Case Study — Universidad Católica, Buenos Aires, Argentina

PVKIT® & S-5-Z™ Mini

At-A-Glance

Project Name
Santa María Post Graduate School, Catholic University of Argentina

Location
Buenos Aires, Argentina

Architect
Urgell-Penedo-Urgell

Structural Engineer
Raúl Curutchet

General Contractor
Socmer SA

Roof Profile
Merchant & Evans Zip-Rip Standing Seam Metal Roof

The Situation
The university had multiple objectives to meet with its solar installation, primarily supplementing the power required to run the Santa María building. And, given that it was located in a highly visible, highly touristy area along the Rio Darsena Sur, aesthetics were of utmost importance.

The Result
The PVKIT and S-5-Z Mini clamp provide a simple, secure and economical aesthetically pleasing solution for mounting solar PV to the post-graduate school's standing seam roof. The non-penetrating clamps do not compromise the roof integrity and have eliminated the risk of voided roof warranties.

Industry
Education

Project Stats
Project Size: 492 PV modules produce 177 kW on approximately 1,000 m^2 (about 60% of the total roof area)

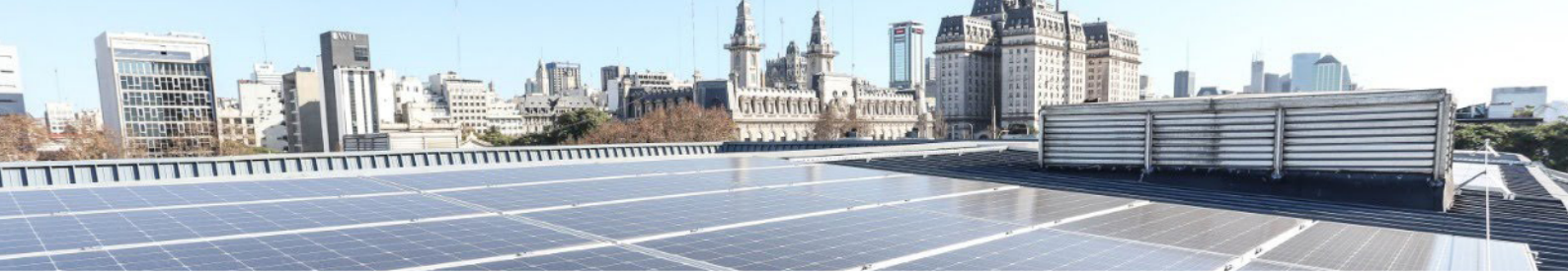
- Roof Measured: approximately 1,666 m^2
- Roof Pitch: 2:12
- Surface Built: 21,500 m^2
- Lot Surface: 5,730 m^2
- S-5! Products Supplied:
    - S-5-Z™ Mini (1496)
    - PVKIT® (1496)

The Project

The Catholic University of Argentina's (UCA) main campus is located in Puerto Madero, Buenos Aires, and is considered to be one of the best private universities in Latin America. The UCA rehabilitated its Santa María post-graduate school building – a 19th century dockyard building along the Rio Darsena Sur (river) – to include façade restoration, roof replacement and structural modifications.

The project features a flexible central space, surrounded by two open courtyards, allowing natural light to enter through large skylights. The ground and first floors house classrooms, research and study areas, a library, auditoriums and a micro-cinema. On the third and fourth floors, below the metal roof, characteristic of all dockyard buildings, are laboratories for highly complex research programs.

The project features an impressive 170 Kw/h photovoltaic (PV) array on a Merchant & Evans ZIP-RIB architectural/ structural standing seam metal roof. The UCA is the first university in Argentina to install solar PV to comply with Law No. 27,191, which establishes the use of at least 7% of its electricity consumption via renewable energy sources for buildings housing dense populations.



The Challenge

The particular characteristics of the roof and symmetry of the Santa María building, together with the roof pitch, presented a challenge for installing the PV modules. Using a traditional rail system was out of the question for this particular curved, steep-slope application. And, maintaining the aesthetic harmony of the building was critical as it is located in a popular, upscale residential area along the Rio Darsena Sur and can be viewed from any vantage point along the river or in the city.

Furthermore, the UCA had multiple objectives to achieve. First and foremost, the Catholic university has developed a clean technology policy—in line with the call of Pope Francis "to contribute to sustainable development by assuming responsibly the effects of climate change."

Additionally, the UCA set out to demonstrate technological progress from an academic point of view, serving as an environmental steward for other academic establishments in Argentina. Furthermore, installing solar PV would ensure the university's compliance with Law No. 27,191.

The Solution

The contractor selected the Merchant & Evans ZIP-RIB roof for its particular use in curved, low-slope and steep-slope applications, such as the Santa María building. The S-5! **PVKIT®** along with the **S-5-Z™ Mini** clamp were chosen to secure 492 PV modules on the upper, north, west, and east façades, enabling installers to follow the curved roof line.

Aesthetically, the solar array is low-profile and aligns flush with the new metal roof due to S-5!'s direct-attach™ method. The PVKIT solar attachments are securely mounted directly onto the seams of the roof, eliminating the need for a traditional rail system. By eliminating rails, the result is an aesthetically-pleasing, zero-penetration system that preserves the roof structure and does not void roof warranties. The array even provides autonomous lighting at outdoor meeting points in the event of a power outage.

By adopting solar technology, the UCA was able to supplement 7% of the building's power demand and produce energy to feed into its electrical system, resulting in a more energy-efficient building that's now compliant with the law.

How Did the S-5! PVKIT Help?

- **Cut material costs in half, including freight costs**
- **Cut installation costs in half by eliminating the assembly and installation required by traditional racking**
- **Minimized the amount of time workers must spend in harnesses**
- **Improved aesthetics**
- **Eliminated the risk of a voided roof manufacturer warranty—no holes/no damage**
- **And, the PVKIT is 85% lighter than rails, while providing 25% better load distribution**

Long-Term Outlook

By adding solar PV, the university was able to supplement 7% of its post-graduate school's electricity consumption – as required by law – enabling the UCA to positively impact the environment and pioneer the way for other academic institutions.

The PVKIT and S-5-Z Mini provided an aesthetically-pleasing, cost-effective PV mounting solution—saving the customer time and money on installation and materials.