

September 8, 2023

City of Mountain Brook
Mountain Brook Planning Commission
56 Church Street
Mountain Brook, AL 35213

**Request Review of Solar Energy Systems Municipal Code 129-292
Mountain Brook Planning Commission Meeting – October 2, 2023**

Enclosed is a request for the City of Mountain Brook Planning Commission to review and approve the installation of solar panels as part of a solar energy system at the following address:

Physical/Mailing Address: 2940 Balmoral Road, Mountain Brook, AL, 35233

Owner: Charles & Elizabeth Scribner

Scope of Project:

Solar panels will be installed on pitched portions of the roof of the existing residential building at 2940 Balmoral Road to generate energy to be consumed on site.

The solar panels and racking will be flush-mounted to the 25-degree pitched portions of the roof. The roof-mounted solar energy system will not increase the height of the residence.

A 3-foot setback will be utilized from each roof edge, and a 1.5-foot setback will be used on both sides of hips, valleys, and ridges, ensuring 3-foot walking lanes on pitched areas. No part of the roof-mounted system will extend beyond the edge of the roof.

The panels and system are designed to blend into the architecture of the residence. Any electrical lines and conduit will be painted to match the color of the adjacent roofing and walls.

Two of the five roof surfaces with solar modules will be visible from Balmoral Road, though the visibility will be obstructed by the vegetation and hillside in the Scribner's yard (see attached photos). The remaining roof surfaces with solar modules are not visible from any public street.

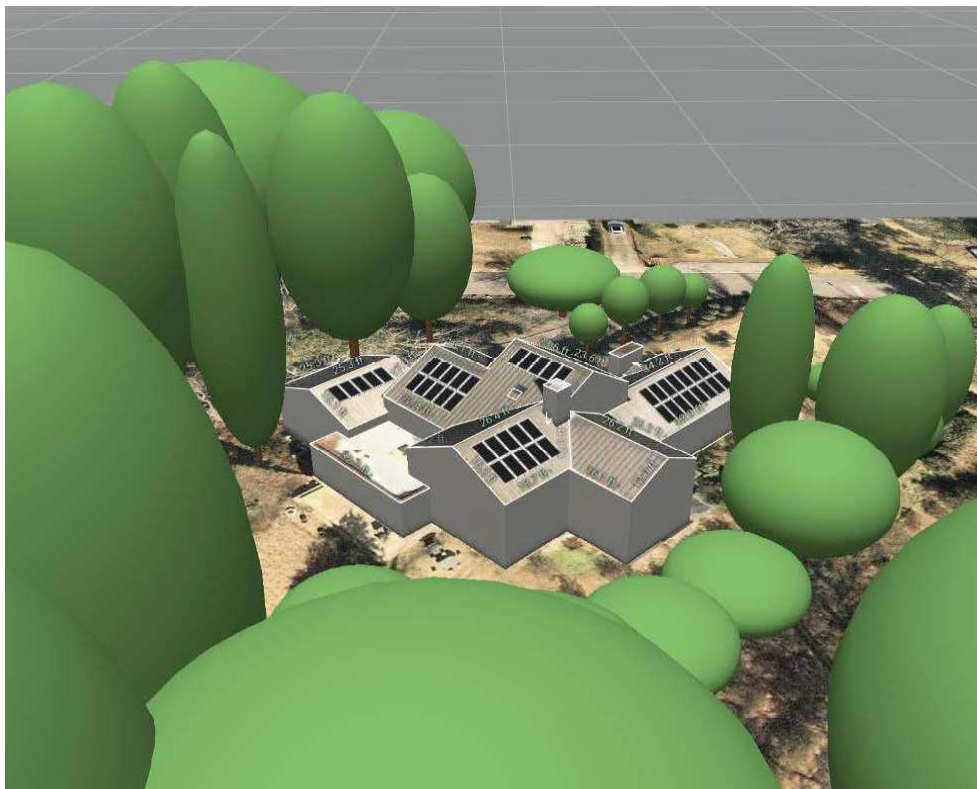
Attachments:

- Parts I and II of the completed Planning Commission Application
- Solar panel specification sheet
- Jefferson County Tax Assessor-certified list of names and mailing addresses of property owners within 500-foot radius of subject property
- Aerial map/satellite image of property
- 2 aerial views of proposed solar energy system
- Photographs from Balmoral Road showing vegetation obstruction of roof visibility
- Copy of check (actual check mailed on 9/7/2023)



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(480) 766-0910 – ajcovey@eaglesolarandlight.com













SOLAR'S MOST TRUSTED



REC N-PEAK SERIES

PREMIUM MONO N-TYPE
SOLAR PANELS WITH
SUPERIOR PERFORMANCE



MONO N-TYPE: THE
MOST EFFICIENT C-SI
TECHNOLOGY



NO LIGHT INDUCED
DEGRADATION



SUPER-STRONG
FRAME UP TO 7000 PA
SNOW LOAD



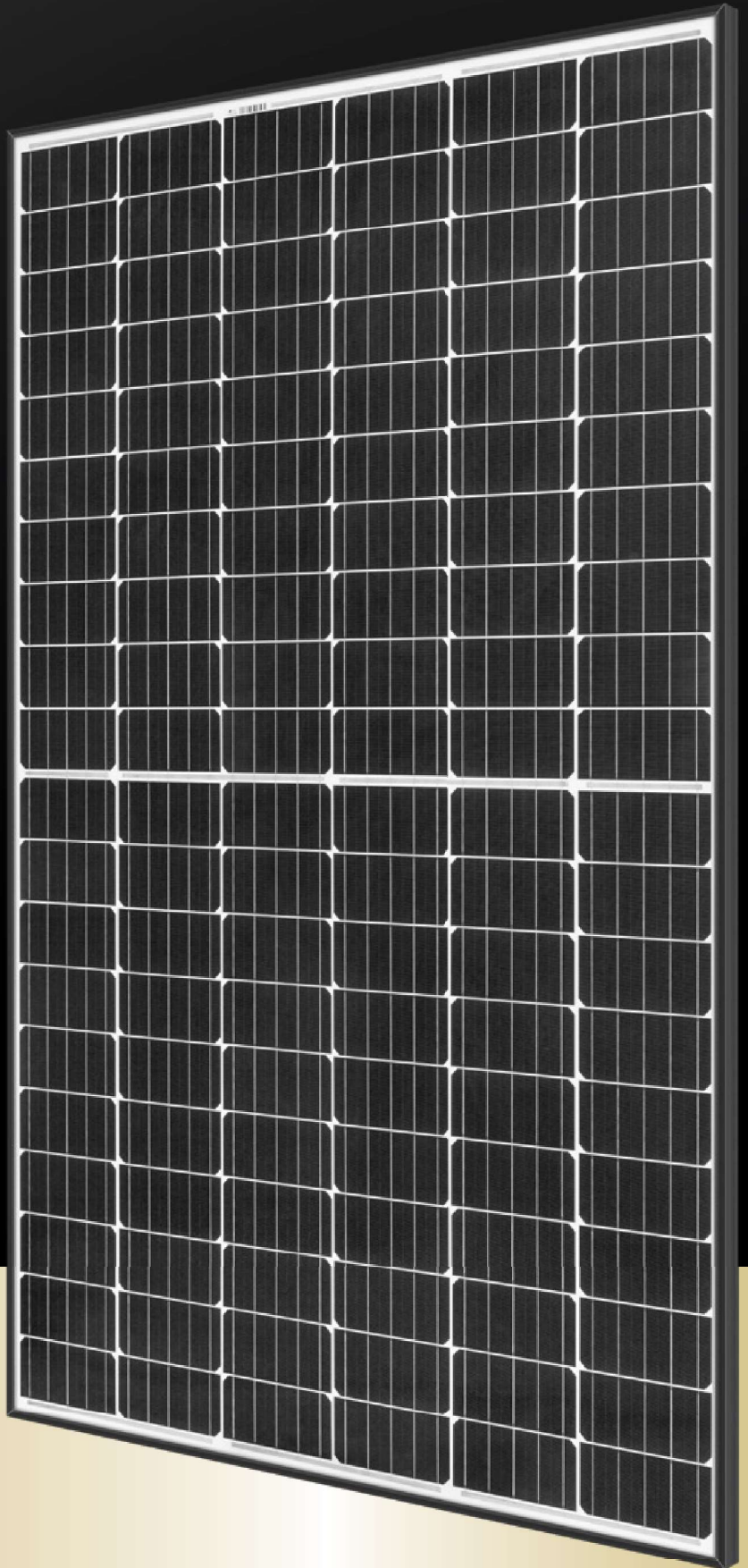
FLEXIBLE
INSTALLATION
OPTIONS



IMPROVED
PERFORMANCE IN
SHADED CONDITIONS



GUARANTEED HIGH
POWER OVER LIFETIME

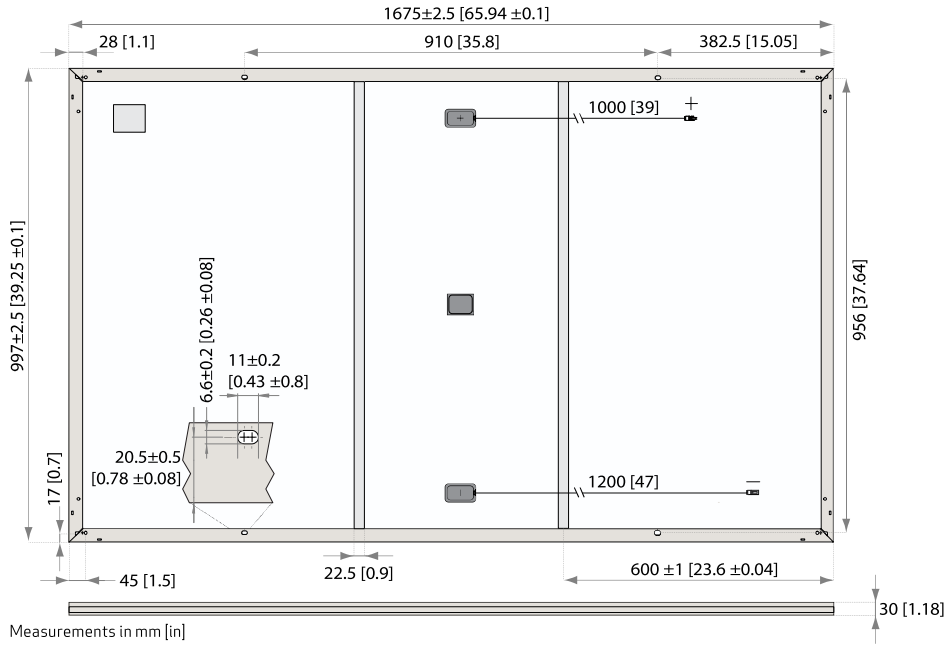


330
WP
POWER



ELIGIBLE FOR

REC N-PEAK SERIES



Measurements in mm [in]

ELECTRICAL DATA @ STC

Product code*: RECxxxNP

	305	310	315	320	325	330
Nominal Power - P_{MAX} (Wp)	305	310	315	320	325	330
Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5	0/+5
Nominal Power Voltage - V_{MPP} (V)	33.3	33.6	33.9	34.2	34.4	34.6
Nominal Power Current - I_{MPP} (A)	9.17	9.24	9.31	9.37	9.46	9.55
Open Circuit Voltage - V_{OC} (V)	39.3	39.7	40.0	40.3	40.7	41.0
Short Circuit Current - I_{SC} (A)	10.06	10.12	10.17	10.22	10.28	10.33
Panel Efficiency (%)	18.3	18.6	18.9	19.2	19.5	19.8

Values at standard test conditions (STC: air mass AM1.5, irradiance 1000 W/m², temperature 25°C), based on a production spread with a tolerance of P_{MAX} , V_{OC} & I_{SC} ±3% within one watt class.* Where xxx indicates the nominal power class (P_{MAX}) at STC above.

ELECTRICAL DATA @ NOCT

Product code*: RECxxxNP

	214	217	221	224	228	231
Nominal Power - P_{MAX} (Wp)	214	217	221	224	228	231
Nominal Power Voltage - V_{MPP} (V)	31.1	31.4	31.7	32.0	32.2	32.4
Nominal Power Current - I_{MPP} (A)	6.86	6.91	6.97	7.01	7.08	7.14
Open Circuit Voltage - V_{OC} (V)	36.7	37.1	37.4	37.7	38.0	38.3
Short Circuit Current - I_{SC} (A)	7.53	7.57	7.61	7.65	7.69	7.73

Nominal operating cell temperature (NOCT: air mass AM1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s).

*Where xxx indicates the nominal power class (P_{MAX}) at STC above.

CERTIFICATIONS



UL 1703 (Fire Type 2), IEC 61215, IEC 61730 & UL 1703; UL 61730, MCS 005, IEC 62804, IEC 61701, IEC 62716, IEC 62782
ISO 9001: 2015, ISO 14001: 2004, OHSAS 18001: 2007

WARRANTY

	Standard	RECProTrust	
Installed by an REC Certified Solar Professional	No	Yes	Yes
System size	any	≤25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.5%	0.5%	0.5%
Power in Year 25	86%	86%	86%

See warranty documents for details. Some conditions apply.

GENERAL DATA

Cell type:	120 half-cut n-type mono c-Si cells 6 strings of 20 cells in series
Glass:	0.13" (3.2 mm) solar glass with anti-reflection surface treatment
Backsheet:	Highly resistant polymeric construction
Frame:	Anodized aluminum (black)
Junction box:	3-part, 3 bypass diodes, IP67 rated in accordance with IEC 62790
Cable:	12 AWG (4 mm ²) PV wire, 39 + 47" (1 m + 1.2 m) in accordance with EN 50618
Connectors:	Stäubli MC4 PV-KBT4, 12 AWG (4 mm ²) in accordance with IEC 62852 IP68 only when connected
Origin:	Made in Singapore

MECHANICAL DATA

Dimensions:	65.9 x 39.25 x 1.1" (1675 x 997 x 30 mm)
Area:	17.98 ft ² (1.67 m ²)
Weight:	39.7 lbs (18 kg)

MAXIMUM RATINGS

Operational temperature:	-40 ... +85°C
Maximum system voltage:	1000 V
Design load (+): snow	4666 Pa (97.5 lbs/ft ²)*
Maximum test load (+):	7000 Pa (146 lbs/ft ²)*
Design load (-): wind	1600 Pa (33.4 lbs/ft ²)*
Maximum test load (-):	2400 Pa (50 lbs/ft ²)*
Max series fuse rating:	20 A
Max reverse current:	20 A

* Calculated using a safety factor of 1.5

* See installation manual for mounting instructions

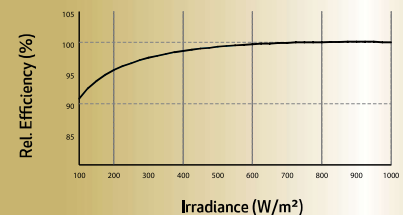
TEMPERATURE RATINGS *

Nominal Operating Cell Temperature:	44°C (±2°C)
Temperature coefficient of P_{MAX} :	-0.35 %/°C
Temperature coefficient of V_{OC} :	-0.27 %/°C
Temperature coefficient of I_{SC} :	0.04 %/°C

* The temperature coefficients stated are linear values

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC.



Founded in Norway in 1996, REC is a leading vertically integrated solar energy company. Through integrated manufacturing from silicon to wafers, cells, high-quality panels and extending to solar solutions, REC provides the world with a reliable source of clean energy. REC's renowned product quality is supported by the lowest warranty claims rate in the industry. REC is a Bluestar Elkem company with headquarters in Norway and operational headquarters in Singapore. REC employs around 2,000 people worldwide, producing 1.5 GW of solar panels annually.

City of Mountain Brook

Guidelines for Planning Commission Review of Solar Energy Systems

Whereas Section 129-292 of the Municipal Code allows the installation in or upon a parcel located within any zoning district, such equipment and minor structures and improvements incidental to the provision and distribution of gas, electricity, water and similar services as may be approved by the planning commission; which approval shall be subject to such conditions, if any, which the planning commission may require to promote the purposes of Chapter 129 of the Municipal Code; and

Whereas the planning commission has determined that it is desirable for the City to permit and regulate the use of solar energy in the City of Mountain Brook; and

Whereas the planning commission has determined that the use and regulation of solar energy systems in the City will reduce the need for additional electrical generation and distribution and tend to reduce atmospheric pollution that are considered harmful to the environment; and

Whereas the planning commission recognizes that the purpose of regulating solar energy systems is to provide for appropriate locations for solar energy systems, to ensure compatibility with surrounding uses, and to promote safe and effective use of solar energy to increase opportunities for generation of renewable energy.

Therefore the following are guidelines to be used by the Planning Commission when approval of an application for a solar energy system has been requested:

Definitions:

Solar Energy System (SES). An energy system which converts solar energy to usable thermal, mechanical, chemical or electrical energy to meet all or a portion of the energy requirements of a principal building or an associated accessory structure.

Solar Energy Equipment (SEE). Items including but not limited to solar panels, lines, pumps, batteries, mounting brackets, framing and/or foundation used for or intended to be used for the collection of solar energy in connection with a building on residential, municipal or commercial properties. Solar energy equipment and its use are accessory to the principal use of the property.

Solar Energy Systems, generally.

- 1) SES shall not be commercial operations and are prohibited as a principal use. The main purpose of the SES may not be to generate energy for sale back to the energy grid rather than being consumed on site.
- 2) Abandoned or inactive SES, within twelve (12) months of the cessation of operations, shall be removed by the property owner.

Roof Mounted Solar Energy Systems

- 1) The placement of SES on roofs of principal buildings is preferred and encouraged.
- 2) For pitched, hipped or gambrel roofs, roof mounted SES shall not be more than twelve (12) inches from the surface of the roof at any point, and may not extend above the ridgeline of the roof. The twelve (12) is measured from the upper side of the solar panel.
- 3) For flat roofs or the horizontal portion of mansard roofs, roof mounted SES may extend up to five (5) feet above the highest point of the roof.
- 4) In no instance shall any part of a roof mounted SES extend beyond the edge of the roof.
- 5) Roof mounted SES shall be designed to blend into the architecture of the building.
- 6) No portion of the SES shall be visible from any public street.
- 7) All exterior plumbing and electrical lines must be painted and/or coated to match the color of adjacent roofing material and walls.
- 8) Roof Mounted SES shall be located so as not to increase the total height of the structure above the maximum allowable height of the structure on which it is located, in accordance with the applicable zoning regulations, and may not exceed the height of the ridge of the roof on which it is located.

Ground Mounted Solar Energy Systems

- 1) Ground mounted SES and SEE shall be considered accessory structures and shall be governed in accordance with Section 129-314 of the Municipal Code of the City of Mountain Brook.
- 2) Ground mounted SES shall be of permanent installation and shall not be portable in nature.
- 3) To the extent possible, without compromising the solar SES's access to sunlight, ground mounted SES shall be screened from view at-grade from all adjacent properties.
- 4) No portion of the SES shall be visible from any public street.