# HISTORIC PRESERVATION COMMISSION STAFF REPORT

| | | | |
|---|---|---|---|
| **Address:** | 18 Montgomery Ave., Takoma Park | **Meeting Date:** | 02/22/17 |
| **Resource:** | Non-Contributing Resource<br>**Takoma Park Historic District** | **Report Date:** | 02/15/17 |
| **Applicant:** | Julian Mulvey | **Public Notice:** | 02/08/17 |
| **Review:** | HAWP | **Tax Credit:** | n/a |
| **Case Number:** | 37/03-17H | **Staff:** | Dan Bruechert |
| **PROPOSAL:** | Solar panel installation | | |

## STAFF RECOMMENDATION

Staff recommends HPC **approve with conditions** the HAWP application.

## ARCHITECTURAL DESCRIPTION

SIGNIFICANCE: Non-Contributing to the Takoma Park Historic District
STYLE: Traditional
DATE: 2013

The subject property is a modern, non-contributing, infill construction that the HPC approved in 2012. The property is a two-story, three-bay, Hardi-sided house employing many traditional design elements to match the character of the surrounding district. The front left corner and entrance are covered by a hipped-roof, wrap-around porch supported by square wood columns. The asphalt-shingled roof is an L-shaped gable with a flat section in the rear or the left side. To the rear there is a one-story, rear-gable outbuilding that was associated with 16 Montgomery Ave. that was rehabbed and integrated as part of the design and construction of 18 Montgomery Ave.

## BACKGROUND

DPS issued permits for the installation of these solar panels prior to the issuance of a HAWP, inconsistent with chapter 24A-6 of the County Code. Apparently DPS was unaware that projects at this property within the Takoma Park Historic District required a HAWP. The applicants applied for a HAWP immediately upon learning that a HAWP was required. This application is retroactive.

## PROPOSAL

The proposal calls for the approval of the 34 installed solar panels mounted flush to the roof. The panels are installed on several planes of the L-shaped roof. On the left side gable, five panels face the south. Two panels are on the western side of the front gable with 12 panels on the eastern side of the front gable toward the front of the house. An additional 14 panels are installed in two arrays to the rear of the house (Circle ZJ ).

## APPLICABLE GUIDELINES

***Montgomery County Code, Chapter 24A Historic Resources Preservation***

(b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to insure conformity with the purposes and requirements of this chapter, if it finds that:

(1) the proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or

(2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter.

***Takoma Park Historic District Design Guidelines***

There are two very general, broad planning and design concepts which apply to all categories. These are:

> The design review emphasis will be restricted to changes that are at all visible from the public right-of-way, irrespective of landscaping or vegetation (it is expected that the majority of new additions will be reviewed for their impact on the overall district), and,
>
> The importance of assuring that additions and other changes to existing structures act to reinforce and continue existing streetscape, landscape, and building patterns rather than to impair the character of the district.

Non-Contributing/Out-of-Period Resources should receive the most lenient level of design review. Most alterations and additions to Non-Contributing/Out-of-Period Resources should be approved as a matter of course. The only exceptions would be major additions and alterations to the scale and massing of Non-Contributing/Out-of-Period Resources which affect the surrounding streetscape and/or landscape and could impair character of the district as a whole.

**STAFF DISCUSSION**

18 Montgomery Ave., Takoma Park, is a compatibly designed, Non-Contributing resource to the Takoma Park Historic District. Most changes to Non-Contributing or Out-of-Period resources in the district are to be approved as a matter of course. The exception to this guidance is where the change will negatively impact the streetscape and would impact the district as a whole. The installation of 34 solar panels – 24 of which are highly visible from the public right-of-way negatively impact the character of the surrounding district in several ways:

- The larger (right) side lot makes the long gable roof highly visible.
    - The solar array on this side of the roof extend almost all the way to the gable end of the roof.

*Figure 1:* East Elevation

- The south facing array has increased prominence due to the verticality of the house and roof slope and the solar panels extend to the edge of the side-facing gable.

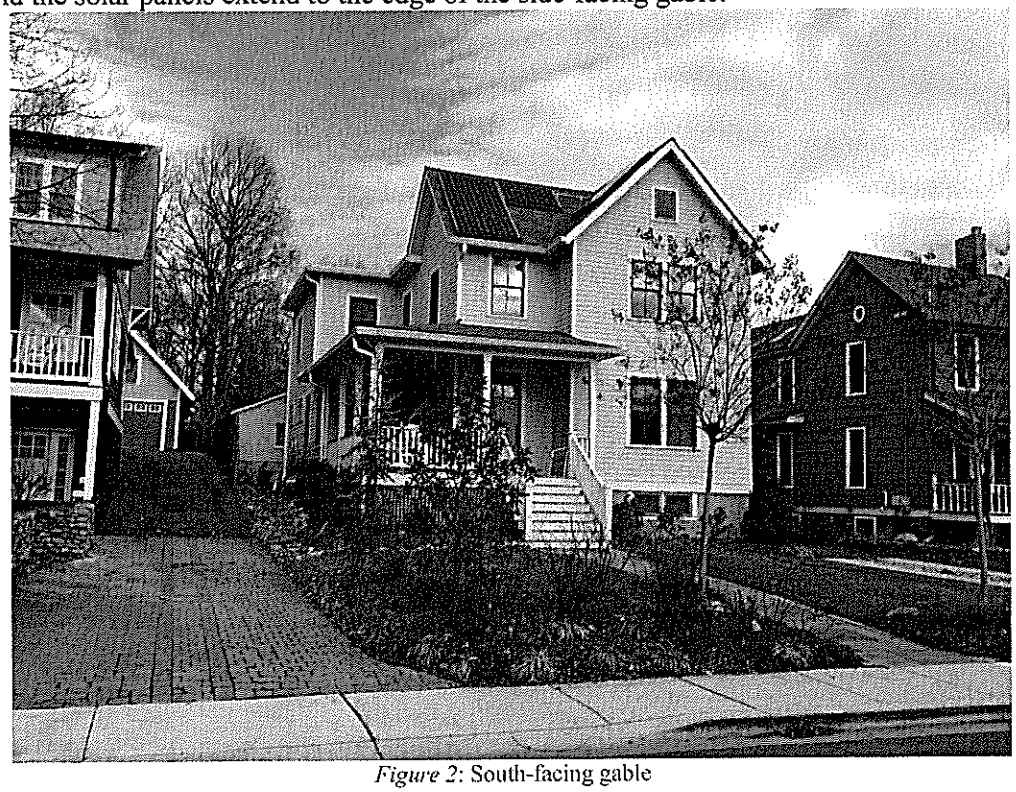


*Figure 2*: South-facing gable

- The west facing array has a prominence equal to the array on the south facing façade and is also placed at the gable edge.

*Figure 3*: South and West-facing gable

Because the solar panels extend almost all the way to the edge of the roof closest to the street, the panels' different materials, their reflectivity, and appearance of the solar panels detract from the streetscape and should not, in this instance, be approved as a matter of course. These solar arrays deserve more scrutiny in evaluating their impact on surrounding district. Additionally, the tall, vertical proportions of the house and roofline make the appearance of the solar panels more prominent and detract from the form of the house which is what ties this house to the surrounding district, contra *24A8*-(b)(1). In order to better preserve the character of the surrounding district several of the solar panels should be relocated.

**NEIGHBOR COMMENTS**

A concerned neighbor submitted comments to staff (see attached e-mail and related documentation). This neighbor is not able to attend the HPC meeting due to work requirements. Specifically, this neighbor raises concerns over the impact this project would have on his house and the district in general, given their prominent visibility. More broadly, this neighbor is concerned about the appearance of traditional solar photovoltaic panels on not just this house, but every house within the historic district as being incongruous with the surrounding historic district. Additionally, the neighbor disapproves of HPC policy regarding solar panels as they impact neighboring properties and view sheds and feels that they should become a more important consideration in the HAWP review process. Finally, the neighbor strongly encourages the HPC to establish a moratorium on solar panels in the Takoma Park Historic District until such time as solar panels can more effectively blend with the historic fabric of a district developed in the first quarter of the 20th century. Staff has taken these comments into consideration in its review of the application.

Staff makes the following findings:

- The subject property is a Non-Contributing resource in the Takoma Park Historic District.
- Alterations to the subject property require a HAWP, consistent with Chapter 24A-6 of the County Code.
- In reviewing proposed alterations to Non-Contributing resources in the Takoma Park Historic District, the HPC must following the guidance for Non-Contributing resources included in the Approved and Adopted Amendment to the Master Plan for Historic Preservation in Montgomery County, Maryland: Takoma Park Historic District & Carroll Manor/Douglas House.
- The Guidelines specify that Non-Contributing resources should receive the most lenient level of design review, with most alterations approved as a matter of course, except for "... alterations to the scale and massing of Non-Contributing/Out-of-Period Resources which affect the surrounding streetscape and/or landscape and could impair character of the district as a whole".
- Fifteen of the proposed solar panels (described below) would be located in readily visible locations that alter the perceived massing of the resource and would have a detrimental effect on the surrounding streetscape and could impair the character of the district as a whole due to their visibility and incompatibility.
- The balance of the proposed panels would be installed in locations such that the impact on the streetscape and district would be minimal. These panels should be approved as a matter of course.

Having determined that the remaining panels are far enough removed from the streetscape to have a significant impact on the surrounding district and are appropriate in their current location, staff recommends that the Commission find them consistent with Chapter 24A-8(b)(1) & (2) and with the Takoma Park Historic District Guidelines. Staff encourages the applicant to investigate alternative locations where additional panels could be installed with minimal impact, and return to the Commission with a revised HAWP if appropriate locations can be identified.

**STAFF RECOMMENDATIONS**

Staff recommends that the Commission **approve** the HAWP application **with the condition** that:

The 15 solar panels installed to the south of the cross gable:

- The 4 south facing panels on the gable-L roof (fig. 3),
- The 2 west facing panels on the front-facing gable (fig. 3, and
- The front 6 panels on the east-facing side of the front-facing gable (fig. 1)

are not approved and directs the applicant to remove these panels.

and with the general condition applicable to all Historic Area Work Permits that **the applicant will present *3 permit sets* of drawings to HPC staff for review and stamping prior to submission for permits (if applicable).** After issuance of the Montgomery County Department of Permitting Services (DPS) permit, the applicant will arrange for a field inspection by calling the DPS Field Services Office at 240-777-6370 prior to commencement of work and not more than two weeks following completion of work.

## Bruechert, Dan

**From:** John Salmen <jsalmen@udconsultants.com>
**Sent:** Tuesday, January 31, 2017 3:01 PM
**To:** Bruechert, Dan
**Cc:** Lorraine Piersall (ljpearsall@aol.com); julian mulvey; Ann Scher
**Subject:** HAWP Application for solar installation on 18 Montgomery, Takoma Park
**Attachments:** A Home For The Ages - Washington Post Article.pdf; IMG_9265.JPG; IMG_9268.JPG

Mr. Bruechert,

I am sending this letter via e-mail, asking that it be included in the file for the 18 Montgomery, Takoma Park HAWP application thatis scheduled to be heard at the February 8m 2017 meeting of the Montgomery County Historic Preservation Commission. I had hoped to attend the Feb 8 hearing, but will be on business travel to the west coast that evenong, and will be unable to attend in person.

First, as a tax payer, I am extremely disappointed in the way that the Montgomery County Department of Permitting Services mis-handled this matter, and allowed things to get to this point. It is truly regrettable when an aggressive sales force and an incomplete tracking system put homeowners like Julian Mulvey into this terrible position of unknowingly running afoul of historic district regulations, when they are just trying to be responsible global citizens.

Second, as an Architect and having traveled and studied residential communities around the world, I know that the beautiful peaked roofs and tree canopy of the Takoma Park Historic District are a unique treasure. I designed and built my home, (see attached article from the Washington Post), with clerestory windows to take advantage of the views of these beautiful trees and rooftops. I am certain that within the next few years we will see solar technology that truly blends in with roofing and siding. The solar panels being installed by Solar City stand out like a sore thumb, and on a house as tall as 18 Montgomery, they can be seen from all around the neighborhood, not just from the street in front of the house. (see attached photo 9268) Statistically, only ¼ of the views, are of the street sides of homes. The majority of the views (especially for residents who live in the historic district) are of the side and backyard spaces, in the middle of the blocks, that offer open views of houses from all sides. The residents' views should be considered and protected as being equally if not more important than the public street views.

Finally, as the next door neighbor on this project, I am bothered every morning when I open my eyes and look out my bedroom window to see if the sun's up yet. What I now see, less than 20 feet away, is an 8 panel array of solar collectors staring at me. (See attached photo 9265.) And I realize that since these panels aren't easily seen from the street, and the HAWP you approve will allow them to be there forever; that they are likely to stare at me every morning until I die. It's like the view I had of a pie factory from my seedy, student apartment 40 years ago. This is not the way it should be.

I urge you to do something to ensure that the Department of Permitting Services doesn't screw it up like this again.

And, moreover, I urge you not to approve solar panels anywhere in the Takoma Park Historic District, until there is a technology that can truly blend into the historic fabric of Craftsman and Victorian neighborhoods, and not ruin the reason many of us made our homes in the Takoma Park Historic District.

Please let me know if the Commission needs any further information or documentation.

I appreciate your consideration of my perspective and concerns.

John Salmen, FAIA
16 Montgomery Avenue



(6)

The Washington Post

SATURDAY, SEPTEMBER 24, 2011



INSIDE

# A home for the ages

## An architect and his wife renovate their Takoma Park bungalow with the future in mind, building in features to make growing old in place more comfortable and practical

BY KATHERINE SALANT

When John Salmen invited me to see the Takoma Park, Md., house where he and his wife, Ann Scher, "expect to spend the next 50 years," I wasn't sure what to expect. As both Salmen and his wife are already more than 50 years old, the house would eventually have to accommodate a person facing the frailties of advancing age.

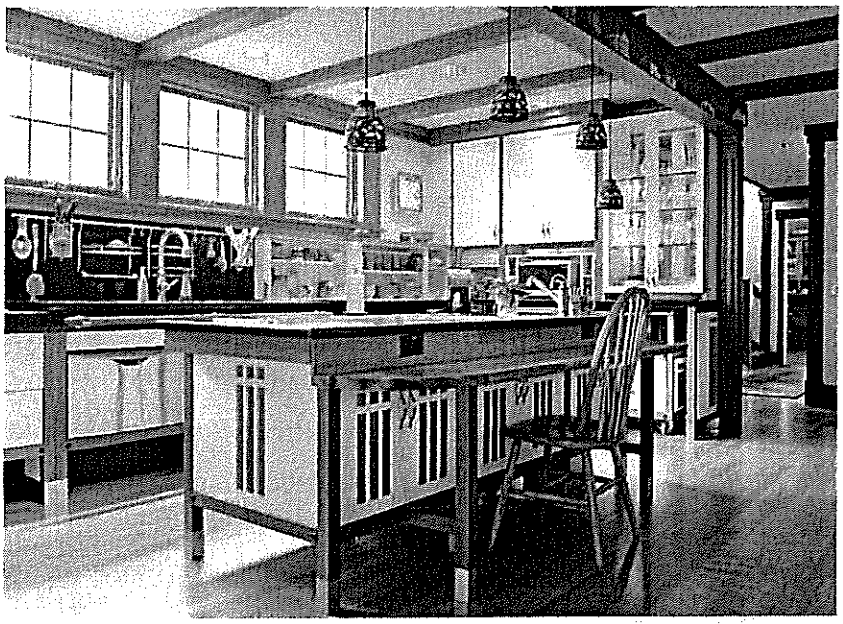
Would this be the centerpiece of the design? After all, Salmen has spent his architecture career specializing in barrier-free design that accommodates people with disabilities.

The answer was a resounding no.

Salmen has a playful manner, and so does his house. Nothing in it says "a place I can live when I'm frail and 90 years old." Instead, most visitors will find it to be a delightful renovation of a 1900s bungalow with a newer addition on the back.

The exterior of the house conforms to Takoma Park's historic district requirements and looks similar to the other modestly-sized, clapboard-sided, Craftsman-styled bungalows with front porches. The Craftsman-styled interior, however, is unique to the neighborhood. It features a color palette that is historically authentic but unusual in its hues and strong contrasts — cobalt blue, pumpkin orange and light-cream yellow.

The heart of the three-bedroom, 2,000 square-foot house is the eat-in kitchen/family room, which occupies the entire first-floor area of the new addition. In keeping with the Craftsman-style interiors, the space features abundant amounts of clear-stained cherry trim around doors and windows, an exposed beamed ceiling, strategically placed cherry clad columns that hold it up, and multiple windows on three sides that flood the area with natural light.



BILL O'LEARY/THE WASHINGTON POST

**Architect John Salmen approached the renovation of his cottage-size home with an eye toward his and his wife's needs in their later years. Setting kitchen countertops at various heights is one element he employed.**

Of greater interest to me, however, were the numerous, nearly invisible ways in which Salmen designed the main living area to be flexible, not in the sense of "multipurpose" but in "accommodating disabilities." Cloaked in a Craftsman aesthetic, almost every detail has been masterfully designed to help this couple navigate the shoals of old age.

Although neither spouse is disabled, Salmen's years of designing for disabled people have made him acutely aware of how to modify a space so that an older person can comfortably "age in place."

Many of Salmen's design subtleties address diminished vision, which begins to affect almost everyone in their 40s and 50s and

BILL O'LEARY/THE WASHINGTON POST

becomes much more pronounced as we reach our 80s, said Mariana Figueiro, a professor at Rensselaer Polytechnic Institute in Troy, N.Y., and an expert in lighting issues for the elderly.

In choosing the color scheme for his main living area, Salmen went for bold contrast — light yellow walls play off against the rich red oak flooring and the darker cherry trim. Today, this contrast creates a visually lively space, but 30 years from now it can help Salmen and Scher to maintain their balance and prevent falls. When walls and floors are the same color — as is commonly the case in traditional senior housing — an elderly person with poor vision may be unable to distinguish between floor and wall, "lose the horizon" and fall, Salmen said.

Strategically placed lighting can also help a person with diminished vision to navigate through a space. The light source does not need to be a fixture. In this case, ambient light shining through a glass cabinet indicates the direction of the main living area from a central hallway.

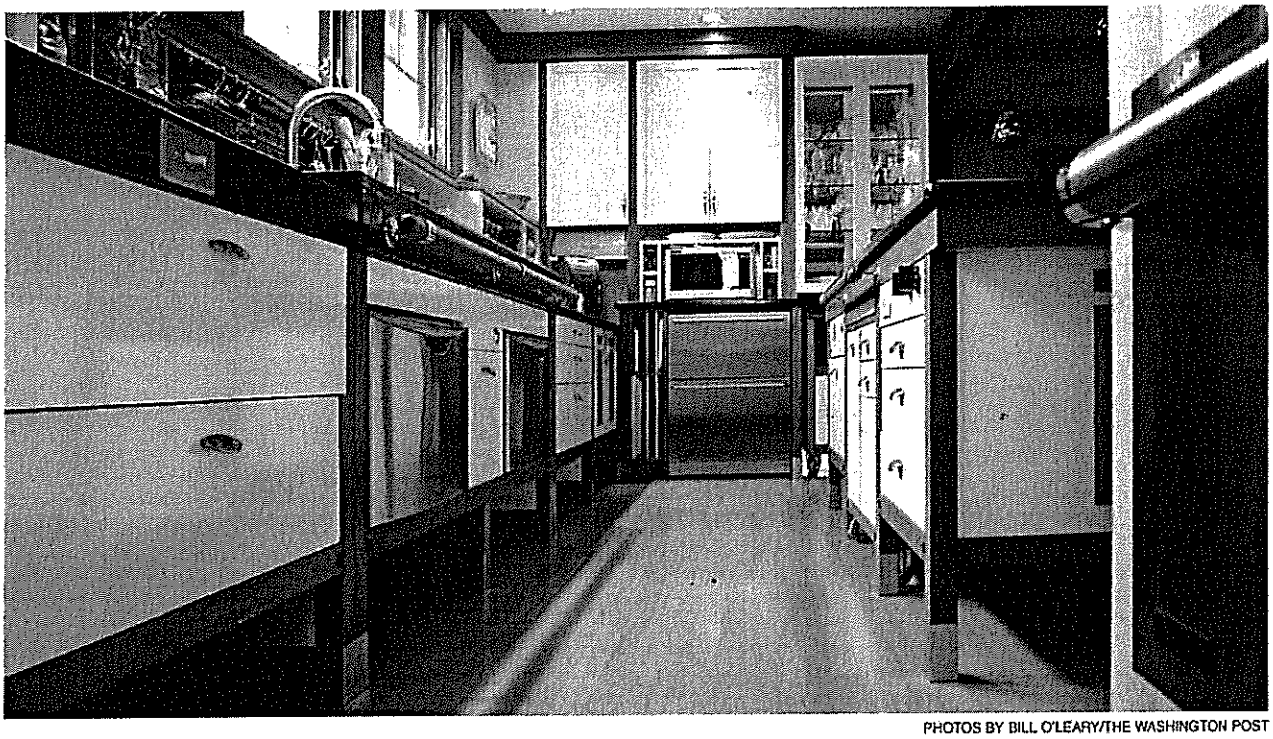
The abundance of natural light that streams through the 12 windows in the kitchen/family room area will be increasingly appreciated over time. Compared to a person aged 20, a person aged 70 generally needs about three times as much light for tasks that require more acuity such as reading or peeling and chopping vegetables in the kitchen, Figueiro said. The high clerestory openings above the kitchen and living areas provide indirect lighting that reduces glare, another issue for older people with vision issues, she said.

Other details here will accommodate a person in a wheelchair. For example, recessed into a corner, the generously-sized, quarter-circle-shaped dining table backs up against two built-in benches, which Salmen and Scher currently use for dining. When they have guests, they add chairs to the rounded side, which can easily accommodate two wheelchairs because the table does not have table legs; it has a single pedestal support.

The 18-inch level of the raised hearth makes it easy for a person in a wheelchair to operate the gas fireplace. The two large 36-inch-wide by 42-inch-high cherry panels that conceal Salmen's enormous flatscreened television and elaborate home entertainment system are so light-weight an individual in a wheelchair can easily move them using only one hand or even only one finger, Salmen said.

The counters in the kitchen are set at varying heights to accommodate children, very short and very tall adults and individuals in wheelchairs. For average-height adults, the different counter heights make some cooking tasks easier. For example, it's much more comfortable to knead bread and roll out pie crust on a 30-inch counter, six inches lower than the 36-inch standard height for kitchen counters, which are too high for most people, said Jane Langmuir, a Providence, R.I. architectural designer who designed the kitchen.

In this kitchen, the counter heights for the food-preparation areas are 33 and 34 inches. The 1.5-inch diameter grab bar in front of the sink currently functions as a



PHOTOS BY BILL O'LEARY/THE WASHINGTON POST

dish-towel rack, but its easily graspable shape is ideal for a person in a wheelchair to hold while reaching down to pick up something dropped on the floor or for opening a drawer or lower cabinet.

The everyday dishes and glassware are kept in open shelves only three inches above the counter instead of the usual 18 inches that separate standard wall-hung cabinets from countertops. The lower shelves are an easy reach for the average adult and a godsend for a child, a short person or person in a wheelchair.

Salmen also added touches of serendipity. In working out the Craftsmen details with designer and builder Alan Abrams of Abrams Design Build in Takoma Park, Salmen decided to expose the two steel I-beams that hold up the second floor. This provided an opportunity to display about 50 model houses that he and his now-grown daughters put together "on the innumerable rainy Saturdays of their childhood," he said.

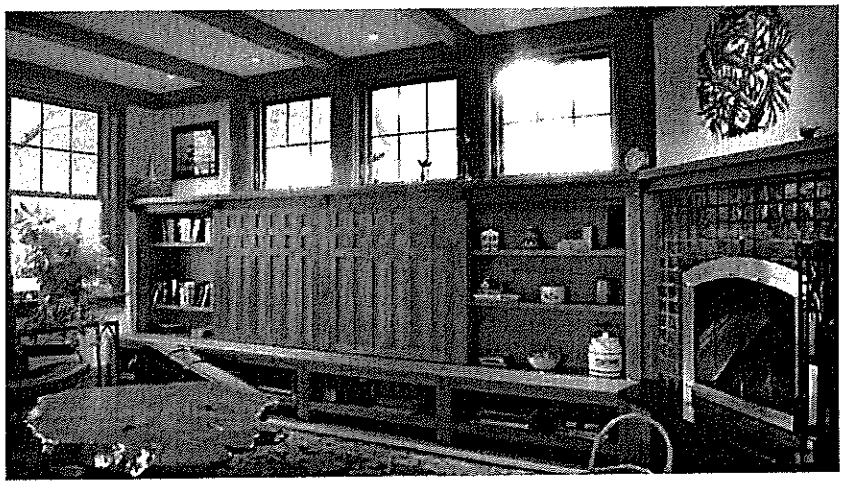
At the end of the tour, I asked the obvious: What led Salmen and his wife to embark on such a huge undertaking when they were 30 to 35 years away from needing most of the accommodations that they so seamlessly incorporated into their house? Salmen offered two reasons. The first and most compelling was that when their younger daughter graduated from high school they were ready for a "life change and a nice little house," Salmen said. They decided to make their new house their last house because he knew it would be much easier to organize the project in middle age than if they waited until they were older and the need became more apparent.

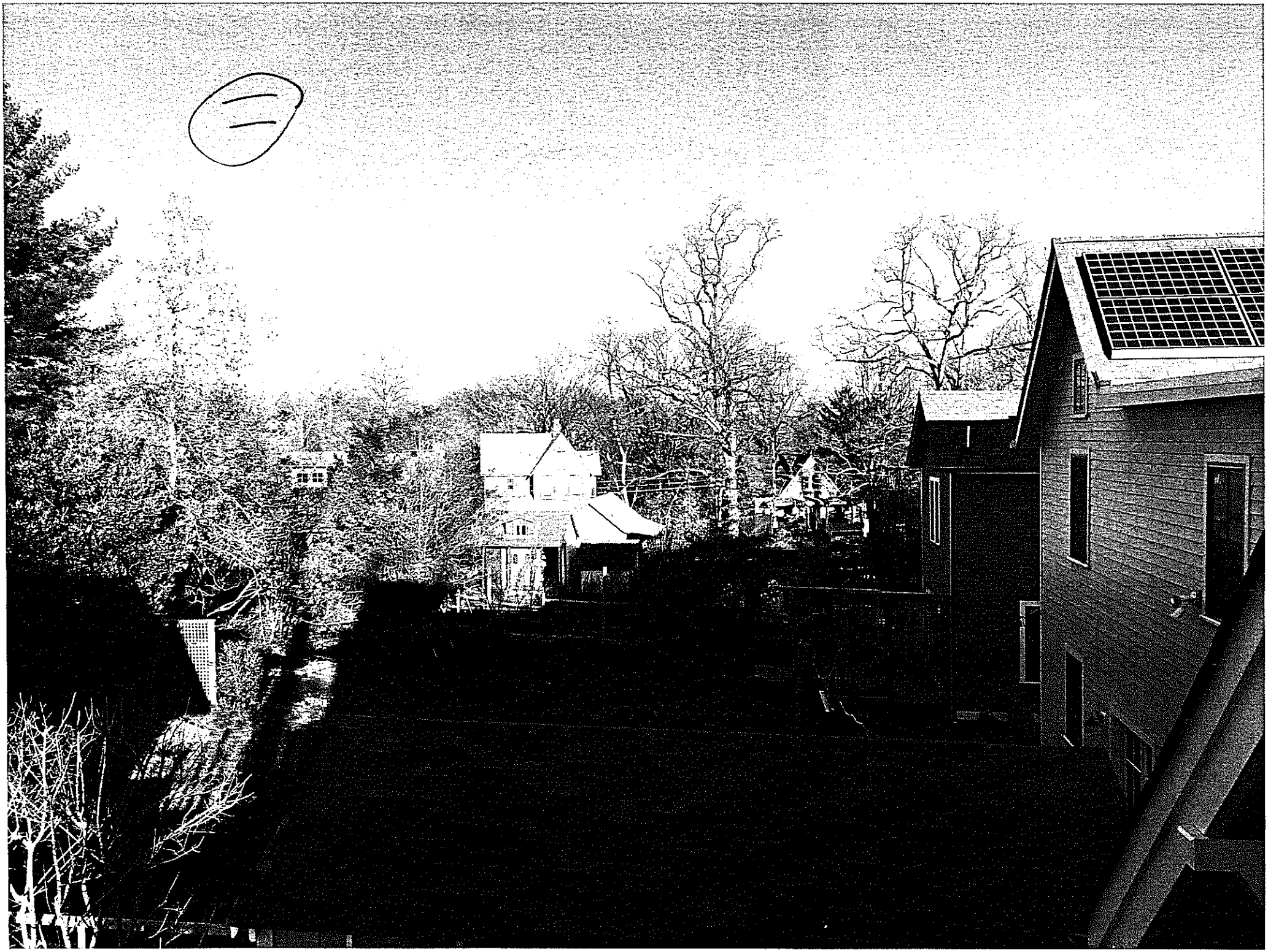
**Architect John Salmen renovated his Takoma Park home with an eye on the future, making it wheelchair-friendly with low kitchen counters, above, and a living room, bottom, with a gas fireplace and raised hearth for easy access, and clerestory windows for light—all while keeping the exterior's historic integrity.**

In your 60s and 70s, "It's still doable but daunting physically and draining emotionally because you have one or two more decade's worth of associations with the house," he said. "In your 80s, you will very likely need other people to orchestrate everything, an unacceptable option for most elderly people who want to feel that they still have some control over their personal lives," he said.

---

Katherine Salant has an architecture degree from Harvard. A native Washingtonian, she grew up in Fairfax County and now lives in Michigan. If you have questions or would like to suggest topics for coverage, contact her by email at katherinesalant@gmail.com.





[redacted]

DPS - #8

**HISTORIC PRESERVATION COMMISSION**
**301/563-3400**

# APPLICATION FOR HISTORIC AREA WORK PERMIT

Contact Email: MFISCH@SOLARCITY.COM OR TGERUSON@SOLARCITY.COM
Contact Person: MIKE FISCH OR TERESA GERUSON
Daytime Phone No.: (202) 556-3797
Tax Account No.: 13-03689048
Name of Property Owner: JULIAN MULVEY Daytime Phone No.: (202) 321-1267
Address: 18 MONTGOMERY AVE TAKOMA PARK MD 20912
Street Number City State Zip Code
Contractor: SOLARCITY CORPORATION Phone No.: (888) 765-2489
Contractor Registration No.: 128948 (MHIC)
Agent for Owner: MIKE FISCH Daytime Phone No.: (202) 556-3797

**LOCATION OF BUILDING/PREMISE**

House Number: 18 Street: MONTGOMERY AVE
Town/City: TAKOMA PARK Nearest Cross Street: HICKORY AVE
Lot: 9 Block: 18 Subdivision: 0025
Liber: 47994 Folio: 00361 Parcel:

**PART ONE: TYPE OF PERMIT ACTION AND USE**

1A. CHECK ALL APPLICABLE:

☐ Construct ☐ Extend ☐ Alter/Renovate
☑ Move ☐ Install ☐ Wreck/Raze
☐ Revision ☐ Repair ☐ Revocable.

CHECK ALL APPLICABLE:

☐ A/C ☐ Slab ☐ Room Addition ☐ Porch ☐ Deck ☐ Shed
☑ Solar ☐ Fireplace ☐ Woodburning Stove ☐ Single Family
☐ Fence/Wall (complete Section 4) ☐ Other:

1B. Construction cost estimate: $ 2000
1C. If this is a revision of a previously approved active permit, see Permit #

**PART TWO: COMPLETE FOR NEW CONSTRUCTION AND EXTEND/ADDITIONS**

2A. Type of sewage disposal: 01 ☐ WSSC 02 ☐ Septic 03 ☐ Other:
2B. Type of water supply: 01 ☐ WSSC 02 ☐ Well 03 ☐ Other:

**PART THREE: COMPLETE ONLY FOR FENCE/RETAINING WALL**

3A. Height _____ feet _____ inches
3B. Indicate whether the fence or retaining wall is to be constructed on one of the following locations:

☐ On party line/property line ☐ Entirely on land of owner ☐ On public right of way/easement

*I hereby certify that I have the authority to make the foregoing application, that the application is correct, and that the construction will comply with plans approved by all agencies listed and I hereby acknowledge and accept this to be a condition for the issuance of this permit.*

Mike Fisch
Signature of owner or authorized agent

01/11/17
Date

Approved: _____ For Chairperson, Historic Preservation Commission
Disapproved: _____ Signature: _____ Date: _____
Application/Permit No.: _____ Date Filed: _____ Date Issued: _____

Edit 6/21/99

**SEE REVERSE SIDE FOR INSTRUCTIONS**

(12)

## THE FOLLOWING ITEMS MUST BE COMPLETED AND THE REQUIRED DOCUMENTS MUST ACCOMPANY THIS APPLICATION.

1. **WRITTEN DESCRIPTION OF PROJECT**

   a. Description of existing structure(s) and environmental setting, including their historical features and significance:

   2590 SF HOUSE BUILT IN 2013 LOCATED IN HISTORIC DISTRICT. 7500 SF PLOT OF LAND. HOME IS 2 STORIES W 3 FULL, 1 HALF BATHS AND FINISHED BASEMENT.

   b. General description of project and its effect on the historic resource(s), the environmental setting, and, where applicable, the historic district:

   INSTALLATION OF (34) SOLAR PANELS MOUNTED FLUSH TO ROOF.

   *INSTALLATION ALREADY COMPLETED ON 9/6 - MONTGOMERY COUNTY NEVER NOTIFIED PERMIT APPLICANT THAT HAWP WOULD BE REQUIR WERE NOTIFIED BY HOMEOWNER'S NEIGHBOR.

2. **SITE PLAN**

   Site and environmental setting, drawn to scale. You may use your plat. Your site plan must include:

   a. the scale, north arrow, and date;

   b. dimensions of all existing and proposed structures; and

   c. site features such as walkways, driveways, fences, ponds, streams, trash dumpsters, mechanical equipment, and landscaping.

3. **PLANS AND ELEVATIONS**

   You must submit 2 copies of plans and elevations in a format no larger than 11" x 17". Plans on 8 1/2" x 11" paper are preferred.

   a. ***Schematic construction plans***, with marked dimensions, indicating location, size and general type of walls, window and door openings, and other fixed features of both the existing resource(s) and the proposed work.

   b. Elevations (facades), with marked dimensions, clearly indicating proposed work in relation to existing construction and, when appropriate, context. All materials and fixtures proposed for the exterior must be noted on the elevations drawings. An existing and a proposed elevation drawing of each facade affected by the proposed work is required.

4. **MATERIALS SPECIFICATIONS**

   General description of materials and manufactured items proposed for incorporation in the work of the project. This information may be included on your design drawings.

5. **PHOTOGRAPHS**

   a. Clearly labeled photographic prints of each facade of existing resource, including details of the affected portions. All labels should be placed on the front of photographs.

   b. Clearly label photographic prints of the resource as viewed from the public right-of-way and of the adjoining properties. All labels should be placed on the front of photographs.

6. **TREE SURVEY**

   If you are proposing construction adjacent to or within the dripline of any tree 6" or larger in diameter (at approximately 4 feet above the ground), you *must* file an accurate tree survey identifying the size, location, and species of each tree of at least that dimension.

7. **ADDRESSES OF ADJACENT AND CONFRONTING PROPERTY OWNERS**

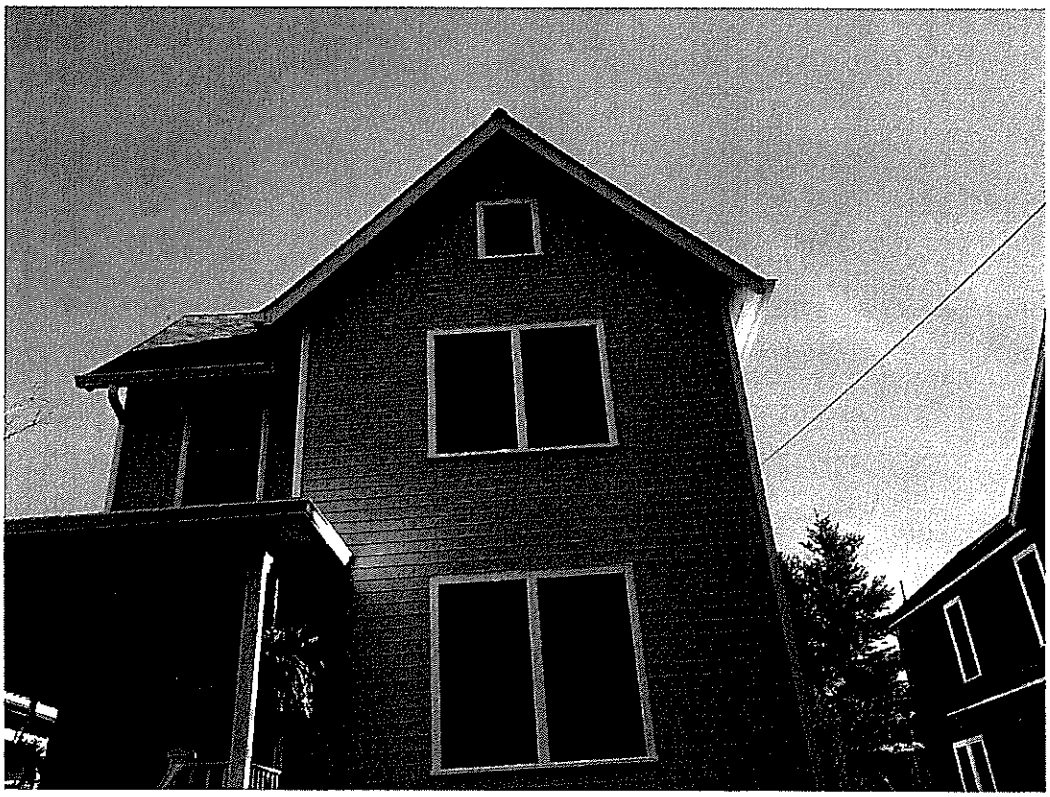
   For **ALL** projects, provide an accurate list of adjacent and confronting property owners (not tenants), including names, addresses, and zip codes. This list should include the owners of all lots or parcels which adjoin the parcel in question, as well as the owner(s) of lot(s) or parcel(s) which lie directly across the street/highway from the parcel in question.

**PLEASE PRINT (IN BLUE OR BLACK INK) OR TYPE THIS INFORMATION ON THE FOLLOWING PAGE.**
**PLEASE STAY WITHIN THE GUIDES OF THE TEMPLATE. AS THIS WILL BE PHOTOCOPIED DIRECTLY ONTO MAILING LABELS.**

**HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFING**
[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

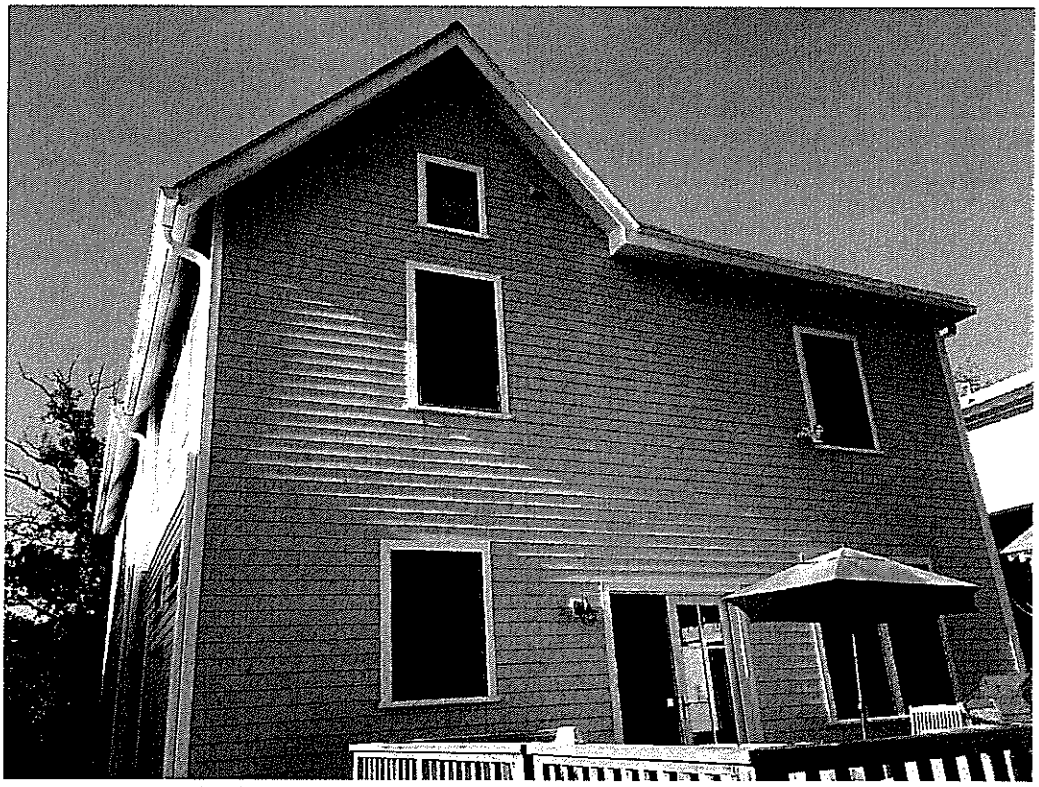
| **Owner's** mailing address | **Owner's Agent's** mailing address |
|---|---|
| 18 MONTGOMERY AVE<br>TAKOMA PARK, MD 20912 | 9000 VIRGINIA MANOR RD<br>BELTSVILLE, MD 20705 |
| **Adjacent and confronting Property Owners** mailing addresses | |
| 16 MONTGOMERY AVE<br>TAKOMA PARK, MD 20912 | 20 MONTGOMERY AVE<br>TAKOMA PARK, MD 20912 |
| 15 MONTGOMERY AVE<br>TAKOMA PARK, MD 20912 | 17 MONTGOMERY AVE<br>TAKOMA PARK, MD 20912 |
| 19 MONTGOMERY AVE<br>TAKOMA PARK, MD 20912 | |

Description: Front of house from road



Description: Front of house showing roof

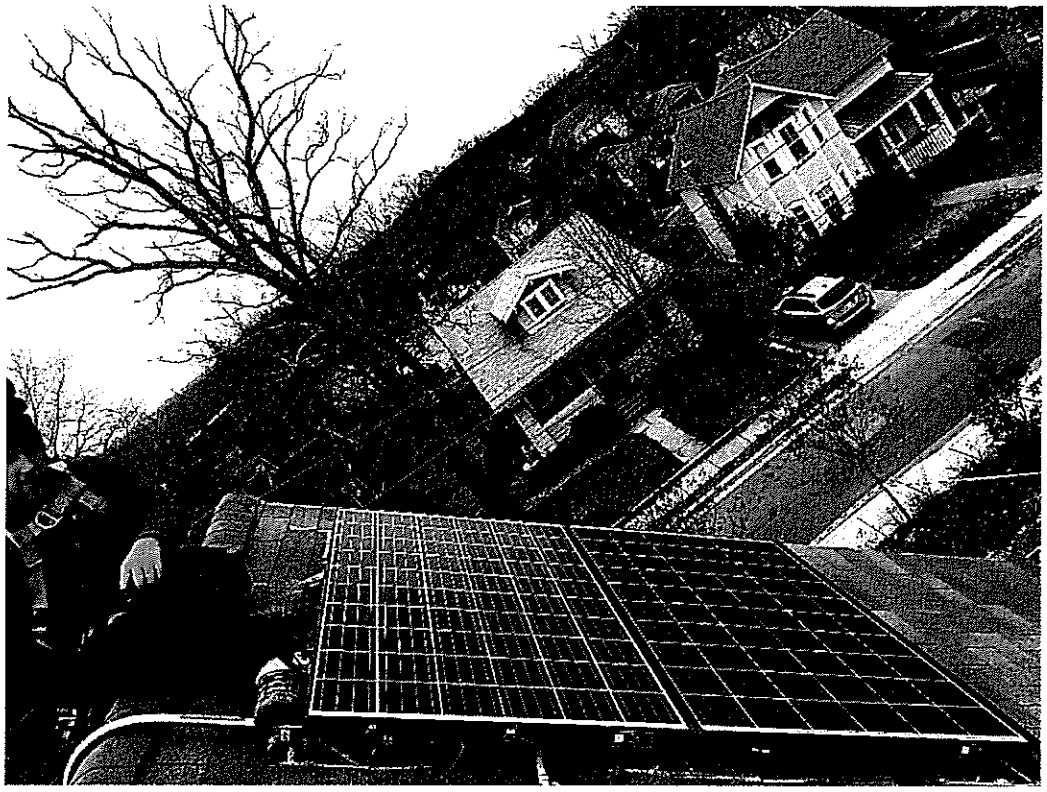
15



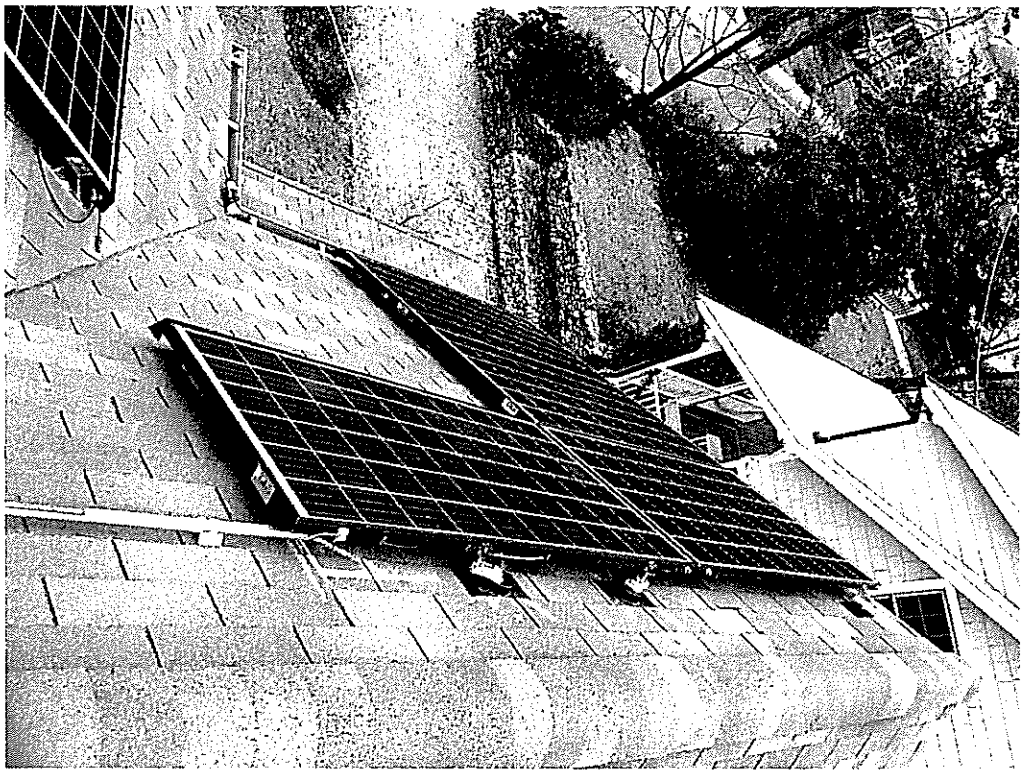
Description: Back of house

Description: East side of house (most panels are located on this portion of the roof)

16

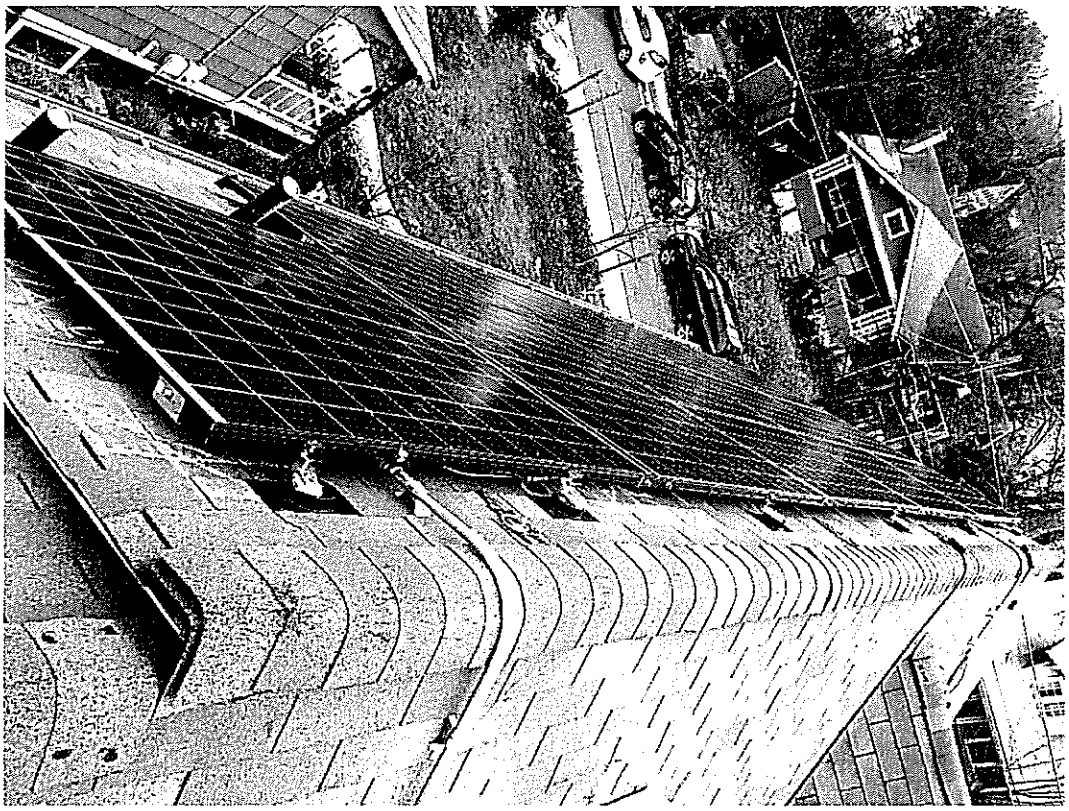


Description: 2 panels, east side of front of house

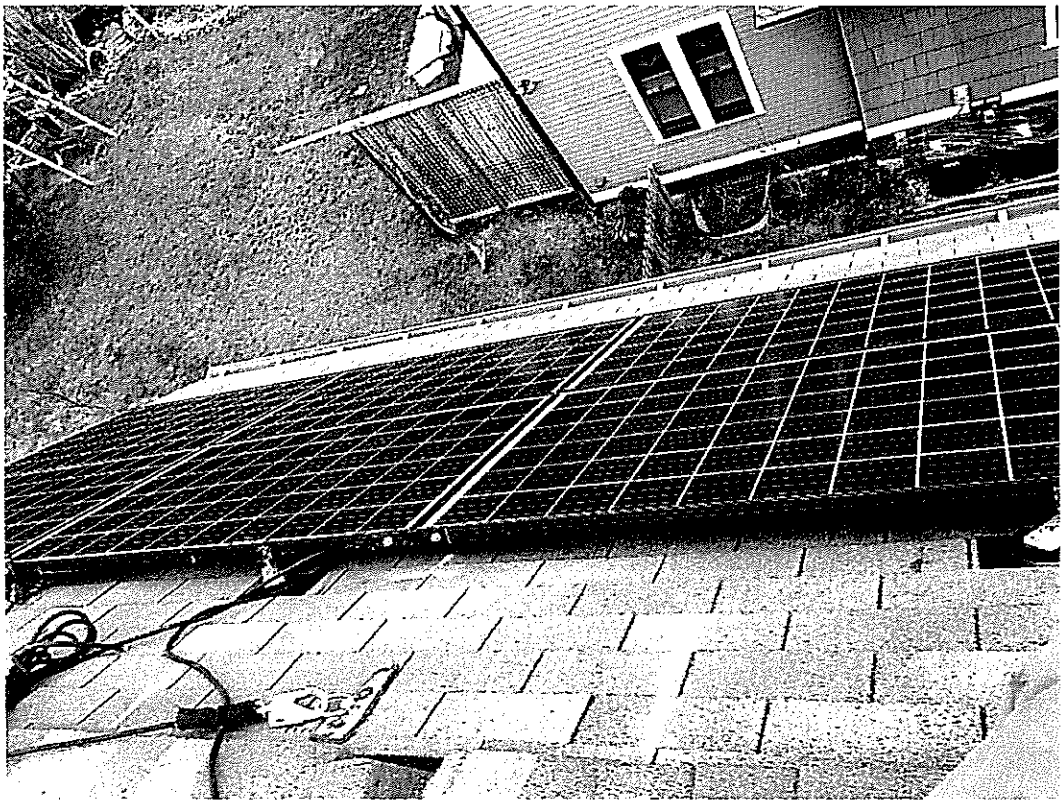


Description: 4 panels, front of house, greatest visibility

(17)



Description: All photos on east side of house, from back



Description: back of house

(18)

DEPARTMENT OF PERMITTING SERVICES

Isiah Leggett
*County Executive*

Diane R Schwartz Jones
*Director*

# BUILDING PERMIT

Issue Date: 07/27/2016

Permit No: 764717
AP Type: BUILDING
Expires: 07/27/2017
X Ref:
Rev. No:
ID: EB6889

THIS IS TO CERTIFY THAT: - SOLARCITY CORPORATION
9000 VIRGINIA MANOR ROAD,
SUITE: 250
BELTSVILLE, MD 20705

HAS PERMISSION TO: ALTER SINGLE FAMILY DWELLING

PERMIT CONDITIONS: 18 MONTGOMERY AVETAKOMA PARK, MD

MODEL NAME:

PREMISE ADDRESS: 18 MONTGOMERY AVETAKOMA PARK, MD

LOT - BLOCK: - ZONE: ELECTION DISTRICT:

BOND NO: BOND TYPE: PS NUMBER:

PERMIT FEE: $210.00 SUBDIVISION:

**The permit fee is calculated based on the approved Executive Regulations multiplied by the Enterprise Fund Stabilization Factor for the current fiscal year.**

**TRANSPORTATION IMPACT TAX DUE:**
**SCHOOLS IMPACT TAX DUE:**
**SCHOOLS FACILITY PAYMENT DUE:**

**MUST BE KEPT AT THE JOB SITE**
**AN APPROVED FINAL INSPECTION IS REQUIRED TO PRIOR USE OR OCCUPANCY**

**Every** new one- or two-family dwelling, **every townhouse** and any **attached accessory structure** must be equipped with a **fire sprinkler system**. A separate sprinkler permit is required for the installation of the fire sprinkler system.

Many subdivisions and neighborhoods within Montgomery County have private deed restrictions and covenants regulating building construction. Obtaining a building permit does not relieve the property owner of responsibility for complying with appliable covenants.

NOTICE
THIS APPROVAL DOES NOT INCLUDE PLUMBING, GAS PIPING OR ELECTRICAL OR CONSTRUCTION IN ANY DEDICATED RIGHT-OF-WAY.

NOTE
THIS PERMIT DOES NOT INCLUDE APPROVAL FOR ANY ELECTRICAL WORK. YOU MUST HAVE A SEPARATE ELECTRICAL PERMIT TO DO ANY ELECTRICAL WORK.

Diane R. Schwartz Jones

Director, Department of Permitting Services

DEPARTMENT OF PERMITTING SERVICES

Isiah Leggett
*County Executive*

Diane R Schwartz Jones
*Director*

# ELECTRICAL PERMIT

Issue Date: 07/28/2016

Permit No: 765895
Expires: 07/28/2017
ID: EB6889

THIS IS TO CERTIFY THAT: - SOLARCITY CORPORATION
9000 VIRGINIA MANOR ROAD,
SUITE: 250
BELTSVILLE, MD 20705

HAS PERMISSION TO: INSTALL SINGLE FAMILY DWELLING

Service Size 35 Amps | N New | Y Existing | N Replace | N Relocate | N Heavy-Up
Y Residential | N Commercial | N Comm Fit Ups, Alt, Add | Sqft: 0 | #Stories: 0
N Multi Fam. Bldg | 0 #Units | N Modular / Trailer Home | N Inspection Decks / Slabs
N Temp Wiring (fairs etc) | N Temp For Const | N Trailer | N Pole Serv

| | | | | Qty | HP |
|---|---|---|---|---|---|
| 0-400 amps 0 | Battery Pack 0 | Pool/Hot Tub/Spa 0 | | | |
| Over 400 amps 0 | Bonding 0 | Motion Picture 0 | Air Condition | 0 | 0 |
| Rough Wiring 0 | Ctrl Wiring 0 | Pt Thtre Equip 0 | N Central | | |
| Fixtures 0 | Dental Chairs 0 | Smoke Detector 0 | N Window | Qty | KW |
| Appliances 0 | Gas / Oil Htg. 0 | Vaults, Duct Bank 0 | Electrical Htg. | 0 | 0 |
| Alarms Systems 0 | Gas Pumps 0 | X Ray Machine 0 | Low Voltage | 0 | |
| Antenna / Dish 0 | Meter Stacks 0 | Signs 0 | UL# | | |
| Arc Vaporlamps 0 | Miscellaneous 0 | | Mtr / Trans / Gen (HP/KVA/KW) | | |

N Owner Bld | Use Code: SFD | N Hold for pmt.

| | Up to 10 | 20 | 30 | 50 | 75 | ^ |
|---|---|---|---|---|---|---|
| SEC Service Entrance Code: 0 | Qty 0 | 0 | 0 | 0 | 0 | 0 |

DESIGN FOR LIFE: N Alternative Sensory Alarm, Applicance or Control

NOTE: **Please do not request inspections under this permit until 2 business days after permit issuance.**

PREMISE ADDRESS: 18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

**The permit fee is calculated based on the approved Executive Regulations multiplied by the Enterprise Fund Stabilization Factor for the current fiscal year.**

LOT - BLOCK:9 - 18 | ZONE: | ELECTION DISTRICT: 13
BOND NO: | BOND TYPE: | PS NUMBER:
PERMIT FEE:$320.00 | SUBDIVISION: TAKOMA PARK

## PERMIT MUST BE KEPT AT THE JOB SITE

Any activity within 10 feet of a high voltage line shall comply with Maryland DLLR Articles 6-106 and 6-107.

This permit does not include the formal review or permission to install the fire alarm system or devices. Submit shop drawings, equipment lists and specifications to this office for review, approval and a fire alarm permit prior to installation/alteration of any fire alarm system. Failure to obtain these permits may result in the imposition of civil or criminal penalties and/or loss of license.

Diane R. Schwartz Jones

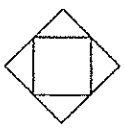
Director, Department of Permitting Services



20

Site Plan

SEE PAGE 2 OF ATTACHED PLANS FOR SITE PLAN.



21

Shade portion to indicate North

Applicant: MIKE FISCH

## ABBREVIATIONS

| | |
|---|---|
| A | AMPERE |
| AC | ALTERNATING CURRENT |
| BLDG | BUILDING |
| CONC | CONCRETE |
| DC | DIRECT CURRENT |
| EGC | EQUIPMENT GROUNDING CONDUCTOR |
| (E) | EXISTING |
| EMT | ELECTRICAL METALLIC TUBING |
| FSB | FIRE SET-BACK |
| GALV | GALVANIZED |
| GEC | GROUNDING ELECTRODE CONDUCTOR |
| GND | GROUND |
| HDG | HOT DIPPED GALVANIZED |
| I | CURRENT |
| Imp | CURRENT AT MAX POWER |
| Isc | SHORT CIRCUIT CURRENT |
| kVA | KILOVOLT AMPERE |
| kW | KILOWATT |
| LBW | LOAD BEARING WALL |
| MIN | MINIMUM |
| (N) | NEW |
| NEUT | NEUTRAL |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| PL | PROPERTY LINE |
| POI | POINT OF INTERCONNECTION |
| PV | PHOTOVOLTAIC |
| SCH | SCHEDULE |
| S | STAINLESS STEEL |
| STC | STANDARD TESTING CONDITIONS |
| TYP | TYPICAL |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| V | VOLT |
| Vmp | VOLTAGE AT MAX POWER |
| Voc | VOLTAGE AT OPEN CIRCUIT |
| W | WATT |
| 3R | NEMA 3R, RAINTIGHT |

## ELECTRICAL NOTES

1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER.
2. THIS SYSTEM HAS NO BATTERIES, NO UPS.
3. A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3.
4. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARDS PER ART. 690.17.
5. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5.
6. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B).
7. DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER ART. 690.31(E).
8. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.
9. MODULE FRAMES SHALL BE GROUNDED AT THE UL-LISTED LOCATION PROVIDED BY THE MANUFACTURER USING UL LISTED GROUNDING HARDWARE.
10. MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS.

## JURISDICTION NOTES

STRUCTURAL DESIGN FOR THE SUPPORTING STRUCTURE OF THE HOUSE WAS PERFORMED IN ACCORDANCE WITH IRC/IBC 2015 -- STRUCTURAL DESIGN FOR THE RACK SYSTEM AND MOUNTING HARDWARE WAS PERFORMED IN ACCORDANCE WITH IRC/IBC 2015.

STRUCTURAL DESIGN FOR THE SUPPORTING STRUCTURE OF THE HOUSE WAS PERFORMED IN ACCORDANCE WITH IRC/IBC 2015 – STRUCTURAL DESIGN FOR THE RACK SYSTEM AND MOUNTING HARDWARE WAS PERFORMED IN ACCORDANCE WITH IRC/IBC 2015.

## LICENSE

#11805 MASTER ELECTRICIAN
Nicholaus Meyers

MODULE GROUNDING METHOD: ZEP SOLAR

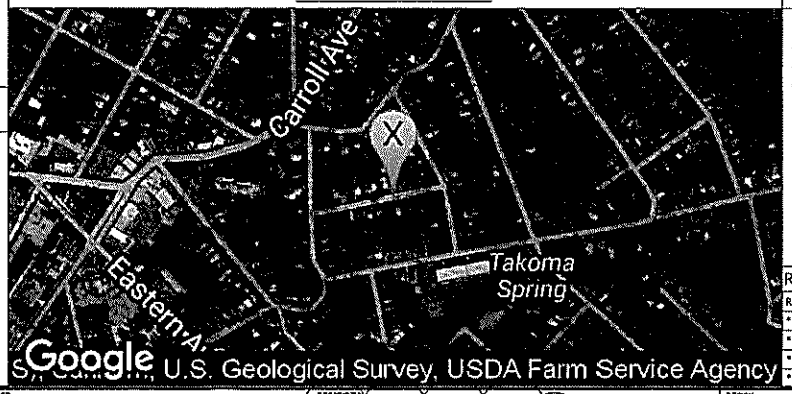
AHJ: Montgomery County

UTILITY: PEPCO (MD)

## GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2015 IBC AND 2015 IRC.
2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE.

## VICINITY MAP




## INDEX



| REV | BY | DATE | COMMENTS |
|---|---|---|---|
| REV A | NAME | DATE | COMMENTS |
| | | | |
| | | | |
| | | | |
| | | | |



JOB NUMBER: JB-2092744 00

MOUNTING SYSTEM: Comp Mount Type C

MODULES: (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260

INVERTER: SOLAREDGE # SE7600A-US002SNU2

PREMISE OWNER:
JULIAN MULVEY
18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

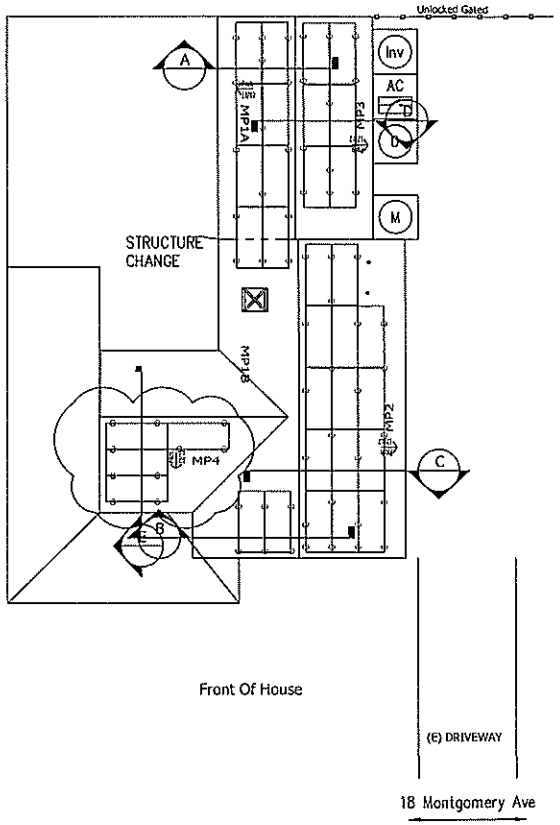
DESCRIPTION:
Julian Mulvey RESIDENCE
8.84 KW PV ARRAY

PAGE NAME:
COVER SHEET

DESIGN:
Nika Contrell

SHEET: REV: DATE:
PV 1 o 8/30/2016


SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com




| | | |
|---|---|---|
| MP1 | PITCH: 45 | ARRAY PITCH: 45 |
| | AZIMUTH: 259 | ARRAY AZIMUTH: 259 |
| | MATERIAL: Comp Shingle | STORY: 2 Stories |
| MP2 | PITCH: 45 | ARRAY PITCH: 45 |
| | AZIMUTH: 79 | ARRAY AZIMUTH: 79 |
| | MATERIAL: Comp Shingle | STORY: 2 Stories |
| MP3 | PITCH: 45 | ARRAY PITCH: 45 |
| | AZIMUTH: 79 | ARRAY AZIMUTH: 79 |
| | MATERIAL: Comp Shingle | STORY: 2 Stories |
| MP4 | PITCH: 45 | ARRAY PITCH: 45 |
| | AZIMUTH: 169 | ARRAY AZIMUTH: 169 |
| | MATERIAL: Comp Shingle | STORY: 2 Stories |

## LEGEND

- (M) (E) UTILITY METER & WARNING LABEL
- (Inv) INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
- (DC) DC DISCONNECT & WARNING LABELS
- (AC) AC DISCONNECT & WARNING LABELS
- (B) DC JUNCTION/COMBINER BOX & LABELS
- (D) DISTRIBUTION PANEL & LABELS
- (LC) LOAD CENTER & WARNING LABELS
- (M) DEDICATED PV SYSTEM METER
- (RSD) RAPID SHUTDOWN
- STANDOFF LOCATIONS
- CONDUIT RUN ON EXTERIOR
- CONDUIT RUN ON INTERIOR
- GATE/FENCE
- HEAT PRODUCING VENTS ARE RED
- INTERIOR EQUIPMENT IS DASHED

## SITE PLAN

Scale: 3/32" = 1'

0 1' 10' 21'

N W E S

STATE OF MARYLAND RYAN HILLSTROM 43467 PROFESSIONAL ENGINEER 08/30/2016

Digitally signed by Ryan Hillstrom
Date: 2016.08.30 17:37:26 -06'00'



JOB NUMBER: JB–2092744 00

MOUNTING SYSTEM: Comp Mount Type C

MODULES: (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260

INVERTER: SOLAREDGE # SE7600A–US002SNU2

PREMISE OWNER:
JULIAN MULVEY
18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

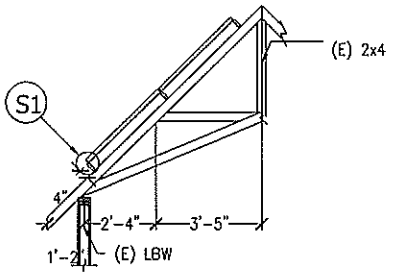
DESCRIPTION:
Julian Mulvey RESIDENCE
8.84 KW PV ARRAY

PAGE NAME:
SITE PLAN

DESIGN: Nika Contrell

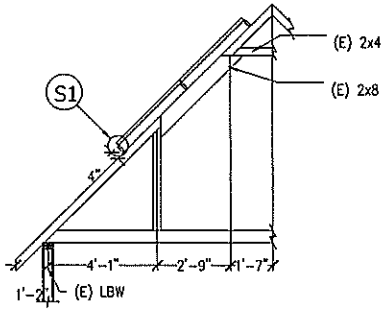
SHEET: PV 2 REV: 0 DATE: 8/30/2016

SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com



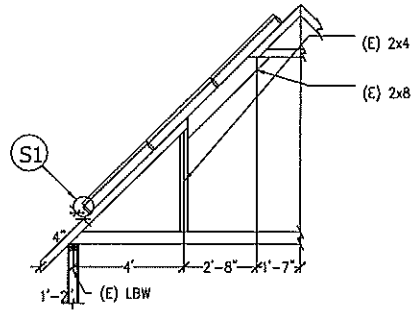

## A SIDE VIEW OF MP1A NTS

| MP1A | X-SPACING | X-CANTILEVER | Y-SPACING | Y-CANTILEVER | NOTES |
|---|---|---|---|---|---|
| LANDSCAPE | 72" | 24" | | | STAGGERED |
| PORTRAIT | 48" | 20" | | | |
| TOP CHORD 2x4 @ 24" OC<br>BOT CHORD 2x4 @24" OC | | | ROOF AZI 259 PITCH 45<br>ARRAY AZI 259 PITCH 45<br>Comp Shingle | | STORIES: 2 |



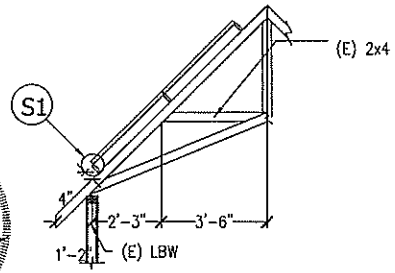

## B SIDE VIEW OF MP1B NTS

| MP1B | X-SPACING | X-CANTILEVER | Y-SPACING | Y-CANTILEVER | NOTES |
|---|---|---|---|---|---|
| LANDSCAPE | 72" | 24" | | | STAGGERED |
| PORTRAIT | 48" | 20" | | | |
| TOP CHORD 2x4 @ 24" OC<br>BOT CHORD 2x6 @24" OC | | | ROOF AZI 259 PITCH 45<br>ARRAY AZI 259 PITCH 45<br>Comp Shingle | | STORIES: 2 |



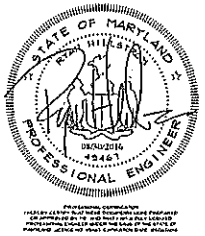

## C SIDE VIEW OF MP2 NTS

| MP2 | X-SPACING | X-CANTILEVER | Y-SPACING | Y-CANTILEVER | NOTES |
|---|---|---|---|---|---|
| LANDSCAPE | 72" | 24" | | | STAGGERED |
| PORTRAIT | 48" | 20" | | | |
| TOP CHORD 2x4 @ 24" OC<br>BOT CHORD 2x6 @24" OC | | | ROOF AZI 79 PITCH 45<br>ARRAY AZI 79 PITCH 45<br>Comp Shingle | | STORIES: 2 |




## D SIDE VIEW OF MP3 NTS

| MP3 | X-SPACING | X-CANTILEVER | Y-SPACING | Y-CANTILEVER | NOTES |
|---|---|---|---|---|---|
| LANDSCAPE | 72" | 24" | | | STAGGERED |
| PORTRAIT | 48" | 20" | | | |
| TOP CHORD 2x4 @ 24" OC<br>BOT CHORD 2x4 @24" OC | | | ROOF AZI 79 PITCH 45<br>ARRAY AZI 79 PITCH 45<br>Comp Shingle | | STORIES: 2 |




Digitally signed by Ryan Hillstrom
Date: 2016.08.30 17:38:50 -06'00'



JOB NUMBER: JB-2092744 00
MOUNTING SYSTEM: Comp Mount Type C
MODULES: (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260
INVERTER: SOLAREDGE # SE7600A-US002SNU2

PREMISE OWNER:
JULIAN MULVEY
18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

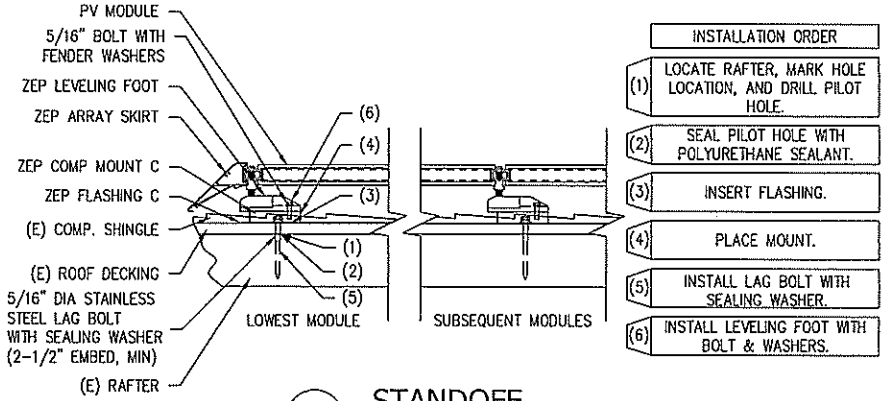
DESCRIPTION:
Julian Mulvey RESIDENCE
8.84 KW PV ARRAY

PAGE NAME:
STRUCTURAL VIEWS

DESIGN: Niko Cantrell

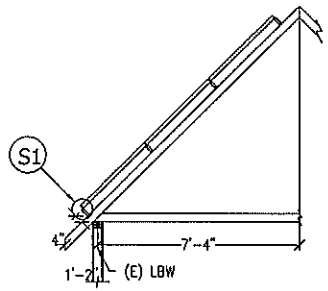
SHEET: PV 3 REV: a DATE: 8/30/2016

SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com



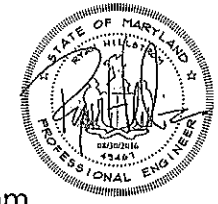

S1 STANDOFF

Scale: 1 1/2" = 1'




E SIDE VIEW OF MP4 NTS

| MP4 | X-SPACING | X-CANTILEVER | Y-SPACING | Y-CANTILEVER | NOTES |
|---|---|---|---|---|---|
| LANDSCAPE | 72" | 24" | | | STAGGERED |
| PORTRAIT | 48" | 20" | | | |
| TOP CHORD 2x4 @ 24" OC<br>BOT CHORD 2x4 @24" OC | | | ROOF AZI 169 PITCH 45<br>ARRAY AZI 169 PITCH 45<br>Comp Shingle | | STORIES: 2 |




Digitally signed by Ryan Hillstrom
Date: 2016.08.30 17:40:19 -06'00'

(2)

CONFIDENTIAL – THE INFORMATION HEREIN CONTAINED SHALL NOT BE USED FOR THE BENEFIT OF ANYONE EXCEPT SOLARCITY INC., NOR SHALL IT BE DISCLOSED IN WHOLE OR IN PART TO OTHERS OUTSIDE THE RECIPIENT'S ORGANIZATION, EXCEPT IN CONNECTION WITH THE SALE AND USE OF THE RESPECTIVE SOLARCITY EQUIPMENT, WITHOUT THE WRITTEN PERMISSION OF SOLARCITY INC.

JOB NUMBER: JB-2092744 00
MOUNTING SYSTEM: Comp Mount Type C
MODULES: (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260
INVERTER: SOLAREDGE # SE7600A-US002SNU2

PREMISE OWNER:
JULIAN MULVEY
18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

DESCRIPTION:
Julian Mulvey RESIDENCE
8.84 KW PV ARRAY

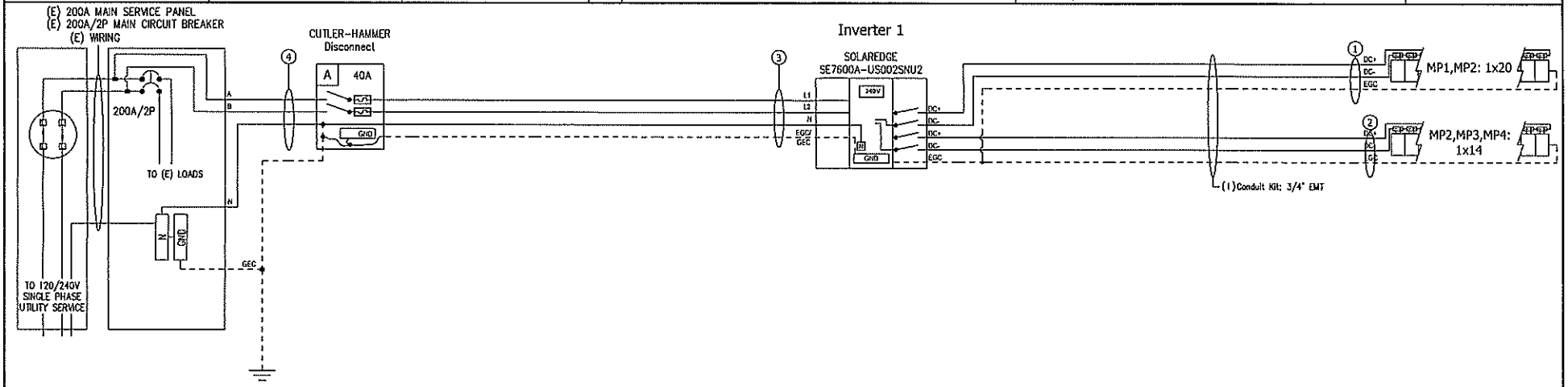
PAGE NAME:
STRUCTURAL VIEWS

DESIGN:
Niko Cantrell

SHEET: REV: DATE:
PV 4 a 8/30/2016

SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com

| GROUND SPECS | MAIN PANEL SPECS | GENERAL NOTES | INVERTER SPECS | MODULE SPECS | LICENSE |
|---|---|---|---|---|---|
| BOND (N) #8 GEC TO (N) GROUND ROD AT PANEL WITH IRREVERSIBLE CRIMP | Panel Number: BX30C<br>Meter Number: 11959242<br>Underground Service Entrance | Inv 1: DC Ungrounded<br>Tie-In: Supply Side Connection | INV 1 – (1) SOLAREDGE # SE7600A-US002SNU2 LABEL: A<br>Inverter; 7600W, 240V, 97.5%; w/Unified Disco and ZB, AFCI<br>INV 2<br>INV 3 | – (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260<br>PV Module; 260W, 236.9W PTC, 40mm, Blk Frame, MC4, ZEP, 1000V<br>Voc: 37.7 Vpmax: 30.74<br>Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER | #11805 MASTER ELECTRICIAN<br>Nicholaus Meyers |




CONDUIT RUNS MAY BE CONDENSED DUE TO SITE CONDITIONS AND/OR INSTALLATION EASE. ALL CONDUIT FILL DERATES AND PROPER CALCULATIONS HAVE BEEN COMPLETED PER NEC CHAPTER 9, TABLE 4

CONDUIT RUNS MAY BE CONDENSED DUE TO SITE CONDITIONS AND/OR INSTALLATION EASE. ALL CONDUIT FILL DERATES AND PROPER CALCULATIONS HAVE BEEN COMPLETED PER NEC CHAPTER 9, TABLE 4

Voc* = MAX VOC AT MIN TEMP

**POI**
– (1) Ground Rod 5/8" x 8', Copper
– (2) ILSCO # IPC 4/0-#6 Insulation Piercing Connector; Main 4/0-4, Tap 6-14

**SSC**
– SUPPLY SIDE CONNECTION. DISCONNECTING MEANS SHALL BE SUITABLE AS SERVICE EQUIPMENT AND SHALL BE RATED PER NEC.

**AC**

**A**
– (1) CUTLER-HAMMER # DG222NRB Disconnect; 60A, 240Vac, Fusible, NEMA 3R
– (1) CUTLER-HAMMER # DG100NB Ground/Neutral Kit; 60-100A, General Duty (DG)
– (1) CUTLER-HAMMER # DS16FK Class R Fuse Kit
– (2) FERRAZ SHAWMUT # TR40R Fuse; 40A, 250V, Class RK5
PV BACKFEED OCP

**DC**

**PV**
– (34) SOLAREDGE # P300-5NM4ZS PowerBox Optimizer; 300W, ZEP, in MC4, out MC4

**④** EGC
– (1) AWG #6, THWN-2, Black
– (1) AWG #6, THWN-2, Red
– (1) AWG #6, THWN-2, White NEUTRAL Vmp = 240 VAC Imp = 32 AAC
– (1) AWG #6, Solid Bare Copper GEC – (1) Conduit Kit; 3/4" EMT

**③** EGC
– (1) AWG #8, THWN-2, Black
– (1) AWG #8, THWN-2, Red
– (1) AWG #10, THWN-2, White NEUTRAL Vmp = 240 VAC Imp = 32 AAC
– (1) AWG #8, THWN-2, Green EGC/GEC – (1) Conduit Kit; 3/4" EMT

**① EGC**
– (2) AWG #10, PV Wire, 600V, Black Voc* = 500 VDC Isc = 15 ADC
– (1) AWG #10, THHN/THWN-2, Green EGC Vmp = 350 VDC Imp = 14.66 ADC
– (1) Conduit Kit; 3/4" EMT

**② EGC**
– (2) AWG #10, PV Wire, 600V, Black Voc* = 500 VDC Isc = 15 ADC
– (1) AWG #10, THHN/THWN-2, Green EGC Vmp = 350 VDC Imp = 10.26 ADC
– (1) Conduit Kit; 3/4" EMT



JOB NUMBER: JB-2092744 00
MOUNTING SYSTEM: Comp Mount Type C
MODULES: (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260
INVERTER: SOLAREDGE # SE7600A-US002SNU2

PREMISE OWNER:
JULIAN MULVEY
18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

DESCRIPTION:
Julian Mulvey RESIDENCE
8.84 KW PV ARRAY

PAGE NAME:
THREE LINE DIAGRAM

DESIGN: Niko Contrell

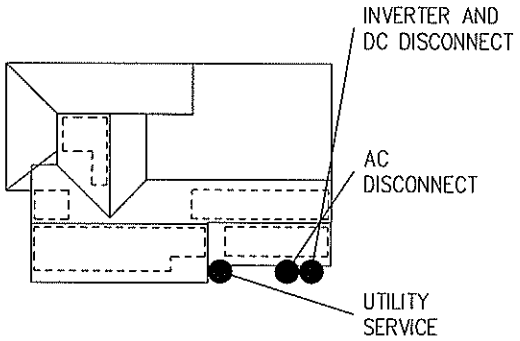
SHEET: PV 5 REV: a DATE: 8/30/2016

SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com

# CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:

- Address: 18 Montgomery Ave




SOLAR PHOTOVOLTAIC ARRAY(S)

**PHOTOVOLTAIC BACK-FED CIRCUIT BREAKER IN MAIN ELECTRICAL PANEL IS AN A/C DISCONNECT PER NEC 690.17**

OPERATING VOLTAGE = 240V

JB-2092744-00

(27)



JOB NUMBER: JB-2092744 00

MOUNTING SYSTEM: Comp Mount Type C

MODULES: (34) Hanwha Q-Cells #Q.PRO G4.1/SC 260

INVERTER: SOLAREDGE # SE7600A-US002SNU2

PREMISE OWNER:
JULIAN MULVEY
18 MONTGOMERY AVE
TAKOMA PARK, MD 20912

DESCRIPTION:
Julian Mulvey RESIDENCE
8.84 KW PV ARRAY

PAGE NAME:
SITE PLAN PLACARD

DESIGN: Niko Cantrell

SHEET: PV 6 REV: a DATE: 8/30/2016

SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com

WARNING: PHOTOVOLTAIC POWER SOURCE

Label Location:
(C)(CB)
Per Code:
NEC 690.31.G.3

PHOTOVOLTAIC DC DISCONNECT

Label Location:
(DC) (INV)
Per Code:
NEC 690.14.C.2

MAXIMUM POWER-POINT CURRENT (Imp) ___ A
MAXIMUM POWER-POINT VOLTAGE (Vmp) ___ V
MAXIMUM SYSTEM VOLTAGE (Voc) ___ V
SHORT-CIRCUIT CURRENT (Isc) ___ A

Label Location:
(DC) (INV)
Per Code:
NEC 690.53

WARNING
ELECTRIC SHOCK HAZARD
IF A GROUND FAULT IS INDICATED
NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUNDED AND ENERGIZED

Label Location:
(DC) (INV)
Per Code:
NEC 690.5(C)

WARNING
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
DC VOLTAGE IS
ALWAYS PRESENT WHEN
SOLAR MODULES ARE
EXPOSED TO SUNLIGHT

Label Location:
(DC) (CB)
Per Code:
NEC 690.17(4)

PHOTOVOLTAIC AC DISCONNECT

Label Location:
(AC) (POI)
Per Code:
NEC 690.14.C.2

MAXIMUM AC OPERATING CURRENT ___ A
MAXIMUM AC OPERATING VOLTAGE ___ V

Label Location:
(AC) (POI)
Per Code:
NEC 690.54

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

Label Location:
(AC)(POI)
Per Code:
NEC 690.17.E

PHOTOVOLTAIC POINT OF INTERCONNECTION
WARNING: ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION. FOR SERVICE DE-ENERGIZE BOTH SOURCE AND MAIN BREAKER
PV POWER SOURCE
MAXIMUM AC OPERATING CURRENT ___ A
MAXIMUM AC OPERATING VOLTAGE ___ V

Label Location:
(POI)
Per Code:
NEC 690.17.4; NEC 690.54

CAUTION
DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC SYSTEM

Label Location:
(POI)
Per Code:
NEC 690.64.B.4

CAUTION
PHOTOVOLTAIC SYSTEM
CIRCUIT IS BACKFED

Label Location:
(D) (POI)
Per Code:
NEC 690.64.B.4

WARNING
INVERTER OUTPUT
CONNECTION
DO NOT RELOCATE
THIS OVERCURRENT
DEVICE

Label Location:
(POI)
Per Code:
NEC 690.64.B.7

WARNING
ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE
UNGROUNDED AND
MAY BE ENERGIZED

Label Location:
(DC) (INV)
Per Code:
NEC 690.35(F)
TO BE USED WHEN
INVERTER IS
UNGROUNDED

(AC): AC Disconnect
(C): Conduit
(CB): Combiner Box
(D): Distribution Panel
(DC): DC Disconnect
(IC): Interior Run Conduit
(INV): Inverter With Integrated DC Disconnect
(LC): Load Center
(M): Utility Meter
(POI): Point of Interconnection



Label Set

SolarCity
3055 Clearview Way
San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) www.solarcity.com

ZepSolar

January 12, 2013

SolarCity
3055 Clearview Way
San Mateo, CA 94402

To whom it may concern:

The SolarCity SleekMount™-Comp photovoltaic module and module mounting assembly has been designed by Zep Solar specifically for asphalt/composition shingle roofs. The design of the entire assembly has been reviewed and it was determined that, for the configurations and criteria below, it is in compliance with the structural requirements of the 2009 and 2012 International Building Code, ASCE 7-05, ASCE 7-10, and NDS-2005. The system has also been evaluated for conformance with the 2010 California Building Code where more stringent requirements may apply.

SolarCity SleekMount™-Comp attachment spacing requirements are determined based on wind exposure category, wind speed, roof zone, roof slope, and snow load. Attachment spacing is calculated based on allowable upward, downward, and lateral load values. These load values are determined from code calculations, manufacturer provided test data for independently manufactured products, first principle calculations, and from tests conducted on November 18th, and 19th, 2010 at Applied Materials Engineering in Oakland, California under ICC AC-13 guidelines. The allowable loads for the attachments are listed in the table below:

| Attachment Type | Load Duration | Allowable Loads (lbs) | | | Deflection at Allowable | | |
|---|---|---|---|---|---|---|---|
| | | Uplift | Down Force | Lateral | Uplift | Down Force | Lateral |
| Comp Mount Type C | 10 minutes (Wind) | 637 | 900 | 358 | 0.374" | 0.277" | 0.461" |
| | 2 months (Snow) | N/A | 850 | 292 | N/A | 0.302" | 0.353" |

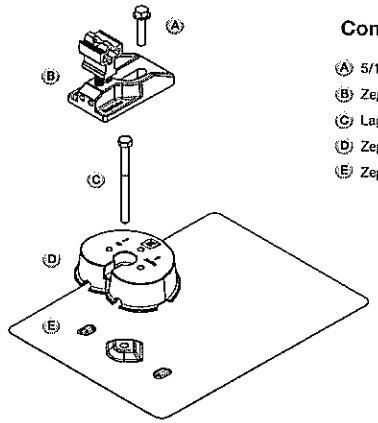
Sincerely,

Jeremy Rogelstad

## SolarCity SleekMount™ – Comp

The SolarCity SleekMount hardware solution is optimized to achieve superior strength and aesthetics while minimizing roof disruption and labor. The elimination of visible rail ends and mounting clamps, combined with the addition of array trim and a lower profile all contribute to a more visually appealing system. SleekMount utilizes modules with strengthened frames that attach directly to Zep standoffs, effectively eliminating the need for rail and reducing the number of standoffs required. In addition, composition shingles are not required to be cut for this system, allowing for minimal roof disturbance.

- Utilizes Zep hardware and Zep compatible modules.
- Interlock ETL listed to UL 1703 as ground bond means
- Ground Zep UL and ETL listed to UL 467 as grounding and bonding device
- Full system listed to UL 2703 for grounding
- Galvanized aluminum waterproof flashing
- Anodized components for corrosion resistance
- Applicable for vent spanning functions

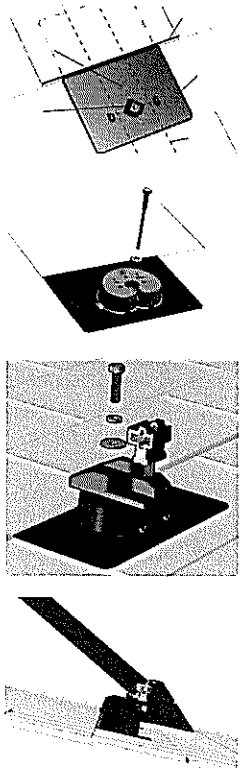



### Components

Ⓐ 5/16" Machine Screw
Ⓑ Zep Leveling Foot
Ⓒ Lag Screw
Ⓓ Zep Comp Mount
Ⓔ Zep Comp Mount Flashing

SolarCity January 2013

## SolarCity SleekMount™ – Comp



### Installation Instructions

1. Drill Pilot Hole of Proper Diameter for Fastener Size Per NDS Section 1.1.3.2
2. Seal pilot hole with roofing sealant
3. Insert Comp Mount flashing under upper layer of shingle
4. Place Comp Mount centered upon flashing
5. Install lag pursuant to NDS Section 11.1.3 with sealing washer.
6. Secure Leveling Foot to the Comp Mount using machine Screw
7. Place module

SolarCity January 2013

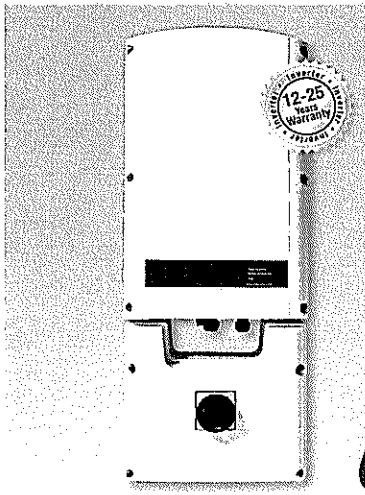
solaredge

# SolarEdge Single Phase Inverters

## For North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

INVERTERS




### The best choice for SolarEdge enabled systems

- Integrated arc fault protection (Type 1) for NEC 2011 690.11 compliance
- Superior efficiency (98%)
- Small, lightweight and easy to install on provided bracket
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Outdoor and indoor installation
- Fixed voltage inverter, DC/AC conversion only
- Pre-assembled Safety Switch for faster installation
- Optional – revenue grade data, ANSI C12.1

USA - GERMANY - ITALY - FRANCE - JAPAN - CHINA - AUSTRALIA - THE NETHERLANDS - ISRAEL

www.solaredge.us

solaredge

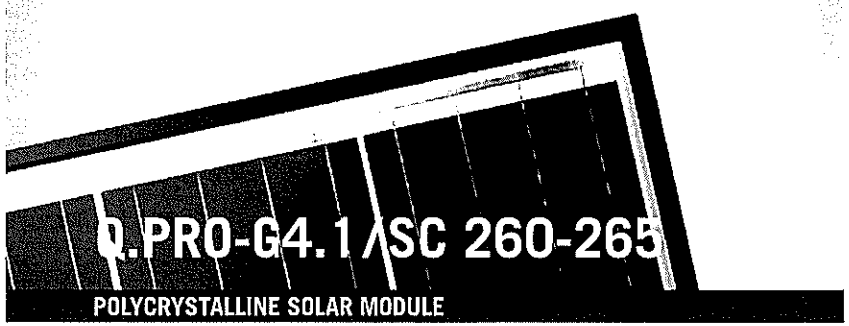
## Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

| | SE3000A-US | SE3800A-US | SE5000A-US | SE6000A-US | SE7600A-US | SE10000A-US | SE11400A-US | |
|---|---|---|---|---|---|---|---|---|
| **OUTPUT** | | | | | | | | |
| Nominal AC Power Output | 3000 | 3800 | 5000 | 6000 | 7600 | 9980 @ 208V<br>10000 @240V | 11400 | VA |
| Max. AC Power Output | 3300 | 4150 | 5400 @ 208V<br>5450 @240V | 6000 | 8350 | 10800 @ 208V<br>10950 @240V | 12000 | VA |
| AC Output Voltage Min.-Nom.-Max.[1]<br>183 - 208 - 229 Vac | - | - | ✓ | - | - | ✓ | - | |
| AC Output Voltage Min.-Nom.-Max.[1]<br>211 - 240 - 264 Vac | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| AC Frequency Min.-Nom.-Max.[1] | 59.3 - 60 - 60.5 (with HI country setting 57 - 60 - 60.5) | | | | | | | Hz |
| Max. Continuous Output Current | 12.5 | 16 | 24 @ 208V<br>21 @ 240V | 25 | 32 | 48 @ 208V<br>42 @ 240V | 47.5 | A |
| GFDI Threshold | 1 | | | | | | | A |
| Utility Monitoring, Islanding Protection, Country Configurable Thresholds | Yes | | | | | | | Yes |
| **INPUT** | | | | | | | | |
| Maximum DC Power (STC) | 4050 | 5100 | 6750 | 8100 | 10250 | 13500 | 15350 | W |
| Transformer-less, Ungrounded | Yes | | | | | | | |
| Max. Input Voltage | 500 | | | | | | | Vdc |
| Nom. DC Input Voltage | 325 @ 208V / 350 @ 240V | | | | | | | Vdc |
| Max. Input Current[2] | 9.5 | 13 | 16.5 @ 208V<br>15.5 @ 240V | 18 | 23 | 33 @ 208V<br>30.5 @ 240V | 34.5 | Adc |
| Max. Input Short Circuit Current | 45 | | | | | | | Adc |
| Reverse-Polarity Protection | Yes | | | | | | | |
| Ground-Fault Isolation Detection | 600ka Sensitivity | | | | | | | |
| Maximum Inverter Efficiency | 97.7 | 98.2 | 98.3 | 98.3 | 98 | 98 | 98 | % |
| CEC Weighted Efficiency | 97.5 | 98 | 97.5 @ 208V<br>98 @ 240V | 97.5 | 97.5 | 97 @ 208V<br>97.5 @ 240V | 97.5 | % |
| Nighttime Power Consumption | < 2.5 | | | | | < 4 | | W |
| **ADDITIONAL FEATURES** | | | | | | | | |
| Supported Communication Interfaces | RS485, RS232, Ethernet, ZigBee (optional) | | | | | | | |
| Revenue Grade Data, ANSI C12.1 | Optional[3] | | | | | | | |
| Rapid Shutdown – NEC 2014 690.12 | Functionality enabled when SolarEdge rapid shutdown kit is installed[4] | | | | | | | |
| **STANDARD COMPLIANCE** | | | | | | | | |
| Safety | UL1741, UL1699B, UL1998 , CSA 22.2 | | | | | | | |
| Grid Connection Standards | IEEE1547 | | | | | | | |
| Emissions | FCC part15 class B | | | | | | | |
| **INSTALLATION SPECIFICATIONS** | | | | | | | | |
| AC output conduit size / AWG range | 3/4" minimum / 16-6 AWG | | | | | 3/4" minimum / 8-3 AWG | | |
| DC input conduit size / # of strings / AWG range | 3/4" minimum / 1-2 strings / 16-6 AWG | | | | | 3/4" minimum / 1-2 strings / 14-6 AWG | | |
| Dimensions with Safety Switch (HxWxD) | 30.5 x 12.5 x 7.2 / 775 x 315 x 184 | | | | | 30.5 x 12.5 x 10.5 / 775 x 315 x 260 | | in / mm |
| Weight with Safety Switch | 51.2 / 23.2 | | 54.7 / 24.7 | | | 88.4 / 40.1 | | lb / kg |
| Cooling | Natural Convection | | | | Natural convection and internal fan (user replaceable) | Fans (user replaceable) | | |
| Noise | < 25 | | | | | < 50 | | dBA |
| Min.-Max. Operating Temperature Range | -13 to +140 / -25 to +60 (-40 to +60 version available[5]) | | | | | | | °F / °C |
| Protection Rating | NEMA 3R | | | | | | | |

[1] For other regional settings please contact SolarEdge support.
[2] A higher current source may be used; the inverter will limit its input current to the values stated.
[3] Revenue grade inverter P/N: SExxxxA-US000NNR3 (for 7600W inverter: SE7600A-US003NNR3).
[4] Rapid shutdown kit P/N: SE1000-RSD-S1
[5] -40 version P/N: SExxxxA-US000NNR4 (for 7600W inverter:SE7600A-US003NNU4).

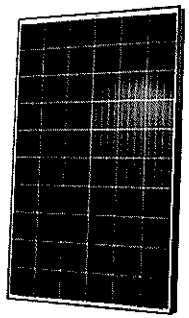
RoHS



# Q.PRO-G4.1/SC 260-265

## POLYCRYSTALLINE SOLAR MODULE

**The new Q.PRO-G4.1/SC is the reliable evergreen for all applications, with a black Zep Compatible™ frame design for improved aesthetics, optimized material usage and increased safety. The 4th solar module generation from Q CELLS has been optimised across the board: improved output yield, higher operating reliability and durability, quicker installation and more intelligent design.**



**LOW ELECTRICITY GENERATION COSTS**
Higher yield per surface area and lower BOS costs thanks to higher power classes and an efficiency rate of up to 16.2%.

**INNOVATIVE ALL-WEATHER TECHNOLOGY**
Optimal yields, whatever the weather with excellent low-light and temperature behavior. Certified fully resistant to level 5 salt fog.

**ENDURING HIGH PERFORMANCE**
Long-term yield security with Anti-PID Technology[1], Hot-Spot-Protect and Traceable Quality Tra.Q™.

**A RELIABLE INVESTMENT**
Inclusive 12-year product warranty and 25-year linear performance guarantee[2].

**THE IDEAL SOLUTION FOR:**

Rooftop arrays on residential buildings | Rooftop arrays on commercial/industrial buildings | Ground mounted solar power plants

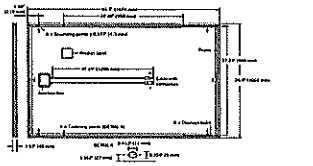
Engineered in Germany

[1] APT test conditions: Cells at -1500V against grounded, with conductive metal foil covered module surface, 25 °C, 168h

[2] See data sheet on rear for further information.

## MECHANICAL SPECIFICATION

| | |
|---|---|
| Format | 65.7 in × 39.4 in × 1.57 in (including frame) (1670 mm × 1000 mm × 40 mm) |
| Weight | 44.09 lb (20.0 kg) |
| Front Cover | 0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology |
| Back Cover | Composite film |
| Frame | Black anodized ZEP compatible frame |
| Cell | 6 × 10 polycrystalline solar cells |
| Junction box | Protection class IP67, with bypass diodes |
| Cable | 4 mm² Solar cable; (+) 47.24 in (1200 mm), (-) 47.24 in (1200 mm) |
| Connector | Multi-Contact MC4, IP68 |

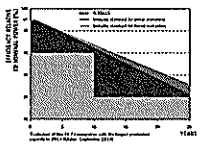


## ELECTRICAL CHARACTERISTICS

| POWER CLASS | | | 260 | 265 |
|---|---|---|---|---|
| MINIMUM PERFORMANCE AT STANDARD TESTING CONDITIONS, STC[1] (POWER TOLERANCE +5 W / -0 W) | | | | |
| Minimum | Power at MPP* | $P_{MPP}$ [W] | 260 | 265 |
| | Short Circuit Current* | $I_{SC}$ [A] | 9.07 | 9.15 |
| | Open Circuit Voltage* | $V_{OC}$ [V] | 37.70 | 37.93 |
| | Current at MPP* | $I_{MPP}$ [A] | 8.46 | 8.54 |
| | Voltage at MPP* | $V_{MPP}$ [V] | 30.74 | 31.03 |
| | Efficiency[1] | η [%] | ≥15.6 | ≥15.9 |
| MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NOCT[2] | | | | |
| Minimum | Power at MPP* | $P_{MPP}$ [W] | 191.3 | 194.9 |
| | Short Circuit Current* | $I_{SC}$ [A] | 7.31 | 7.38 |
| | Open Circuit Voltage* | $V_{OC}$ [V] | 35.09 | 35.31 |
| | Current at MPP* | $I_{MPP}$ [A] | 6.62 | 6.68 |
| | Voltage at MPP* | $V_{MPP}$ [V] | 28.90 | 29.16 |

[1] 1000 W/m², 25 °C, spectrum AM 1.5 G [2] Measurement tolerances STC ± 3 %; NOCT ± 5 % [3] 800 W/m², NOCT, spectrum AM 1.5 G * Typical values, actual values may differ

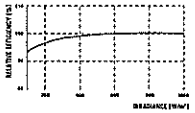
**Q CELLS PERFORMANCE WARRANTY**



At least 97 % of nominal power during first year. Thereafter max. 0.6 % degradation per year. At least 92 % of nominal power after 10 years. At least 83 % of nominal power after 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

**PERFORMANCE AT LOW IRRADIANCE**



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

**TEMPERATURE COEFFICIENTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| Temperature Coefficient of $I_{SC}$ | α | [%/K] | +0.04 | Temperature Coefficient of $V_{OC}$ | β | [%/K] | -0.30 |
| Temperature Coefficient of $P_{MPP}$ | γ | [%/K] | -0.41 | Normal Operating Cell Temperature | NOCT | [°F] | 113 ± 5.4 (45 ± 3 °C) |

## PROPERTIES FOR SYSTEM DESIGN

| | | | | |
|---|---|---|---|---|
| Maximum System Voltage $V_{SYS}$ | [V] | 1000 (IEC) / 1000 (UL) | Safety Class | II |
| Maximum Series Fuse Rating | [A DC] | 20 | Fire Rating | C (IEC) / TYPE 1 (UL) |
| Max Load (UL)[3] | [lbs/ft²] | 50 (2400 Pa) | Permitted module temperature on continuous duty | -40 °F up to +185 °F (-40 °C up to +85 °C) |
| Load Rating (UL)[3] | [lbs/ft²] | 50 (2400 Pa) | [3] see installation manual | |

## QUALIFICATIONS AND CERTIFICATES

UL 1703; CE-compliant; IEC 61215 (Ed.2); IEC 61730 (Ed.1) application class A

## PACKAGING INFORMATION

| | |
|---|---|
| Number of Modules per Pallet | 26 |
| Number of Pallets per 53' Container | 32 |
| Number of Pallets per 40' Container | 26 |
| Pallet Dimensions (L × W × H) | 58.7 in × 45.0 in × 46.0 in (1745 × 1145 × 1170 mm) |
| Pallet Weight | 1254 lb (569 kg) |

NOTE: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product. Warranty void if non-ZEP certified hardware is attached to groove in module frame.

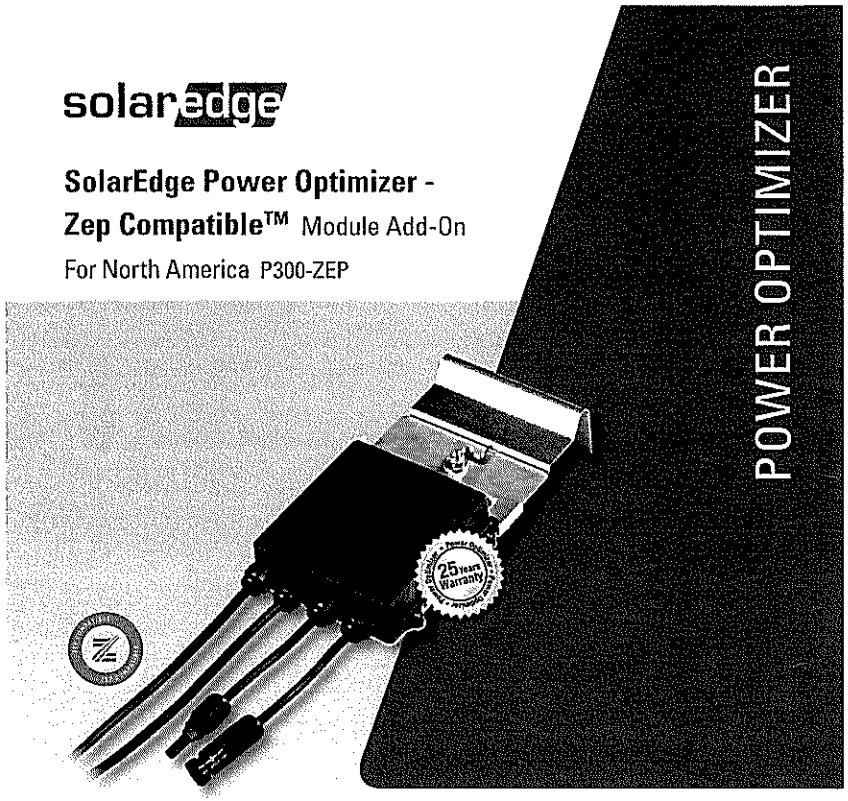
Hanwha Q CELLS America Inc.
300 Spectrum Center Drive, Suite 1250, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

Engineered in Germany

solaredge

# SolarEdge Power Optimizer - Zep Compatible™ Module Add-On

For North America P300-ZEP




## Compatible with Zep Groove framed modules

- Certified Zep Compatible™ bracket
- Attaches to module frame without screws - reduces on-roof labor and mounting costs
- Power optimizer equipment grounded through the bracket
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety

USA · GERMANY · ITALY · FRANCE · JAPAN · CHINA · ISRAEL · AUSTRALIA

www.solaredge.us

solaredge

## SolarEdge Power Optimizer - Zep Compatible™

Module Add-On For North America P300-ZEP

| | P300-ZEP (for 60-cell PV modules) | |
|---|---|---|
| **INPUT** | | |
| Rated Input DC power[1] | 300 | W |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 48 | Vdc |
| MPPT Operating Range | 8 - 48 | Vdc |
| Maximum Short Circuit Current (Isc) | 10 | Adc |
| Maximum DC Input Current | 12.5 | Adc |
| Maximum Efficiency | 99.5 | % |
| Weighted Efficiency | 98.8 | % |
| Overvoltage Category | II | |
| **OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING INVERTER)** | | |
| Maximum Output Current | 15 | Adc |
| Maximum Output Voltage | 60 | Vdc |
| **OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)** | | |
| Safety Output Voltage per Power Optimizer | 1 | Vdc |
| **STANDARD COMPLIANCE** | | |
| EMC | FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3 | |
| Safety | IEC62109-1 (class II safety), UL1741 | |
| RoHS | Yes | |
| **INSTALLATION SPECIFICATIONS** | | |
| Maximum Allowed System Voltage | 1000 | Vdc |
| Dimensions including mounting bracket (W x L x H) | 141 x 256 x 40.5 / 5.55 x 10.08 x 1.59 | mm / in |
| Dimensions excluding mounting bracket (W x L x H) | 141 x 212 x 40.5 / 5.55 x 8.34 x 1.59 | mm / in |
| Weight (including cables and mounting bracket) | 1170 / 2.54 | kg / lb |
| Input Connector | MC4 / Amphenol / Tyco | |
| Output Connector | Double Insulated; Amphenol | |
| Output Wire Length | 0.95 / 3.0 | m / ft |
| Operating Temperature Range | -40 - +85 / -40 - +185 | °C / °F |
| Protection Rating | IP65 / NEMA4 | |
| Relative Humidity | 0 - 100 | % |

[1] Rated STC power of the module. Module of up to +5% power tolerance allowed.

| PV SYSTEM DESIGN USING A SOLAREDGE INVERTER | SINGLE PHASE | THREE PHASE 208V | THREE PHASE 480V | |
|---|---|---|---|---|
| Minimum String Length (Power Optimizers) | 8 | 10 | 18 | |
| Maximum String Length (Power Optimizers) | 25 | 25 | 50 | |
| Maximum Power per String | 5250 | 6000 | 12750 | W |
| Parallel Strings of Different Lengths or Orientations | | Yes | | |

CE ETL