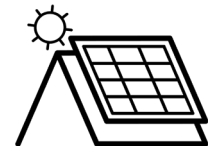




Case Study — Graceway Sports Centre

S-5-PVKIT[®]2.0 & RibBracket[™] I-V



At-A-Glance

Project Name

Graceway Sports Centre

Location

Providenciales, Turks and Caicos Islands

EPC Contractor

renu energy TCI

Roof Profile

MW5R exposed-fastened metal roof

Roof Manufacturer

Quedron Roofing Solutions

Module Manufacturer

Canadian Solar

Inverter manufacturer

SMA America Core1

Industry

Sports Facility

The Situation

The Turks & Caicos Islands wanted to reduce their dependency on imported fossil fuels by supplementing the island's power generation with solar PV and created a program to offer qualifying customers the opportunity to partner with the local utility to lease their rooftop space for the generation of solar energy.

The Result

renu energy TCI used S-5!'s **RibBracket[™] IV**, specifically designed for this roof profile, and the **S-5-PVKIT[®] 2.0** allowed for rail-less PV mounting to the standing seam metal roof. Graceway Sports Centre is now able to generate more than 430,000 kWh per year.

Project Stats

- Roof Measured: 131' x 126'
- Roof Pitch: 6 degrees
- PV Array Size: 271.7kW,
836 Canadian Solar modules
- S-5! Products Supplied:
 - S-5-PVKIT[®]2.0 (2760)
 - RibBracket[™] IV (2760)



The Project

Located in the Caribbean on the island of Providenciales in Turks and Caicos Islands, Graceway Sports Centre is the premier sports facility in the area, offering a wide range of sports including indoor soccer, basketball, volleyball, tennis, squash, hockey, martial arts and more.

The 25,000+ square foot facility features a Quedron Roofing Solutions MW5R exposed-fastened metal roof with a 270kW solar array secured in place with the **S-5-PVKIT[®]2.0** solar solution and the **RibBracket[™] IV**.

The system was designed by renu energy TCI and developed for the local utility, Fortis TCI under their Utility Owned Renewable Energy program, which offers qualifying customers the opportunity to partner with FortisTCI to lease their rooftop space for the generation of solar energy. FortisTCI owns and maintains the solar PV system, and the customer receives a credit on its monthly electricity bill for use of rooftop space. This program is geared to promote renewable energy throughout the Turks and Caicos Islands and has enabled the Graceway Sports Centre project to generate more than 430,000 kWh per year.

The Challenge

The island of Providenciales is located in a hurricane-prone area so design wind load requirements necessitated a solar mounting product capable of withstanding up to 180-mile-per-hour winds.

In addition, the salt air and salt spray which accelerates corrosion makes any construction project on the island challenging so renu energy TCI needed a system that could withstand these environmental conditions. They also desired a low-profile, aesthetically-pleasing mounting system that would provide low clearance.

Furthermore, shipping logistics presented a challenge to these remote islands. Transporting traditional rail would be extremely costly and suffer long delivery times since there is no direct shipping from the United States.

The Solution

renu energy TCI always uses aluminum and stainless steel components to combat corrosion and the effects of salt air and chose S-5! products for this reason. S-5! uses non-corrosive materials made from high-tensile aluminum that are salt-fog corrosion tested in accordance with ASTM B 117 standards for metallurgical compatibility. All fasteners and mating hardware are A2-70 stainless steel.

Additionally, the low-profile, rail-less PV mounting solution enabled renu energy TCI to achieve a design engineered to withstand the area's hurricane winds. By directly attaching the PV to the seams of the roof, it provided for installation efficiency and flexibility, and distributed the load more prudently and uniformly into the structure.

Using this approach to solar mounting provided a significant decrease in the amount of material required to ship to the islands. A traditional, three-rail system would have involved 10,000 feet of rail and required a full 40-foot container to ship. S-5! provided six attachments per module shipped on ONE standard palette—a 50% savings on product cost and 70% on shipping!

Long-Term Outlook

The Turks & Caicos Islands have reduced their dependency on imported fossil fuels and supplemented their power generation by adding solar PV to the islands' electrical infrastructure, and the customer has benefited from savings on its monthly electricity bill.

The S-5! solar solution provided an aesthetically pleasing, cost-effective PV mounting system – saving the customer time and money on installation and materials.

How Did the S-5! Products Help?

- Cut material costs in half, and shipping costs by 70%
- Cut installation costs in half
- Improved aesthetics and wind effects by offering a low-profile solution
- Allowed design flexibility to add extra brackets in higher wind-load zones of the roof
- Direct-attachment of the hardware to the module provides superior strength

“At renu energy TCI, we believe solar energy is the best choice of energy generation for the Caribbean markets. Reliability and cost efficiency are key to making renewable energy work for our customers. Therefore, we rely on best-in-class products to make our systems last. Preparing for hurricane winds, high salinity and extreme humidity/heat, we utilize S-5! products as they have been tried and tested for exactly this environment.

The products allow us to increase our stability and rigidity on the roof. Since we have to work with difficult logistics, the nature of the products allows us to stock enough to be prepared for almost any job. The extensive engineering behind S-5! products also helps us in selecting for and satisfying the most stringent requirements. Together, this supports our goal of creating more renewable energy installations for Turks and Caicos Islands and beyond.”

— Boris von Bormann, Co-Founder, renu energy TCI



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