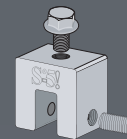
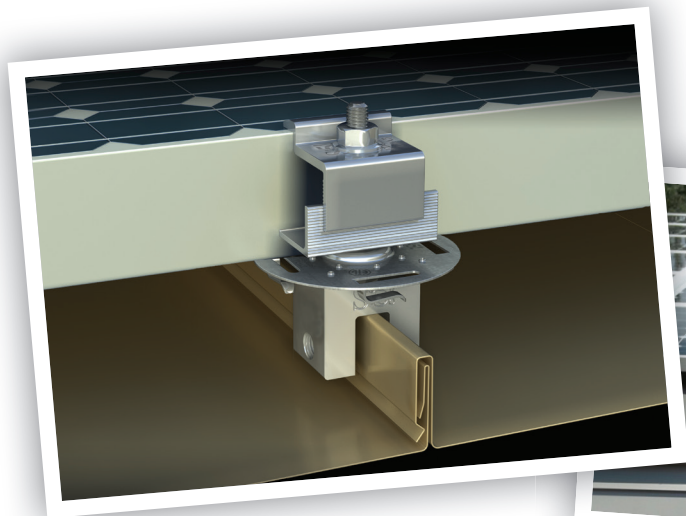


# Solar Array Installation Orchard Park, New York



“ We choose S-5! for their reliability and great technical support. This installation is in a snow belt so proper attachment was crucial. Being able to install the system without penetrating the metal roof also helped us sell the project to the customer.

Deborah Zarbo  
Alternative Engineer,  
Frey Electric Construction



## At A Glance:

**Customer:**

Frey Electric Construction  
Tonawanda, NY

**Location:**

Orchard Park, NY



**Industry:**

Golf Course

**Situation:**

Harvest Hill Golf Course was in need of an easy solution to retrofit PV arrays to existing cart-house structures without penetrating the standing seam metal roof panels.

**Results:**

Frey Electric, commissioned for the project, turned once again to S-5! to provide a strong, non-penetrating mounting solution that could withstand the 12:12 pitch. Within only 18 days, the 37.44 kW system was commissioned. It is expected to produce 20% of the golf course's annual energy consumption.

**Stats:**

- Array Total = 37.44 kW
- Annual AC Production = 36,262 kWh
- Atas Dutch Seam 15" 24 gauge standing seam metal roof
- 144 Helios Solar Works modules
- 800 UL/ETL Listed S-5-PV Kits
- 800 S-5-S Mini Attachment Clamps
- 250 S-5-PV Kit EdgeGrab™ components
- 12 modules per source circuit
- 3 source circuits per inverter

### ■ Not Part of the Original Project Design

Harvest Hill Golf Course, located near the border of West Seneca and Orchard Park, New York, completed extensive renovations in May 2013. After a new clubhouse, two cart houses and a tournament pavilion were finished, Harvest Hill contracted Frey Electric to install a solar harvesting system to the cart house structures to partially offset the cost of operations.

According to Deborah Zarbo, Alternate Engineer at Frey Electric, "While the PV system was not part of the project's initial design, the arrays were relatively easy to integrate with the cart house buildings."

### ■ What Worked?

S-5!'s patented solar attachment technology was perfect for this retrofit project.

The S-5-PV Kit is a cost-effective DirectAttached™ solar mounting solution that provides module-to-module conductivity, drastically reducing the need for costly copper wire and lugs. Installation is quick and easy, saving additional costs during labor.

The S-5-PV Kit utilizes the extensive line of profile-specific S-5! mini attachment clamps for maximum holding strength without damaging the roof membrane or voiding the roof manufacturer's warranties. The astounding holding strength of S-5! mini clamps provides a permanent solar attachment, even on a 12:12 pitch.

Within only 18 days, the 37.44 kW solar project was complete and the system was commissioned in July, 2013.

### ■ Long Term Outlook

Because the steep slope allows snow to shed quickly from the PV modules, the system's energy output is actually higher than the projected values. The array is now expected to provide 20% of Harvest Hill's annual power requirements.

Because roof penetrations weren't made, leaks and weathering will not occur at the system's attachment points, and the mounted solar array will not jeopardize the roof manufacturer's warranties.