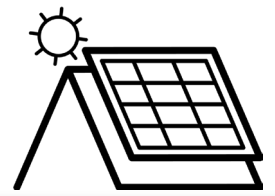




CASE STUDY — Rotokauri Primary School Hamilton, NZ

PVKIT® • CorruBracket™ 500T PV • CorruBracket™ 500T
PVKONCEAL™ • CanDuit™



AT-A-GLANCE

Designer

Solar Partners NZ

Solar Installer

Ace Electrical

Module Manufacturer

Canadian Solar

Inverter Manufacturer

FIMER

Roof Profile

Corrugated Iron

Industry

Education

PROJECT STATS

Each Roof Measured:

21 x 7.1 metres

Roof Pitch:

10 degrees

Project Size:

16.5kW

Solar Modules:

30 Canadian Solar
CS6W-550MS

Inverter:

FIMER PVS-15 Inverter

Other S-5! Products Supplied:

25mm CanDuit conduit pipe (10)
PVKONCEAL module skirt (27.4 meters)



The Situation:

The school wished to offset its energy consumption with solar power and required a quality, rooftop solar mounting solution that was easy to install and would last the life of the roof.

The Result:

They chose the PVKIT Direct-Attach™ rail-less solar mounting solution, providing a simple and economical method to “lay & play” modules with tested, engineered, attachment.

The Project

In early 2023, Rotokauri Primary School in Hamilton, New Zealand wanted to install a solar system to reduce the school’s energy costs and environmental footprint, while providing the students with the opportunity to learn about alternative energy sources.

Among the multi-building 10,000 square metre (108,000 sqft) campus, Rotokauri’s multipurpose facility features a corrugated iron roof — which was identified as ideal for the new solar system.

Administrators worked with Solar Partners NZ, a leading solar wholesaler in New Zealand and S-5! channel partner, to help them design the solution. They also partnered with Ace Electrical who installed and commissioned the 16.5kW system.

The school selected the S-5! PVKIT solar mounting solution to secure 30 Canadian Solar modules to the roof. The system, which includes a FIMER inverter, is estimated to generate over 15MWh annually, equivalent to 13 tonnes of CO².

SYSTEM COMPARISON

S-5! Rail-Less System



3

Required Components

S-5! System Weight
28.8 kg

Racking System



9

Required Components

Alternative Weight
148.9 kg

The Challenge

The school has about 250 students so delivering a safe and non-disruptive installation during school hours was paramount. Electrical and mechanical safety, in addition to maintaining the integrity of the roof in relation to structural loads and watertightness, were also priorities for the key stakeholders.

The location of the site is elevated and exposed to high winds and sea air, which accelerate corrosion, so utilising a quality system that could handle wind uplift and is made from non-corrosive metals with a solid manufacturer warranty was of utmost importance. They wanted to maximise value without compromising quality or safety.

Additionally, given the existing purlin locations, an alternative rail system would have required many exposed unsightly rail and fixings, adding unnecessary weight and cost. The location of the connection point and the arrays required cables to be surface mounted between the lower and upper roofs in conduit so wire management and clean aesthetics were concerns. All in all, they wanted a lightweight, easy-to-maintain, quality system that was simple to install and safe to work around.

The Solution

Solar Partners NZ recommended the PVKIT together with the **CorruBracket 500T PV** to mount the solar array to the corrugated roof. S-5! turns the roof into a canvas, allowing panels to be installed anywhere on the roof, not just on roof purlins, providing a streamlined, aesthetic low-profile installation with no unsightly rails, making roof maintenance a breeze. The array was capped off with the **PVKONCEAL** module skirt to retain a sleek appearance from public viewing angles. Surface-mounted conduits were secured to the roof by S-5! **CanDuit** clamps.

The web-based S-5! Solar Calculator was used in the design process to determine load calculations and the bill of materials. Additionally, the calculator provided the number of fixings and locations to ensure the array could manage the site's wind loads.

The school was confident they chose a mounting system that would withstand water intrusion. Each S-5! bracket features a double seal, an integrated sealant reservoir to prevent over-compression and protection from ultraviolet degradation in addition to a watertight, factory-applied, 60-year EPDM gasket tested to ASTM E-2140 — the most scrutinising water test in the industry. S-5! uses stainless-steel components to combat corrosion that are salt-fog corrosion tested

in accordance with ASTM B 117 standards. Designed to last the life of the roof, S-5! offers a lifetime material and workmanship warranty on all S-5! components.

Additionally, the PVKIT system enabled the school to achieve a design engineered to withstand the area's high winds. By directly fixing the PV to the ribs of the roof, it provided installation efficiency and flexibility and distributed the load more prudently and uniformly into the roof and structure.

The mechanical installation time for the two 15-module arrays was just 5 hours for two technicians.

How Did 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 racking
- Minimised the amount of time workers must spend in harnesses on the roof
- Improved aesthetics
- Eliminated the risk of a voided roof manufacturer warranty

“Installing rail-less doesn’t come naturally to most installers; it just takes a slight shift in mindset, and installers can save crews time, components and materials that are unnecessary on most metal roof solar installations.”

Bernie Dombroski, Solar Partners NZ



The Right Way™ | +61 3 8595 7001 | www.S-5.au

