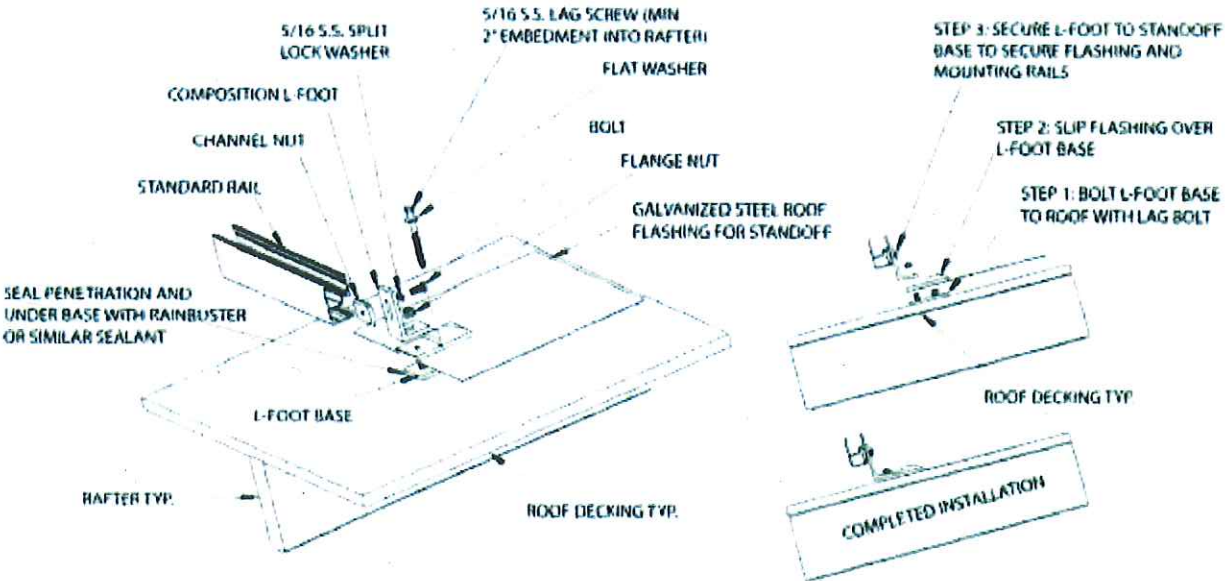
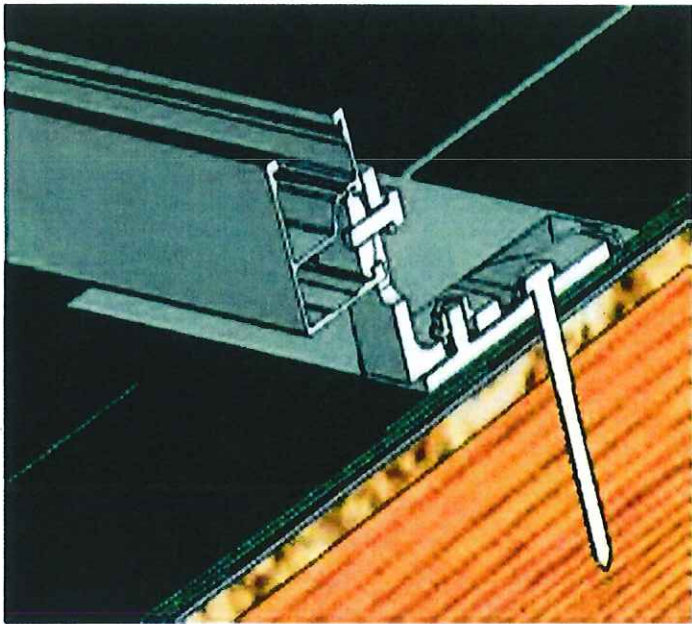
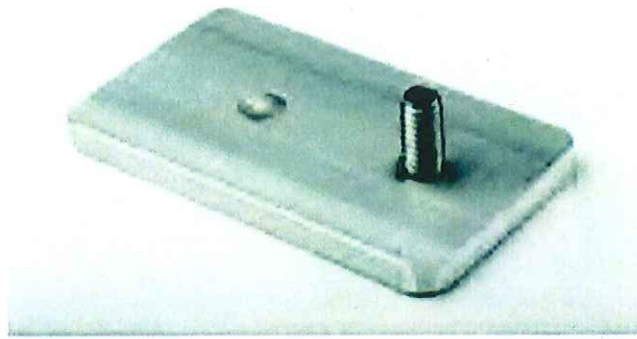
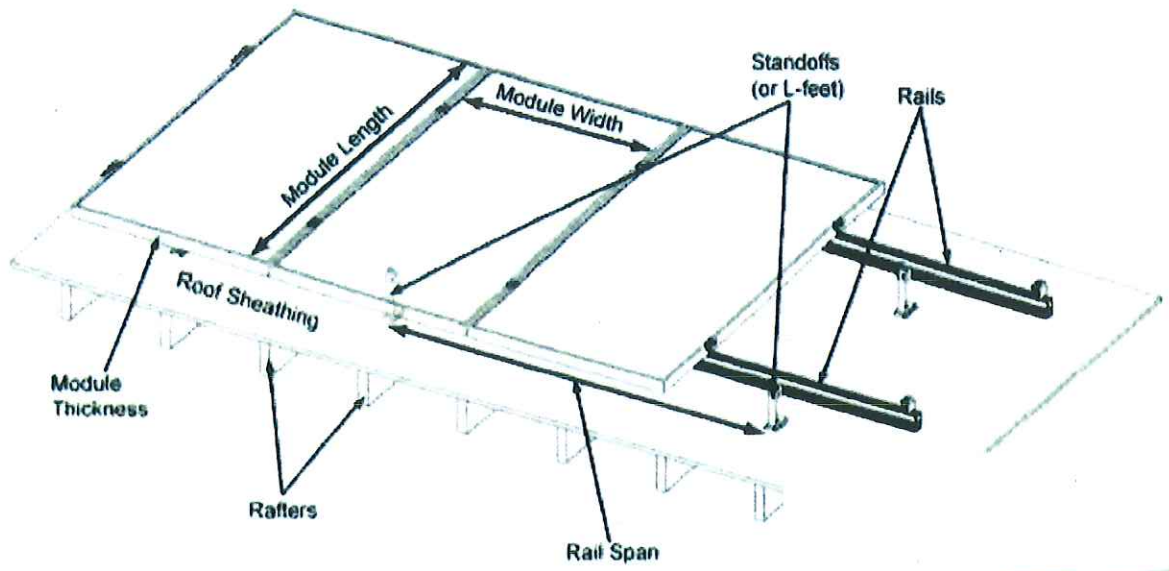


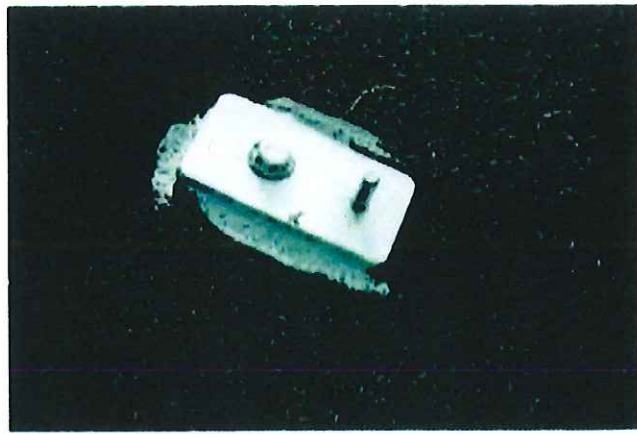
DIAGRAM 4: L-foot mount assembly



Flashed L-foot section view

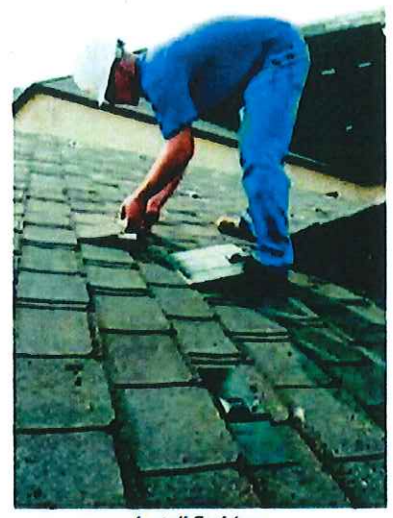


L-foot base



Apply sealant and secure base to rafter

g. r.



Install flashing



Secure L-foot to base



Installed L-foot assembly



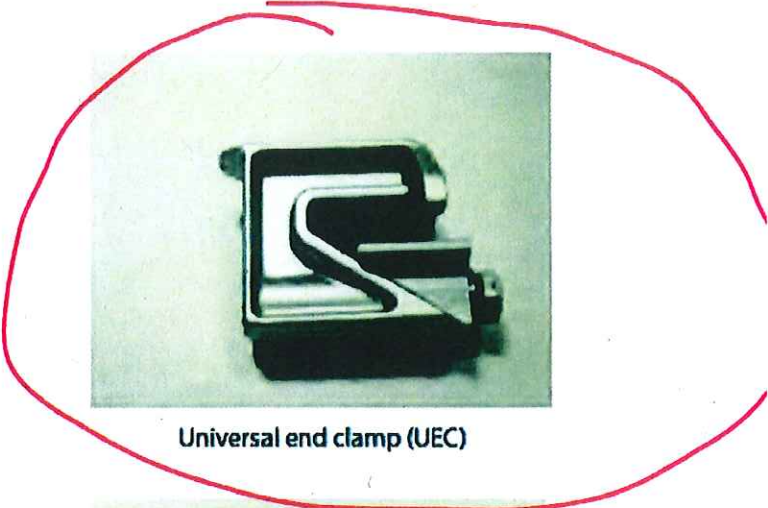
L-foot assembly —base, L-foot, stamped steel flashing



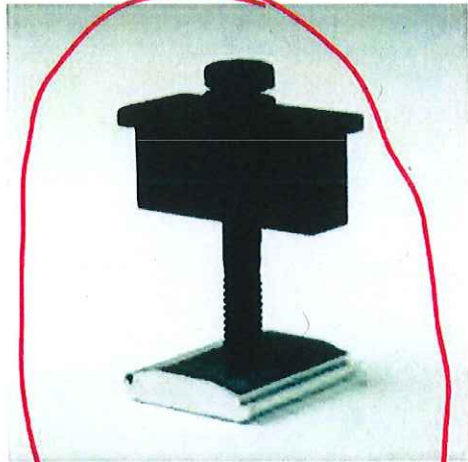
Standoff assembly —base and standoffshaft (various lengths)



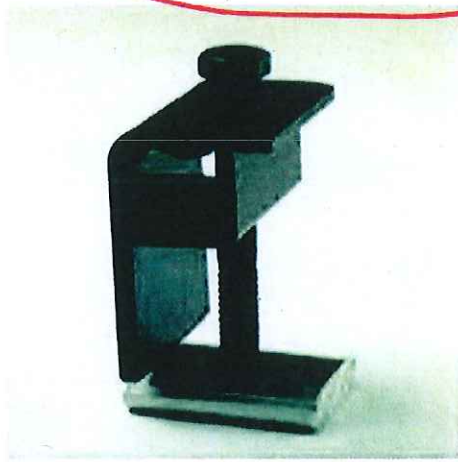
Leveling spacer — 1 inch



Universal end clamp (UEC)



Module mid clamp assembly



Standard module end clamp assembly

