

Solar Panel Application Requirements for Local Historic Districts

The Local Historic District Commissions support efforts toward environmental sustainability, including the use of solar energy systems. Solar panel installations are reviewed on a case-by-case basis to ensure that the original appearance, character-defining features and historic fabric are retained in accordance with the provisions of Massachusetts General Laws, Chapter 40C, the Historic Districts Act. Appropriate installations will not damage historic roof materials or architectural features and are typically not visible from a public way.

1. Submission materials **MUST** include the following (see attached example). **Incomplete applications will not be accepted.**
 - A. NewGov Application for Local Historic District Certificate of Appropriateness, Non-Applicability, or Hardship (<https://newtonma.portal.opengov.com/categories/1081/record-types/1006636>)
 - B. Property location on Assessors database map (<https://newtonma.mapgeo.io/datasets/properties?abuttersDistance=100&latlng=42.325373%2C-71.213678>)
 - **Photographs**
 - C. Front elevation
 - D. All elevations where panels will be installed
 - **Drawings**
 - E. Roof plan showing panel arrangement and roof features such as dormers, chimneys, etc.
 - F. Building elevations showing panels and location of exterior conduits, disconnects and meters
 - G. Photo mock-ups or 3-D images of elevations showing panels
 - H. Side views of panel installations
 - **Product specifications**
 - I. Panels
 - J. Mounting system
2. Commissions typically require:
- **Appropriate materials**
 - Panels, mounting systems and skirts that are compatible with the roof material color
 - Matte all black assemblies are often found to be appropriate for sloped roofs
 - **Appropriate installation**
 - Panels installed at the slope of the roof; avoid raised mounting assemblies
 - Panels that are visible should not be closer to the edge of the roof than the wall below; the panels can only be on the roof above the body of the house and not on the overhanging eaves.
 - Arrays should be arranged in panel groupings forming simple shapes; avoid zig-zag edges, holes in arrays or isolated panels to accommodate roof valleys, dormers, chimneys or other roof obstructions
 - Conduits installed in the interior or not visible from a public way
 - Visible conduits should be minimized by matching siding or roofing
 - Disconnects and inverters not visible from a public way or installed next to existing utility meters

Additional information can be found at:

- City of Newton Historic Preservation Design Guidelines – Sustainability and Roofing
Sustainability: <https://www.newtonma.gov/home/showpublisheddocument/41379/637411403017730000>
Roofing: <https://www.newtonma.gov/home/showpublisheddocument/41377/637411403013030000>
- Secretary of the Interior's Standards for Rehabilitation:
<https://www.nps.gov/tps/sustainability/new-technology/solar-on-historic.htm>



Historic District Application

[Apply Online](#)

The City of Newton's Historic District Ordinance governs the all the local historic districts including the Newton Upper Falls Local Historic District, Chestnut Hill Local Historic District, Newtonville Local Historic District, and Auburndale Local Historic District. Each district has its own commission and application deadlines, but all subscribe to the same review process. The Ordinance provides that no exterior feature of a building or structure visible from a public way may be built, added to, removed, or changed in exterior feature without a Certificate of Appropriateness issued by the Commission if visible from a public way. If the proposed change is not subject to review by the Commission because it is not visible from a public way or body of water or is excluded from review, a Certificate of Non-Applicability will be issued. Certificates of Hardship will be issued by the Commission for projects not generally affecting the historic district and where failure to approve the application would involve a substantial hardship to the applicant. All applications for certificates must be submitted and approved before exterior changes can be made. Building permits will not be issued without a certificate.

NOTE: Not all properties in Auburndale, Chestnut Hill, Newtonville, and Upper Falls are within the historic district. Please use this link (<https://gis2.ci.newton.ma.us/browser.html>) and search the property you would like to submit an application for to confirm that the address is in a historic district prior to submitting.

If you are not in a historic district and need to file for demolition review you will need to file a Historical Review Application.



B: Assessor's Database



1.22 mi

Scale 1" = 100.72 ft

[Print Property Record Card](#) | [View Sketch](#)

Property SBL 51009 0007

Address 109 HIGH ST NUF

Owner MCCARTHY RYAN & ANNA

Basic Information

Property SBL

Address

Tax Bill Number

Land Use *

51009 0007

109 HIGH ST NUF

2719496

101

C: Front Elevation



D: All Elevations where panels will be installed

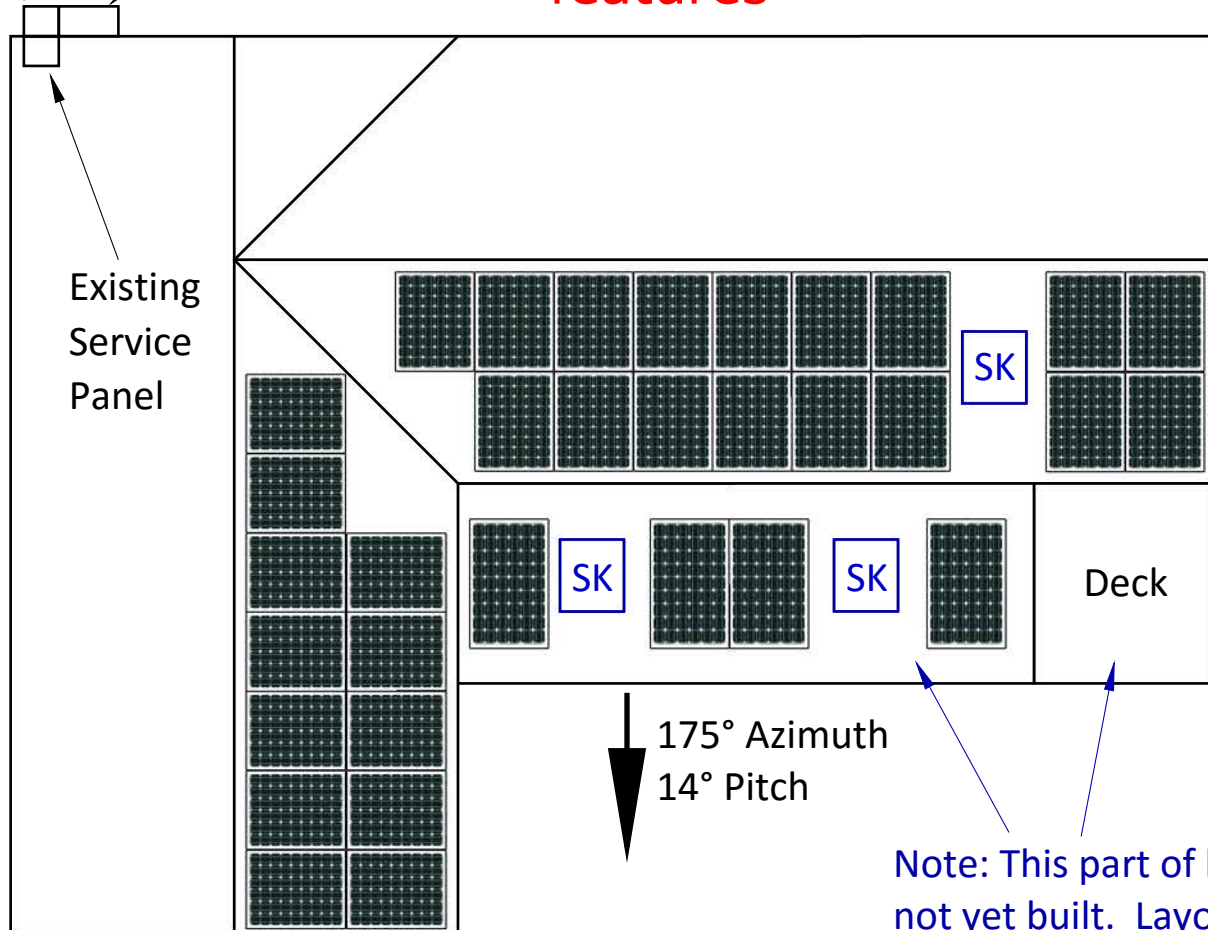


Existing Utility Meter
Proposed Net Meter

Proposed AC Disco
Proposed REC Meter

E: Roof Plan w/ panel arrangement & roof features

Front of House



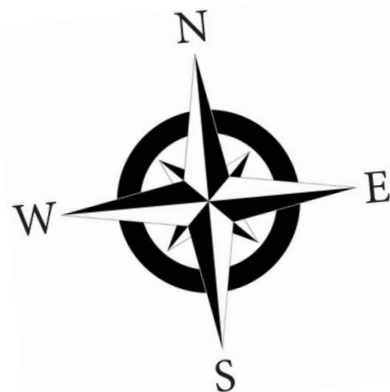
F: Building elevations showing panels & location of exterior conduits, disconnects, & meters

175° Azimuth
40° Pitch

175° Azimuth
14° Pitch

85° Azimuth
40° Pitch

Note: This part of home not yet built. Layout based off of architectural plans and communication with home owner.



SYSTEM SPECIFICATIONS

- DC POWER (KW): 9.9
- AC POWER (KW): 8.25
- AC VOLTAGE (V): 240
- AC CURRENT (A): 33
- AC DISCONNECT SIZE: 60A
- MODULE TYPE / QTY: LG 300W / 33
- INVERTER TYPE / QTY: Enphase M250 / 33

CUSTOMER: Ryan McCarthy
109 High Street
Newton, MA 02464
617-365-1176 Work

COMPANY: Endless Energy
184 Cedar Hill St
Marlborough, MA 01752

DRAWN BY: Shawn Corbley

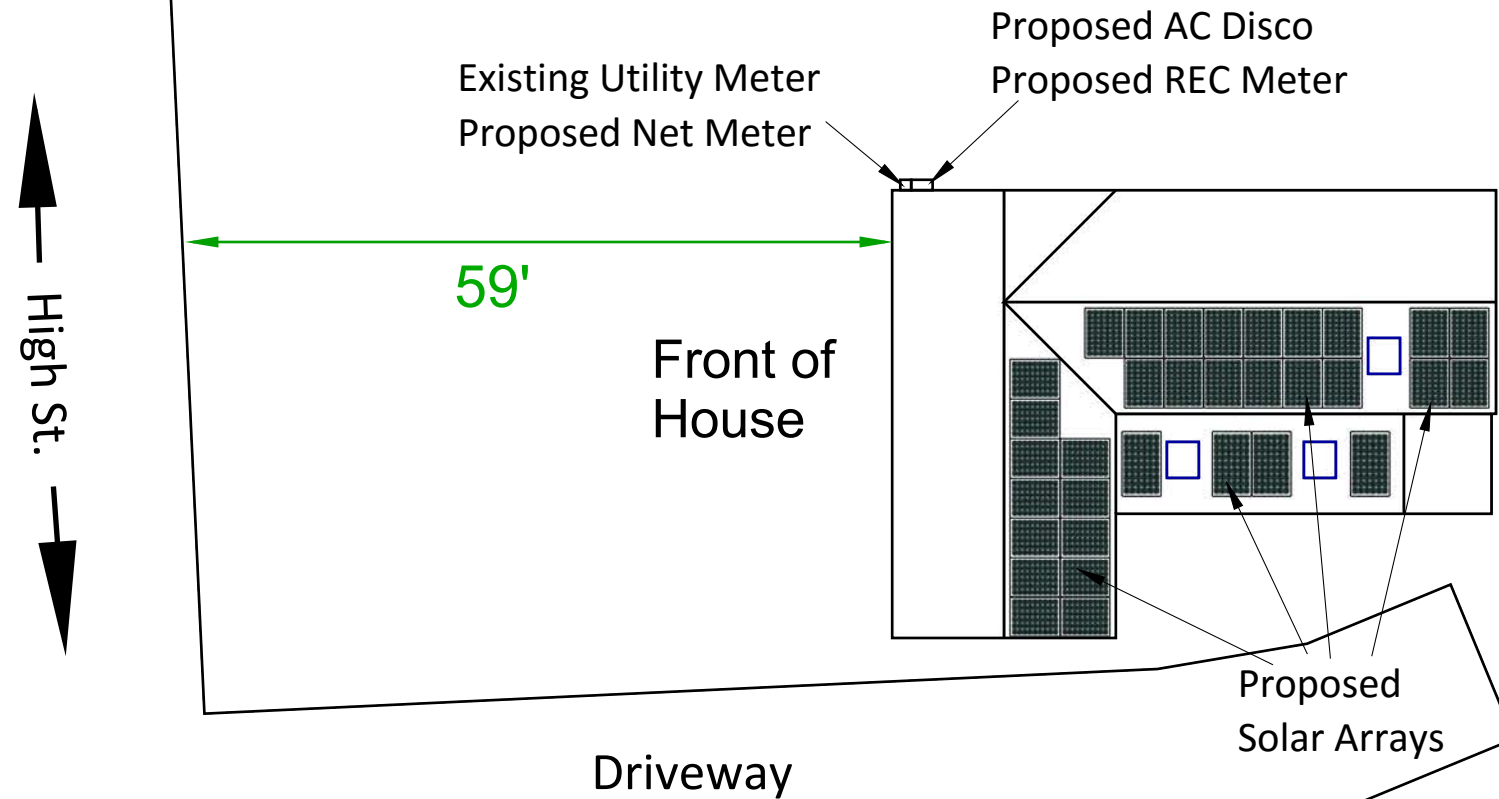


SCALE:
1/8" = 1' (1:96)
(on 11x17 paper)

VIEW: TOP

Site Map

E: Roof Plan w/ panel arrangement & roof features



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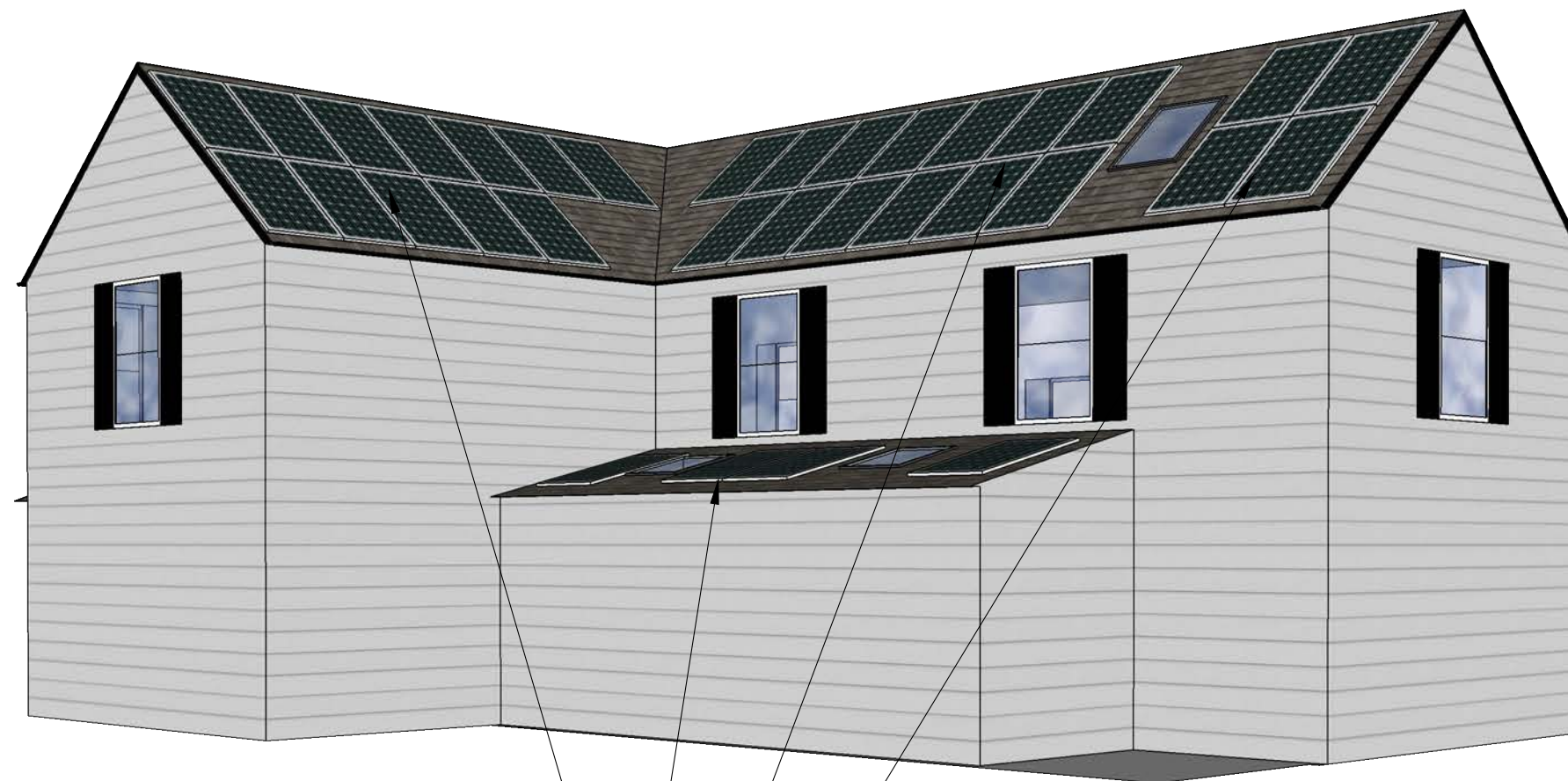


SCALE:
 1/16" = 1' (1:192)
 (on 11x17 paper)

VIEW: TOP

Back Side of House View

G: Photo mock-up or 3-D images of elevations showing panels



Proposed Solar Arrays



SYSTEM SPECIFICATIONS

DC POWER (KW): 9.9
 AC POWER (KW): 8.25
 AC VOLTAGE (V): 240
 AC CURRENT (A): 33
 AC DISCONNECT SIZE: 60A
 MODULE TYPE / QTY: LG 300W / 33
 INVERTER TYPE / QTY: Enphase M250 / 33

CUSTOMER: Ryan McCarthy
 109 High Street
 Newton, MA 02464
 617-365-1176 Work

COMPANY: Endless Energy
 184 Cedar Hill St
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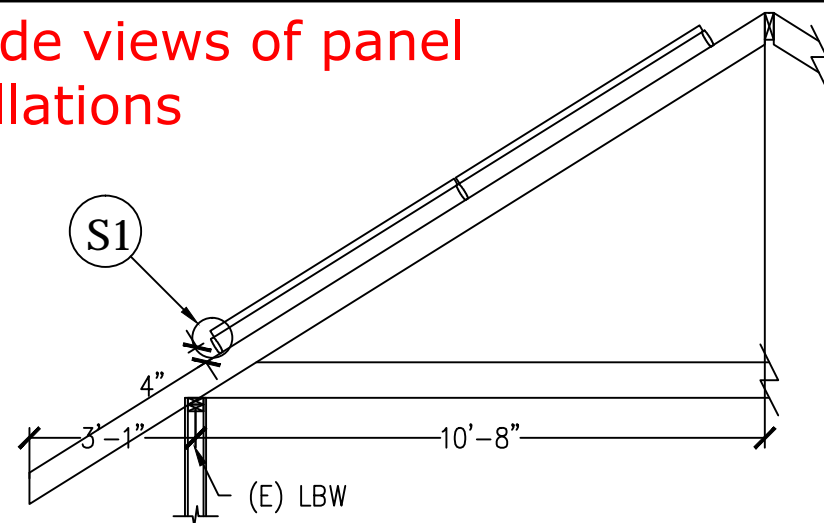
DRAWN BY: Shawn Corbley



SCALE: NA

VIEW: ISO

H: Side views of panel installations

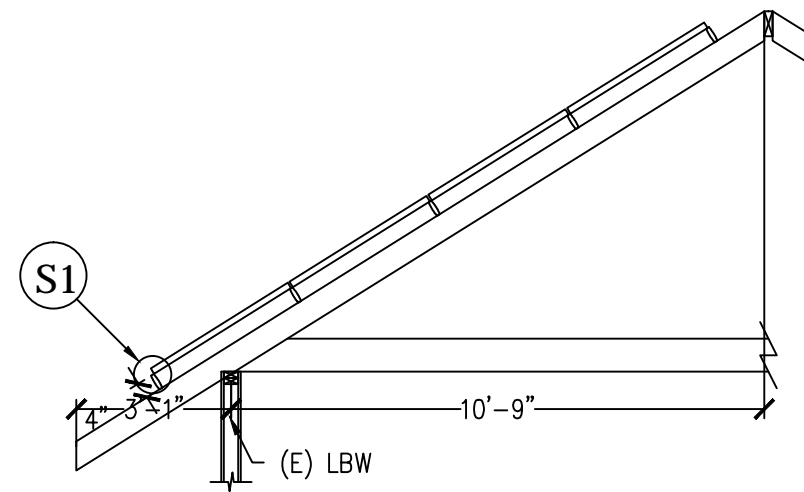


A SIDE VIEW OF MP1 NTS

MP1	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	72"	24"			STAGGERED
PORTRAIT	48"	18"			
RAFTER	2"x6" @ 24" OC		ROOF AZI 306 PITCH 32		STORIES: 2
C.J.	2"x8" @ 24" OC		ARRAY AZI 306 PITCH 32		
Comp Shingle - Solid Sheathing					

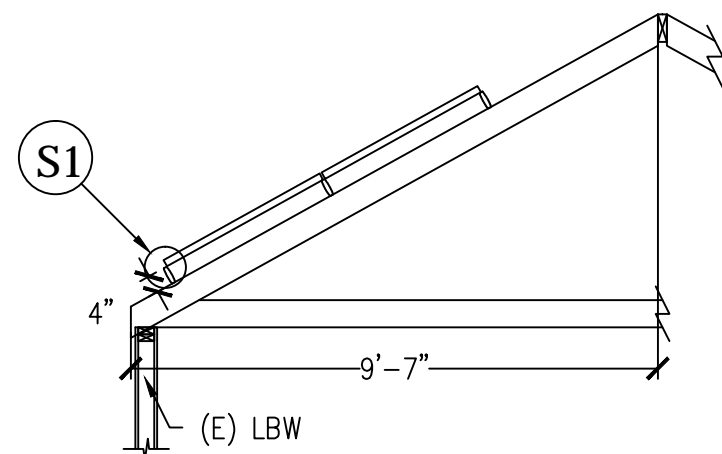


Marcus Hann



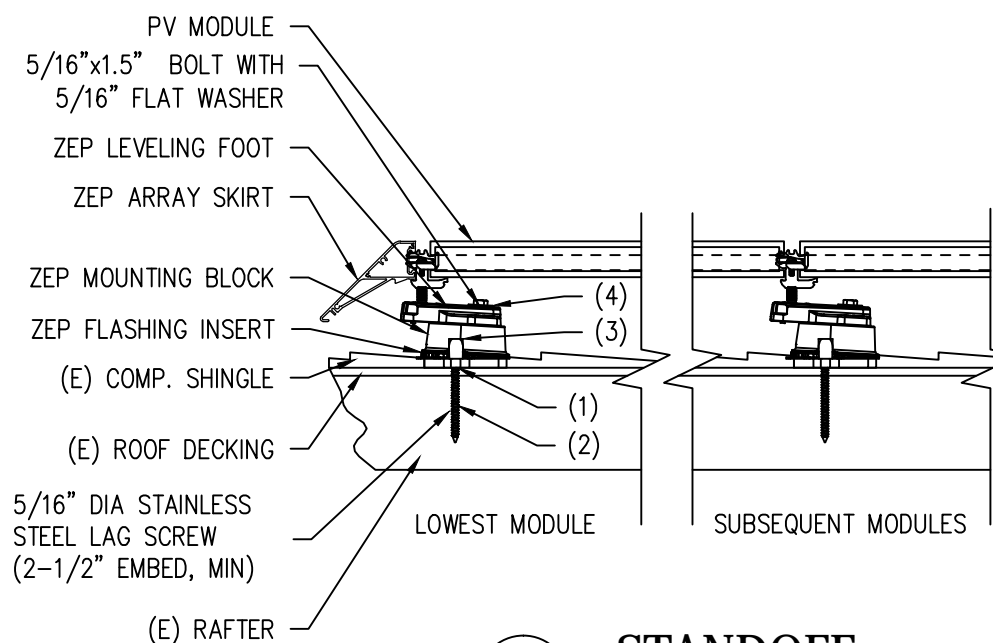
B SIDE VIEW OF MP2 NTS

MP2	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	72"	24"			STAGGERED
PORTRAIT	48"	18"			
RAFTER	2"x6" @ 24" OC		ROOF AZI 126 PITCH 32		STORIES: 2
C.J.	2"x8" @ 24" OC		ARRAY AZI 126 PITCH 32		
Comp Shingle - Solid Sheathing					



C SIDE VIEW OF MP3 NTS

MP3	X-SPACING	X-CANTILEVER	Y-SPACING	Y-CANTILEVER	NOTES
LANDSCAPE	64"	23"			STAGGERED
PORTRAIT	32"	15"			
RAFTER	2"x6" @ 32" OC		ROOF AZI 216 PITCH 29		STORIES: 2
C.J.	2"x6" @ 24" OC		ARRAY AZI 216 PITCH 29		
Comp Shingle - Solid Sheathing					



- INSTALLATION ORDER**
- (1) LOCATE RAFTER, MARK HOLE LOCATION, AND DRILL PILOT HOLE.
 - (2) ATTACH FLASHING INSERT TO MOUNTING BLOCK AND ATTACH TO RAFTER USING LAG SCREW.
 - (3) INJECT SEALANT INTO FLASHING INSERT PORT, WHICH SPREADS SEALANT EVENLY OVER THE ROOF PENETRATION.
 - (4) INSTALL LEVELING FOOT ON TOP OF MOUNTING BLOCK & SECURELY FASTEN WITH BOLT.

S1 STANDOFF
Scale: 1 1/2" = 1'

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JOB NUMBER: JB-0241795 00
 MOUNTING SYSTEM: ZS Comp V4 w Flashing-Insert
 MODULES: (24) KYOCERA # KU260-6ZPB
 INVERTER: SOLAREGE #SE5000A-US000SNR2

PREMISE OWNER:
 JOEL SHAMES
 348 CENTRAL ST
 NEWTON, MA 02466

DESCRIPTION:
 Joel Shames RESIDENCE
 6.24 KW PV ARRAY
 PAGE NAME:
 STRUCTURAL VIEWS

DESIGN:
 Mike Stern
 SHEET: PV 5 REV: e DATE: 8/18/2016

SolarCity
 24 St. Martin Drive, Building 2, Unit 11
 Marlborough, MA 01752
 T: (650) 638-1028 F: (650) 638-1029
 (888)-SOL-CITY (765-2489) www.solarcity.com

I: Panel Product Specifications



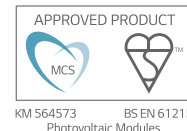
Innovation
for a Better Life



MonoX[®] NeON LG300N1C-B3

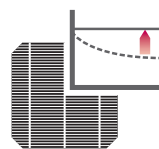
60 cell

Introducing MonoX[®] NeON module series, which uses highly efficient n-type materials, an elaborate process control adopting a semiconductor processing solution and a double-sided structure. Our R&D concentrates on developing a product that is not only efficient, but strives to increase practical value for customers.



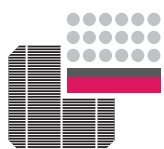
N-Type Material

MonoX[®] NeON uses n-type cells, boasting higher mobility of electric charge, resulting in higher generation efficiency.



Near Zero LID (Light Induced Degradation)

The n-type cells used in MonoX[®] NeON have almost no boron, which may cause the initial efficiency to drop, leading to less LID.



Nano Level Control

MonoX[®] NeON uses the Nano-level process control predominant in semiconductor processing process, which ensures less electric loss from internal defects.



Double-Sided Cell Structure

The rear of the cell used in MonoX[®] NeON is designed to contribute to generation; 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 multinational corporation committed to expanding its capacity with solar energy business as its future growth engine. Our solar energy source research program was launched in 1985, backed by LG Group's rich experience in semi-conductors, LCD, chemistry and electronic materials industry. We successfully released the first MonoX[®] series to the market in 2010 which exported to 32 countries in 2 years. In 2013, MonoX[®] NeON won "Intersolar Award", which proved its leading innovation in the industry.

I: Panel Product Specifications


MonoX[®] NeON

LG300N1C-B3

Mechanical Properties

Cells	6 x 10
Cell vendor	LG
Cell type	Monocrystalline
Cell dimensions	156 x 156 mm / 6 x 6 in
# of busbar	3
Dimensions (L x W x H)	1640 x 1000 x 35 mm 64.57 x 39.37 x 1.38 in
Static snow load	5400 Pa / 113 psf
Static wind load	2400 Pa / 50 psf
Weight	16.8 ± 0.5 kg / 36.96 ± 1.1 lb
Connector type	MC4 connector IP 67
Junction box	IP 67 with 3 bypass diodes
Length of cables	2 x 1000 mm / 2 x 39.37 in
Glass	High transmission tempered glass
Frame	Anodized aluminum

Certifications and Warranty

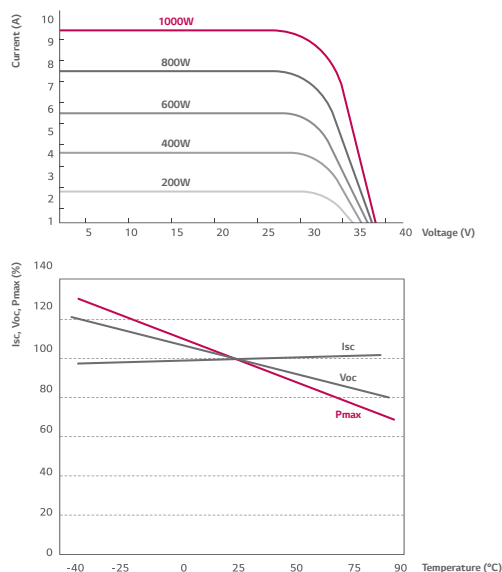
Certifications	IEC 61215, IEC 61730-1/-2, UL 1703, ISO 9001, IEC 61701, IEC 62716
Module fire performance (UL1703)	Type 2
Product warranty	10 years
Output warranty of Pmax (measurement Tolerance ± 3%)	Linear warranty* 

* 1) 1st year: 98%, 2) After 2nd year: 0.7%p annual degradation, 3) 81.2% for 25 years

Temperature Coefficients

NOCT	45 ± 2 °C
Pmpp	-0.41 %/°C
Voc	-0.29 %/°C
Isc	0.04 %/°C

Characteristic Curves



Electrical Properties (STC *)

	300 W
MPP voltage (Vmpp)	32.0
MPP current (Impp)	9.40
Open circuit voltage (Voc)	39.8
Short circuit current (Isc)	9.98
Module efficiency (%)	18.3
Operating temperature (°C)	-40 ~ +90
Maximum system voltage (V)	1000 (IEC), 600 (UL)
Maximum series fuse rating	20
Power tolerance (%)	0 ~ +3

* STC (Standard Test Condition): Irradiance 1000 W/m², module temperature 25 °C, AM 1.5

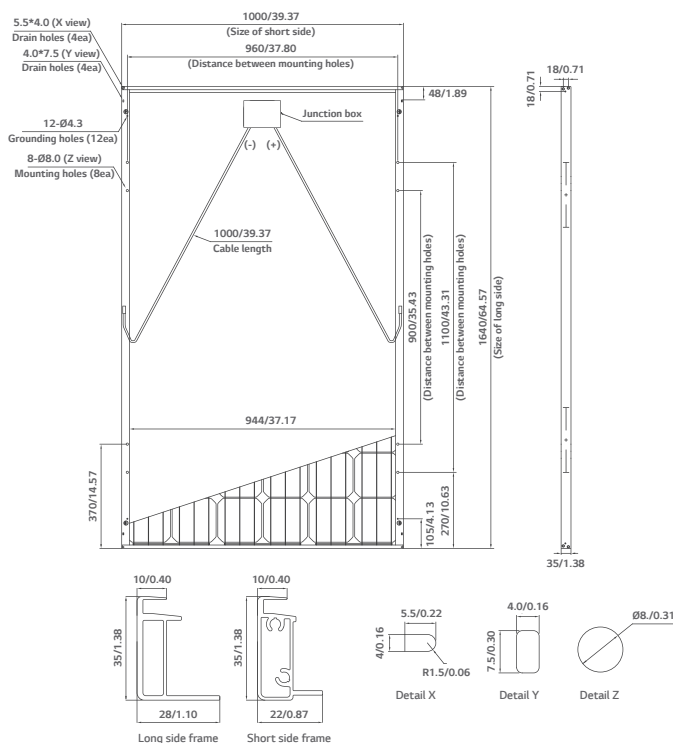
* The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion.

Electrical Properties (NOCT*)

	300 W
Maximum power (Pmpp)	220
MPP voltage (Vmpp)	29.3
MPP current (Impp)	7.50
Open circuit voltage (Voc)	36.9
Short circuit current (Isc)	8.05
Efficiency reduction (from 1000 W/m ² to 200 W/m ²)	< 2%

* 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 U.S.A. Inc
1000 Sylvan Ave, Englewood Cliffs, NJ 07632

Contact: lg.solar@lge.com
www.lgsolarusa.com

Product specifications are subject to change without notice.
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All other trademarks are the property of their respective owners.
DS-N-60-C-US-F-EN-31002

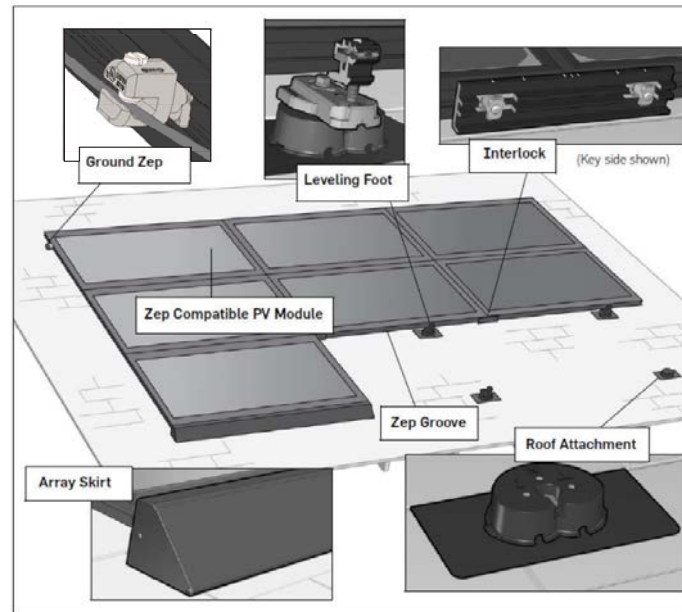
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06/17/2014

Innovation for a Better Life



J: Mounting System Product Specifications

Zep System for composition shingle roofs



Description

- PV mounting solution for composition shingle roofs
- Works with all Zep Compatible Modules
- Auto bonding UL-listed hardware creates structural and electrical bond
- Zep System has a UL 1703 Class "A" Fire Rating when installed using modules from any manufacturer certified as "Type 1" or "Type 2"

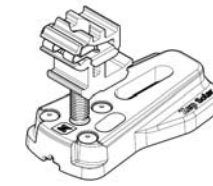
Specifications

- Designed for pitched roofs
- Installs in portrait and landscape orientations
- Zep System supports module wind uplift and snow load pressures to 50 psf per UL 1703
- Wind tunnel report to ASCE 7-05 and 7-10 standards
- Zep System grounding products are UL listed to UL 2703 and UL 467
- Zep System bonding products are UL listed to UL 2703
- Engineered for spans up to 72" and cantilevers up to 24"
- Zep wire management products listed to UL 1565 for wire positioning devices
- Attachment method UL listed to UL 2582 for Wind Driven Rain

zepsolar.com

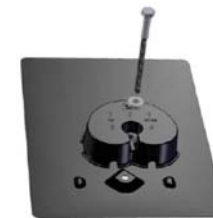
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Components



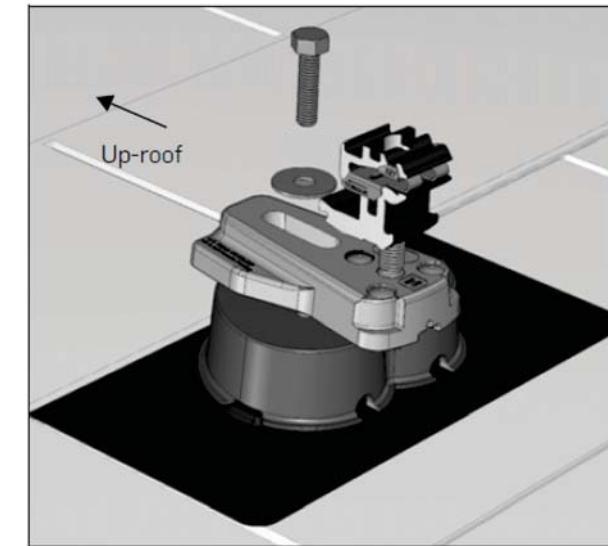
Leveling Foot

Part No. 850-1172
ETL listed to UL 467



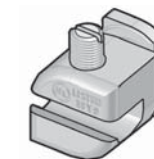
Comp Mount

Part No. 850-1382
Listed to UL 2582
Mounting Block Listed to UL 2703



Interlock

Part No. 850-1388
Listed to UL 2703



Ground Zep V2

Part No. 850-1511
Listed to UL 467 and UL 2703



DC Wire Clip

Part No. 850-1448
Listed to UL 1565



Array Skirt, Grip, End Caps

Part Nos. 850-0113, 850-1421,
850-1460, 850-1467
Listed to UL 1565

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Optional: Photo of actual installation

