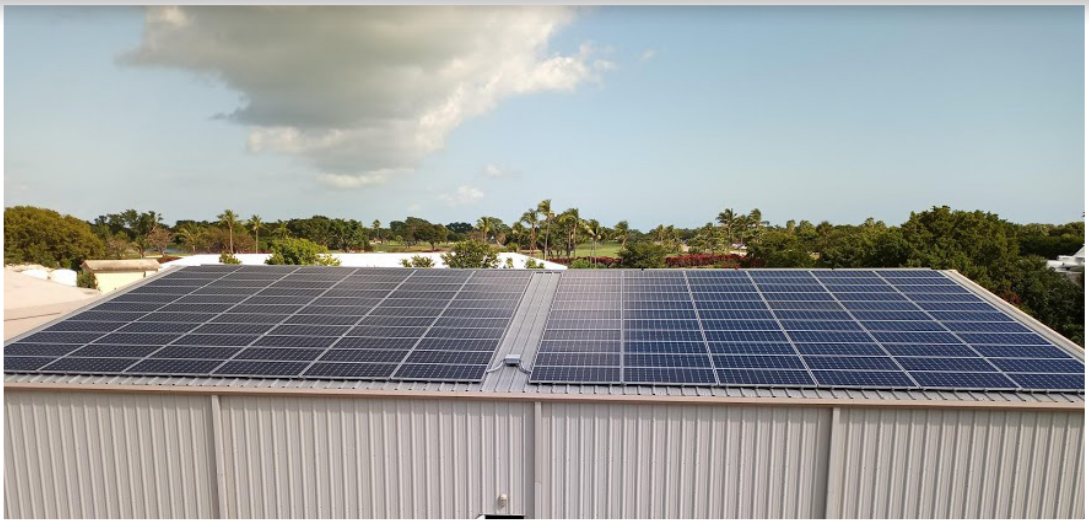
Case Study — Ocean Reef Club at Key Largo

RibBracket™ III and S-5-PVKIT® 2.0



At-A-Glance

Project Name
Ocean Reef Club

Location
Key Largo, Florida

EPC Contractor
SALT Energy

Roof Profile
Dean Steel Building Rib-12

Roof Manufacturer
Dean Steel Buildings, Inc.

Module manufacturer
SunPower

Inverter manufacturer
SMA Solar

Industry
Residential resort

Project Stats

- Roof Measured: 40’ x 80’ Solar Zone
- Roof Pitch: 2/12
- PV Array Size: 58.08 kW-DC; (132)-440W modules
- S-5! Products Supplied:
  - ✓ **S-5-PVKIT® 2.0** (530)
  - ✓ **RibBracket™ III** (530)

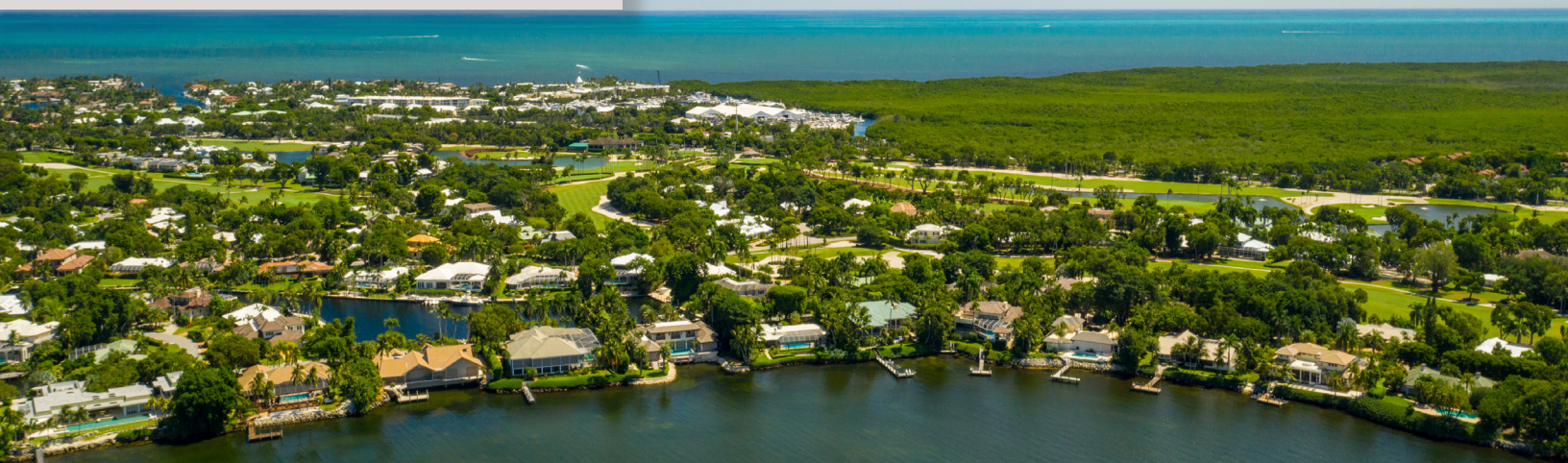
The Project

Located on the northernmost tip of Key Largo in the Florida Keys, Ocean Reef Club is one of the country’s most comprehensive private club communities, offering 1,700 waterfront estates, private homes, condominiums and an oceanfront inn.

The club is equipped with a fully staffed medical center; a full-service spa and salon; gourmet grocery store; cooking school; nature center; cultural center; veterinary care center; dining and shopping options; an independent pre-K-8th grade school; as well as its own private airport.

Ocean Reef offers a vast array of leisure amenities, including a 175-slip mega-yacht marina for boating, fishing and diving; two 18-hole championship golf courses; world-class tennis and lawn sports; jogging and cycling paths; and unlimited children’s activities and programming.

On the grounds of the resort is a 6,400-square-foot reverse osmosis water plant featuring 58 kWp of solar PV secured to its Dean Steel Building Rib-12 roof using the **S-5-PVKIT® 2.0** and the **RibBracket™ III**. The solar installation is predicted to save the resort on average $1,000 per month on its electric bills.



The Challenge

The club is located on a private peninsula beside America's only living reef, bound on three sides by water and on the fourth side by federal and state lands. The area is subject to 180 mph, Category 5 hurricane winds, making installation of a low-profile, roof-mounted system essential.

EPC Contractor, SALT Energy was challenged with installing the solar adjacent to the local airport's runway (just 150 feet away) so a glint and glare analysis was required. The findings and resulting action items from this assessment would ensure the reflection produced by the solar PV would not visually impact pilots or air-traffic controllers.

Additionally, the logistics of delivering materials in this part of the country is challenging because of its remote location. And, since it is a private, gated community, the owners wished to limit the number of delivery trucks coming and going through the gates.

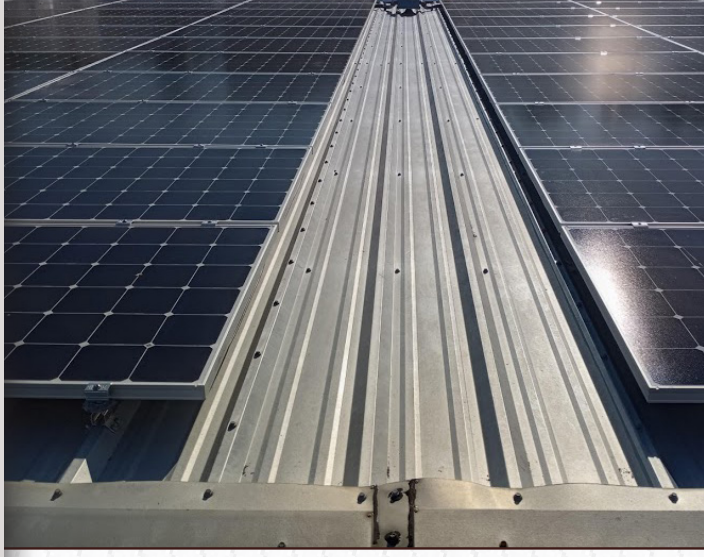
The Solution

Utilizing the only south-facing roof available, SALT Energy installed the latest technology, high-efficiency SunPower A-Series 440W modules to maximize the solar output in the space allotted. The modules were secured to the Dean Steel Building Rib-12 roof using the **PVKIT** solar mounting solution along with S-5!'s **RibBracket III**.

Together, the S-5! products provided a low-profile design solution with minimal equipment on the roof to achieve a design strong enough to withstand the area's high wind loads.

With a fully engineered design – three to five module clamps per side depending on wind zone of the roof (six to 10 points of attachment per module), 15% of the dead load of rail-mounting, and more uniform wind load distribution to the roof structure – this array welcomes any Category 5 Hurricane challenge.

The logistics challenge was also overcome because the entire solar mounting solution of 240 pounds fit into the trunk of a passenger car, whereas a truck and flatbed trailer would have been required for a traditional railed system.



How Did the S-5! Products Help?

- **Cut material costs in half, including freight costs**
- **Cut installation costs in half by eliminating the assembly and installation required by traditional rail mounting**
- **Improved aesthetics and wind effects by offering a low-profile solution**
- **Simplified array grounding design**
- **Allowed design flexibility to add extra brackets in higher wind-load zones of the roof**

S-5-PVKIT® 2.0

RibBracket™ III

"SALT Energy serves the most demanding market in the U.S. and the Caribbean for solar installations due to projects in High-Velocity Hurricane Zones and coastal exposure by the Atlantic Ocean. Our design wind load requirements are the highest in the U.S. Attachment engineering is at the heart of every project we do, and we choose only the highest quality products. That's why we rely on S-5! for our attachment needs.

S-5!'s portfolio of products for different metal roof types stands at the top of the market by all measures, including quality, performance and price. The product testing S-5! provides is the most thorough in the industry and an essential component of SALT's engineering for each project. From SolarFoot™ to RibBracket™, to S-5!'s clamps and the PVKIT®, S-5! products and its people are simply the best!"

—David Kaul, Operations and Engineering Director, SALT Energy