Application for a Certificate of Appropriateness Date: November 13, 2019 PID# 08118703

LOCAL HISTORIC DISTRICT:	Plaza Midwood
PROPERTY ADDRESS:	1511 The Plaza
SUMMARY OF REQUEST:	Addition (Solar Panels)
APPLICANT/OWNER:	Larry Nabatoff

### **Details of Proposed Request**

### **Existing Conditions**

The existing structure is a two-story Craftsman constructed in 1920. Architectural features include a full-width front porch that terminates at a porte cochere, decorative shingles in the gables, exposed rafters, brackets, 8/1 windows. Lot size is approximately 100' x 159'. Adjacent structures are 1-2 story single-family houses. A rear addition, accessory structure and swimming pool were approved under previous applications (COA# 2014-191, COA# 2015-0053).

### Proposal

The proposal is the addition of solar panels to the asphalt shingle roof of the main building and an accessory building. The panels will be flush mounted, no-tilt and have a life span of approximately twenty years. Proposed locations are the rear elevation roof, a portion of the left elevation roof, and the left elevation of the c. 2015 accessory structure's roof. There are no changes proposed to the historic structure itself, and the solar panels are completely reversible.

### Design Guidelines – Additions, page 7.2

- 1. <u>Attempt to locate the addition on the rear elevation so that it is minimally visible from the street.</u>
- 2. Limit the size of the addition so that it does not visually overpower the existing building.
- 3. <u>Attempt to attach new additions or alterations to existing buildings in such a manner that, if such additions or alterations were to be removed in the future, the essential form and integrity of the building would be unimpaired.</u>
- 4. Maintain the original orientation of the structure. If the primary entrance is located on the street façade, it should remain in that location.
- 5. <u>Maintain the existing roof pitch. Roof lines for new additions should be secondary to those of the existing structure. The original roof as visible from the public right-of-way should not be raised.</u>
- 6. <u>Make sure that the design of a new addition is compatible with the existing building. The new work</u> <u>should be differentiated from the old while being compatible with its massing, form, scale, directional</u> <u>expression, roof forms and materials, foundation, fenestration, and materials.</u>

### **Staff Analysis**

Staff has the following concerns with the proposal:

- 1. The proposal is not incongruous with the District and meets the guidelines for Additions 7.2.
- 2. Minor revisions may be reviewed by staff.

# HDCRMI 2019-00538 PID: 08118703 LOCAL HISTORIC DISTRICT: PLAZA-MIDWOOD PROPOSED PROJECT: ADDITION

November Meeting 2019





We plan to place solar panels on our home at 1511 The Plaza. Our home is part of the Plaza-Midwood Historic District. We will celebrate the 100 year anniversary of our home in 2020. We believe that installing solar panels will cut down on our energy usage, convert much of our usage to a cleaner source, provide this clean energy back to the grid for our neighbors to use and reduce the need for energy production from carbon emissions as Charlotte has an air quality issue. Because of some of the details of our project and the relative "newness" of solar panel decisions coming before the Commission, our project needs to go before the full Commission for approval.

Our solar provider designed a system for our location (Image A) which included panels visible from the front of our home. After viewing this, we requested that we look for another way to gain the necessary exposure for the lost panels. The solution (Image B) includes panels on the out building and maximizing the panels placed on the back of the home.

The panels are standard panels, flush mounted. They have a lifetime of 20 - 25 years - by which time our entire roof surface will likely be made of photo-voltaic panels or shingles. As such, they are not permanent, and they are not a structural element or an alteration to the home any more than painting the house in camouflage print or placing purple roof shingles on the home (both of which are allowed as I understand).

None of the panels being proposed are visible from the street in front of our home. Some panels are visible from an angle down the street and some are visible looking through my neighbors back yard from around the corner on School Street.

We respectfully request that the Commission approve our proposal as submitted. Any reduction in the number of panels will significantly reduce the viability of this project. The panels are black, flush mounted and blend into the rooftop. The are not permanent nor do they represent a structural change to our home.

Thank you.

Larry Nabatoff and Kelly Katterhagen 1511 The Plaza



Front of House E

Initial Plan Design A original recommendation from solar comp. to maximize solar (9 ponels on Front of home)



) Request Proposed Panels B

moves panels from front of home to south facing side of shed in back of home to allow for historic look of home from sheet.

Front View

## Front view of 1511 The Plaza, Charlotte NC 28205



Reguested Approval - No/Zero Panels will Solar Panel be visible from the Front of the house or anywhere within property line.

View from corner - one house away



Too Visible – – Full Commission

> Requested Parel Placement - while not visible from Front of home can be seen from down the smeet.



Requested Panel Placement - can be seen from arond the conher - behind neighbors home.





School Street looking toward subject property. (April 2018)

Street View - May 201



The Plaza, looking toward subject property. (May 2018)



Example of panel profile: - Mounted to roof Anot Raised or angled - ho wives showing Manual disconnect and Solar Edge Inverter equipment to be located on side of house with other mechanical equipment

....

Possibly moved to allow s

Required manual

disconnect per electrical code

Possibly moved to allow space

24

Solar Edge Inverter





# Q.PEAK DUO BLK-G5 305-320

#### **Q.ANTUM SOLAR MODULE**

The new Q.PEAK DUO BLK-G5 solar module from Q CELLS impresses with its outstanding visual appearance and particularly high performance on a small surface thanks to the innovative Q.ANTUM DUO Technology. Q.ANTUM's world-record-holding cell concept has now been combined with state-of-the-art circuitry half cells and a sixbusbar design, thus achieving outstanding performance under real conditions — both with low-intensity solar radiation as well as on hot, clear summer days.



#### Q.ANTUM TECHNOLOGY: LOW LEVELISED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.3%.



#### INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

#### ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology<sup>2</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.



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#### EXTREME WEATHER RATING

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



#### A RELIABLE INVESTMENT

Inclusive 12-year product warranty and 25-year linear performance warranty<sup>2</sup>.



#### STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

#### THE IDEAL SOLUTION FOR:



Rooftop arrays on residential buildings



Engineered in Germany











ID. 40032587

- <sup>1</sup> APT test conditions according to IEC/TS 62804-1:2015, method B (-1500 V, 168 h)
- <sup>2</sup> See data sheet on rear for further information.



#### MECHANICAL SPECIFICATION

Format	1685mm × 1000mm × 32mm (including frame)
Weight	18.7 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction box	70-85 mm x 50-70 mm x 13-21 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) 1100 mm, (-) 1100 mm
Connector	Multi-Contact MC4, IP65 and IP68



#### ELECTRICAL CHARACTERISTICS

POWER CLASS				305	310	315	320
MI	NIMUM PERFORMANCE AT STANDARD 1	TEST CONDITIONS, ST	C' (POWER TOLE	RANCE +5 W / -0 W)			
unu	Power at MPP <sup>2</sup>	Parr	[W]	305	310	315	320
	Short Circuit Current*	I <sub>sc</sub>	[A]	9.78	9.83	9.89	9.94
	Open Circuit Voltage*	Vec	[V]	39.75	40.02	40.29	40.56
iii	Current at MPP*	lar,	[A]	9.31	9.36	9.41	9.47
	Voltage at MPP*	Vwr	[V]	32.78	33.12	33.46	33.80
	Efficiency <sup>2</sup>	η	[%]	≥18.1	≥18.4	≥ 18.7	≥19.0
MI	NIMUM PERFORMANCE AT NORMAL OP	ERATING CONDITIONS	NOC'				
Minimum	Power at MPP <sup>2</sup>	Pure	[W]	226.0	229.7	233.5	237.2
	Short Circuit Current*	Isc	[A]	7.88	7.93	7.97	8.02
	Open Circuit Voltage*	Vec	[V]	37.18	37.43	37.69	37.94
	Current at MPP*	here	[A]	7.32	7.36	7.41	7.45
	Voltage at MPP*	Varr	[V]	30.88	31.20	31.52	31.84

1000 Wim<sup>2</sup>, 25 °C, spectrum AM 1.5G <sup>2</sup> Measurement tolerances STC ± 3%, NOC ± 5 % <sup>3</sup> 800W/m<sup>2</sup>, NOCT, spectrum AM 1.5G <sup>4</sup> trypical values, actual values may differ

Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max, 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% of nominal power up to 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.



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000W/m<sup>2</sup>).

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of Isc	α	[%/K]	+0.04	Temperature Coefficient of Voc	β	[%/K]	-0.28
Temperature Coefficient of Pape	Y	[%/K]	-0.37	Normal Operating Cell Temperature NOCT		[°C]	45
PROPERTIES FOR SYSTEM DESIGN							
Maximum System Voltage	Vsm	[V]	1000	Safety Class		11	
Maximum Reverse Current	I.	[A]	20	Fire Rating		с	
Push/Pull Load (Test-load in accordance with IEC 61215)		[Pa]	5400/4000	Permitted Module Temperature On Continuous Duty		-40°C up to +85°C	
QUALIFICATIONS AND CERTIFICATES			PARTNER				
VDE Quality Tested, IEC 61215 (Ed. 2); IEC 61730 (8 This data sheet complies with DIN EN 50380.	Ed. 1), Ap	plication of	lass A				

CE

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.

#### Hanwha Q CELLS GmbH

namma v CLCs wawn Sonnenalee 17-21, 06766 Bitterfeld-Wolfen, Germany I TEL +49 (0)3494 66 99-23444 I JAX +49 (0)3494 66 99-23000 I EMAIL sales@q-cells.com I WEB www.q-cells.com



# solar<mark>edge</mark>

# **Single Phase Inverter** with HD-Wave Technology

# for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



## **Optimized installation with HD-Wave technology**

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- High reliability without any electrolytic capacitors
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)



# solaredge

# **Single Phase Inverter** with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US			
OUTPUT										
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400	VA		
Max. AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400	VA		
AC Output Voltage MinNomMax. (183 - 208 - 229)	-	1	-	1	-	-	-	Vac		
AC Output Voltage MinNomMax.	1	✓	1	1	1	1	✓	Vac		
AC Frequency (Nominal)	59.3 - 60 - 60.5 <sup>(1)</sup>					L	Hz			
208V	-	16	-	24	-	-	-	A		
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A		
GFDI Threshold	1									
Country Configurable Thresholds				Yes						
	4650	5000	7750	0000	11000	45500	47050			
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W		
Maximum DC Power @208V		5100		//50						
Iransformer-less, Ungrounded	Yes									
Maximum Input Voltage	480									
Nominal DC Input Voltage		3	80			400		Vdc		
Maximum Input Current 208V		9		13.5						
Maximum Input Current @240V	8.5	10.5	13.5	16.5	20	27	30.5	Adc		
Max. Input Short Circuit Current	45									
Reverse-Polarity Protection				Yes						
Ground-Fault Isolation Detection	600kΩ Sensitivity									
Maximum Inverter Efficiency CEC Weighted Efficiency	99		•••••	99	9.2	•••••	• • • • • • • • • • • • • • • • • • • •	%		
Nighttime Power Consumption			• • • • • • • • • • • • • • • • • •	< 2 5	• • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •			
	< 2.5									
Supported Communication Interfaces		R	SA85 Ethernet	ZigBee (ontional	) Cellular (ontio	nal)				
Revenue Grade Data, ANSI C12.20	Optional <sup>(2)</sup>									
690.12		A	utomatic Rapid	Shutdown upon	AC Grid Discon	nect				
STANDARD COMPLIANCE										
Safety Grid Connection Standards	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07									
Emissions		• • • • • • • • • • • • • • • • • • • •		ECC Dart 15 Class		•••••	•••••			
	FLU Part 15 Class B									
AC Output Conduit Size / AWG Pango	1	2/1/"	minimum / 1/ 6	AWG		2/// minimu	m /14 4 AWG			
DC Input Conduit Size / # of Strings /	5/4 minimum / 14-0 AWG									
AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG									
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174 21.3 x 14.6 x 7.3 / 540 x 370 x 185						in / mm			
Weight with Safety Switch Noise	22/10 25.1/11.4 26.2/11.9 38.8/17.6						lb / kg dBA			
Cooling	Natural Convection Natural convection									
Operating Temperature Range			-13 to +140 / -2	25 to +60 <sup>(3)</sup> (-40°F	/ -40°C option	(4)		°F/°C		
Protection Rating	NEMA 3R (Inverter with Safety Switch)									
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<sup>(1)</sup> For other regional settings please contact SolarEdge support
<sup>(2)</sup> Revenue grade inverter P/N: SExxxH-US000NNC2
<sup>(3)</sup> For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
<sup>(4)</sup> -40 version P/N: SExxxH-US000NNU4



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