



Product Evaluation

RV64 |1018

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RV-64

Effective Date: October 1, 2018

Re-evaluation Date: October 2022

Product Name: Model 12 Watt, 24 Watt, and 36 Watt Roof Mounted Solar Powered Attic Fans

Manufacturer: Natural Light Energy Systems LLC
10821 N. 23rd Ave.
Phoenix, AZ 85029
(602) 485-4895

General Description: The solar attic fans (SAF) are self-flashing, roof mounted, solar powered attic fans that are used to provide exhaust ventilation of the attic or interior space of a structure. The SAF are available in Standard Profile or Low Profile models. Each SAF model has a photovoltaic panel on it. Presented below are the dimensions of the photovoltaic panels for each model profile:

	12 Watt Standard Profile	24 Watt Standard Profile	36 Watt Standard Profile	24 Watt Low Profile
Photovoltaic Panel Size	11.9" x 14.1"	14.1" x 21.3"	20.1" x 21.3"	20.7" Diameter

Assembly: The SAF assembly for the Standard Profile models is comprised of a shroud, fan motor and fan, flashing, and assorted brackets and hardware, all corrosion resistant. The shroud and flashing are formed of 1100 series aluminum, 0.08" thickness. The overall height of the assembly is 9.1" and diameter is 27-1/4". The flashing is conical formed with a bottom diameter opening of 21" and a top diameter of 13-3/8" with a height of 5-3/4". The top of the shroud is circular in form with conical sides formed at a height of 4-3/4". The stainless-steel fan grill is attached to four brackets and the four brackets join the flashing to the shroud using 8 stainless steel screws.

The SAF assembly for the Low-Profile model is also comprised of a shroud, fan motor and fan, flashing, and assorted brackets and hardware, all corrosion resistant. The shroud and flashing are formed of 1100 series aluminum, 0.08" thickness. The overall height of the assembly is 7-1/2" and the diameter is 28-1/2". The flashing is conical formed with a bottom diameter opening of 19.4" and a top diameter of 13-1/2" with a height of 4.3". The top of the shroud is circular in form with conical sides formed at a height of 4.1". The stainless-steel fan grill is attached to four brackets and the four brackets join the flashing to the shroud using 8 stainless steel screws.

Fan and Solar Panel Assembly: The height of the stainless-steel grill (1/4" mesh) and four aluminum brackets is 4" for the Standard Profile models and 3.3" for the Low Profile model, and join the shroud to the flashing using stainless steel screws. The fan motor mounting brackets and fan blade assembly are attached to the shroud with sheet metal screws. For the Standard Profile models, the solar panel is attached to the top of the shroud by brackets and hardware, and it has an adjustable tilt to optimize the solar angles to maximize power to the motor. However, in anticipation of high wind events, the solar panel should be secured in the horizontal position. For the Low Profile model, the solar panel is a recessed flush mount design.

The electrical requirements of the fan solar panel and motor are low voltage DC output for the panel to a 36v DC rated motor.

Deck Flashing Construction: The deck flashing is formed of 1100 series aluminum sheet, 0.09" thick for all sizes and mounting options. The flashing can be unpainted or powder coated black. The flashing is sealed with silicone 2300 exterior grade sealant to roof deck and secured with No. 10 x 1-1/2" Phillips pane head stainless steel screws. The hole at the top of the flashing is 13-3/8".

Limitations

Design Wind Pressures:

SAF Model	Design Pressures
Standard Profile; 12 Watt, 24 Watt, 36 Watt	+115.3 psf / -230.6 psf
Low Profile; 24 Watt	+112.8 psf / -202.6 psf

Roof Deck: The roof sheathing must be minimum nominal 15/32" OSB. Solid boarding decking (minimum nominal 1" thick Douglas Fir-Larch lumber) is also acceptable.

Roof Slope: There is no minimum roof slope. The maximum roof slope is 12:12.

Installation

General Installation Requirements:

The SAF must be installed in accordance with the manufacturer's installation instructions, applicable sections of the IRC, the IBC, and this evaluation report. Detailed installation instructions are available from the product manufacturer.

Installation Requirements:

The roof deck construction must be as specified in this evaluation report. The SAF should be strategically located to optimize ventilation. The unit should be installed on the roof by cutting a 19" diameter hole in the roof. Roof rafters are generally 16" or 24" on center. If the rafters are spaced 16" on center, then the installer can either cut a 14" hole between the rafters or cut a 19" hole with the roof rafter running

through the cut. Do not cut through the roof framing. Cut the hole to the proper diameter. Remove all existing roofing nails between the nine o'clock and the three o'clock positions with 4" of the edge of the hole. Caulk the underside of the flashing with two 3/8" continuous concentric rings of 2300 tri-polymer sealant that is provided. Slide the flashing under the tar paper and shingles until the shingles come in contact with the raised portion of the flashing.

For the Standard Profile model SAF, secure the flashing to the roof deck with minimum No. 10 x 1-1/2" Phillips pan head stainless steel screws. Locate the fasteners in the pre-punched holes, equally spaced. Ten fasteners are required. Seal all seams and fasteners with sealant.

For the Low Profile model SAF, secure the flashing to the roof deck with minimum No. 10 x 1-1/2" Phillips pan head stainless steel screws. Locate the fasteners in the pre-punched holes, equally spaced. Six fasteners are required. Seal all seams and fasteners with sealant.

Note: Keep the manufacturer's installation instructions available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.