Case Study — S-5! Manufacturing Plant

PVKIT® 2.0 | S-5-E | S-5-T

At-A-Glance

Project Name
Manufacturing Facility of S-5!

Location
Iowa Park, TX

Engineer
GTO Engineering

General Contractor
Anthony Inman Construction

Solar Installer
SPEIR Innovations LLC

Module Manufacturer
Trina and REC Solar

Inverter Manufacturer
SolarEdge

Roofing Contractors
Big Johnson Erection & Guaranteed Roofing

Roof Profile
Greenspan Ridgeline and 1-1/2" double folded SSMRs

Industry
Commercial industrial

Project Stats

- **Main Roof Measured:** 60' x 160'
- **Roof Canopies Measured:** 14' x 240'
- **Main Roof Pitch:** ½-12; canopies: 14:12
- **Project Size:** 202kW
- **S-5! Products Supplied:**
  - PVKIT® 2.0 (1,154)
  - S-5-T Mini clamps (864)
  - S-5-E Mini clamps (290)

Annual Environmental Savings Results:	
221	Tons of Carbon Dioxide
441,089	Pounds of Carbon Dioxide
42	Cars Removed from Road
504,102	Miles Driven
22,737	Gallons of Gasoline
5,129	Trees Planted
164	Acres of Trees Planted
18	Homes Powered
4,476	Light Bulbs Powered

Graphic courtesy of solar installer, SPEIR Innovations LLC

The Project

S-5!, the originator of and leading authority on prudent metal roof attachment technologies, recently completed a 20,000+ square foot expansion of its state-of-the-art manufacturing facility in Iowa Park, Texas, including the addition of 202kW of rooftop solar PV.

Beginning in 2011, S-5! renovated and repurposed an old Walmart store into its manufacturing facility with retrofits of energy-saving space conditioning, lighting, re-insulation, office additions, security measures, an architectural face-lift and solar PV. This new addition takes the company's ongoing environmental initiatives a step further.

The expansion, designed to house a raw material warehouse and additional manufacturing capabilities, utilized green building components and has quadrupled the facility's solar power generation, providing an estimated 36% of the plant's total consumption.

The addition features standing seam metal roofing with solar modules secured in place using S-5!'s very own products manufactured at the plant—the **PVKIT® 2.0** along with the **S-5-E** and **S-5-T** Mini clamps. The solar installation–generating 300,000 kWh–will save the manufacturing plant thousands of dollars each month on its electric bills.

The Challenge

There was no shortage of challenges on this project. Ongoing delays due to the pandemic, heavy spring rains, labor shortages, subcontractor availability and the 2020 Texas deep freeze regularly interrupted the construction schedule.

Coordination of site logistics so that 24/7 plant production would not be impeded along with staging/moving equipment, re-configuring the whole plant, and material flows presented many challenges. Determining how to tie the buildings together with drastically different site grade elevations and marrying the canopy roofs added another layer of difficulty. Managing this construction project along with two others in Colorado, while simultaneously coordinating the solar design and installation for all three, presented additional challenges.

The Solution

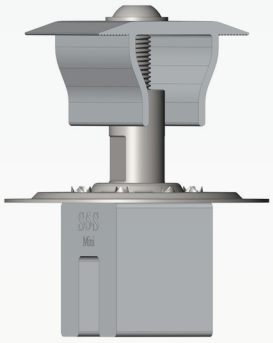
Hiring good, reliable local folks was the key to success. Because of S-5!'s trusted relationships with the general contractor and subcontractors, the Texas expansion project was completed in a timely manner without disruption to 24/7 production.

The manufacturing plant wanted to supplement its power generation by adding solar PV to its electrical infrastructure. There are plenty of environmentally conscience reasons to make energy from the sun to run the facility, but federal and local incentives turned the cost into a sound investment by anybody's measure.

For many years, there have been federal tax incentives that allow up-front tax credits, putting cash in people's pockets. The federal Investment Tax Credit (ITC) is a direct tax credit of 30% of the total solar system cost on this project. In addition, the Modified Accelerated Cost Recovery System (MACRS) allows the solar asset to be depreciated in the first year, bringing positive cash flow through the equation. Those factors raise the IRR to about 21%, allowing the system to pay for itself (with energy savings) in about six years. That's a sound investment, but there's more…

Next, many utilities have incentive programs to increase the use of solar energy as a source of electricity. These programs widely vary; Oncor Electric in Texas provides a 25% rebate-grant to the total cost of a solar system. That brings the total incentives to about 80% of the cost, reducing the payback period even more to three years or less (depending on some variables). This investment is now looking better and better!

One final incentive was the plant's eligibility for a grant from the USDA for rural businesses from the Rural Energy for America Program (REAP). These REAP grants can be as much as 25% of the cost of solar, essentially reducing the PV system cost to zero. While qualifying for multiple sizable incentives such as this is rare, even being able to get tax credits, rebates or grants from one or two programs helps make installing a solar PV system a sound investment.



PVKIT® 2.0

"S-5! continues to grow and expand, and remains future-forward thinking focused on constant development and growth. The eco-friendly building addition enables us to double our production capacity. In 2011, the city of Iowa Park made us a sale offer on the building that we couldn't refuse, and in return, we have created many new local jobs to date as our business continues to grow. Iowa Park and the State of Texas understand economic development, and we are grateful and responsive to that. It just works."

—Harry Carner, Vice President, S-5! Manufacturing