



“ Installation using the S-5! mini clamps was fast and efficient. For PV attachments on a standing seam roof, S-5! is the only way to go! ”

Luke Brandt
 Project Manager, Kovach, Inc.



■ Finding A Way

Phoenix Sky Harbor International Airport and SunPower, a designer, manufacturer and distributor of solar panel systems, installed a 5.4 MW high-efficiency solar power energy system in December 2011. The project signifies Sky Harbor Airport's commitment to conserve energy and enhance air quality in Arizona as well as save airport funds. With the help of attachment solutions developed by S-5![®], the contractor was able to effectively attach 12,500 solar panels onto 32 different roofs in only 4.5 weeks.

■ How It Works

A hybrid system of 33,000 S-5-Z Mini clamps were utilized to attach the Unistrut channel to the metal roofing seams. PV panels were then attached directly to the Unistrut channel. The advantage of this design strategy is that no roofing penetrations are required. The S-5-Z Mini clamps do not pierce the metal roof paneling, thereby protecting roof warranties. During a typical membrane roof installation, each of the 33,000 connections would require roof penetration and proper detailing. This can create complications for maintaining the integrity of the roof as well as extending the project time line tremendously. When paired with a standing seam metal roof, the S-5! clamps present the perfect solution for the installation of solar panel systems.

The S-5-Z Mini clamps provided the strength the project demanded, meeting and exceeding even the strictest building code requirements for wind uplift. The technical information found at www.S-5.com and the exceptional cost-savings of the system created a successful project.

■ Pairing Systems & Life-Cycles

Installing PV on a membrane roof system has costly life-cycle implications. The underlying roof will likely need replacement after just 15 years. The process would entail PV removal, roof replacement, and PV re-install within the first 10–15 years of operation. The removal and re-installation cost is effectively insurmountable for achieving an efficient return on investment. A closer look at life-cycle cost analysis shows that the metal roof life span is anticipated to outlast the life of the PV module warranty of 25 years, allowing for simultaneous or staged renewal of both systems. Pairing standing seam metal roofs and PV panels by utilizing S-5! clamps is the most successful and durable system on the market today.

■ Long Term Outlook

This solar installation will consistently produce clean on-site renewable energy for years to come. According to the airport and SunPower, the significant 51% reduction in energy demand at the airport's toll plaza, rental car center and two East Economy parking garages will result in \$4.7 million in operational cost savings over the next 20 years. According to estimates provided by the Environmental Protection Agency, this PV system will also offset the production of more than 5,500 tons of carbon dioxide per year, the equivalent of removing 19,800 cars from the roads. The installation demonstrates S-5!'s dedication to supporting sustainable initiatives and providing the metal roofing industry with superior solutions for meeting demanding attachment challenges.

At A Glance:

Customer:
 Phoenix Sky Harbor International Airport Car Rental

Location:
 Phoenix, AZ



PV Plan:
 SunPower

Contractor:
 Kovach, Inc.

Project Manager:
 Luke Brandt, Kovach, Inc.

Completed:
 12/15/2011

Roof:
 Bemo Metal Roof

Roof Attachment:
 S-5-Z Mini Clamps

Rail and Mounting:
 Unistrut Slotted Channel

Solar Attachment:
 SunPower PV Clip

PV Panels:
 SunPower

Total Installed Solar Panels:
 12,500

On-Site Renewable Energy:
 5.4 MW