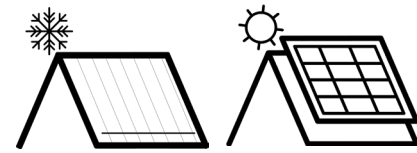




# Case Study — The Net Zero Home

**ColorGard® | PVKIT® | PVKONCEAL™**



## At-A-Glance

### Project Name

The Net Zero Home

### Location

Piscataway, NJ

### Architect

Square Center LLC Architecture and Design

### Design Build Contractor

Suntility Home

### Roofing Contractor

MBL Construction

### Solar Installer

Suntility Solar

### Module Manufacturer

DualSun SPRING® hybrid solar panels

### Microinverter Manufacturer

Enphase

### Battery Storage

Nine Tesla Powerwall® storage batteries (7.6 kilowatts each)

### Roof Profile

Englert A1500 snap-lock architectural metal roof system

### Industry

Residential

## The Situation

Suntility Home needed both a penetration-free, fully engineered, aesthetically pleasing solar attachment solution and an engineered snow retention solution that would both match the roof and last the life of the roof.

## The Result

They selected S-5! attachments. The PVKIT pre-assembled components provided a simple, economical method for installers to “lay & play” modules with tested, engineered, attachment of modules to all metal roof types. ColorGard was custom-designed and engineered for this project to mitigate potential rooftop avalanches, which could pose a serious threat to residents and property below.

## Project Stats

- **Roof Measured:** 5,000+ square feet on the main roof + the outdoor adjacent kitchen
- **Roof Pitch:** 24 degrees
- **Solar Project Size:** 31+ kW, 80 rooftop hybrid solar modules
- **Products supplied:**
  - ColorGard® 8' long sections (352 ft.)
  - S-5-S™ Clamp (166)
  - Snoclip™ II (147)
  - PVKIT® in black (360)
  - S-5-S™ Mini (360)
  - PVKONCEAL™ (56 ft.)



## The Project

Located in the historic district of Society Hill in Piscataway NJ is “The NetZero Home,” a sprawling, state-of-the-art 6,000-square-foot LEED Platinum Certified residence built solely with sustainability, energy efficiency and comfort in mind.

With its impressive facade durably constructed of insulated concrete forms and draped with fiber cement siding featuring both vertical and horizontal patterns for a striking effect, this innovative structure is accentuated by handsome cultured stone finishes and two grand stone columns at its entrance.

The subtle look of the travertine walkways intermingled with accent stone, cable railings and cedar accents (struts and soffits), complement the assortment of earth tones, all brought together by a dark bronze standing seam metal roof, providing a clean, crisp finish to this classic, contemporary home.

Run solely on renewable energy sources, every aspect of the home’s design was calculated to conserve energy and capture as much of the sun’s energy for heat in the winter and cooling in the summer. The home features a 31+kW PV solar system on its south-facing roof and nine Tesla Powerwall® storage batteries (7.6 kilowatts each) as a supplemental power source.

The **PVKIT** Direct-Attach™ rail-less, solar mounting solution secures 80 LG high-efficiency solar panels in place, and the **PVKONCEAL** module skirt conceals the lower edge of the modules and all mechanical and electrical components underneath. The roof also features the complete **ColorGard** snow retention system.

## The Challenge

There were numerous challenges on the project, not to mention the ongoing supply chain issues and work stoppages due to the pandemic.

The main metal roof is a fairly complex design with a variety of angles, cuts and intricate roof details. Because it is a custom-built home with so many environmental objectives and requirements, the roof installation was even more complex.

Additionally, Suntuity Home desired quality roof attachments for this new high-end roof. Aesthetics, durability, perfect color and finish-matching, and penetration-free attachments that would maintain the roof's integrity, were all crucial factors in selecting rooftop attachments.



## The Solution

The metal roof panels, made from 25% recycled material, are environmentally friendly and are LEED and ENERGY STAR® compliant. The low-gloss, IR-reflective coating helps reduce energy consumption and will keep the roof surface approximately 60-70 degrees cooler during the summer months.

The roof also serves as the ideal platform for solar integration since the solar panels could be mounted directly onto the standing seams of the roof utilizing S-5!'s penetration-free, solar solution. The PVKIT Direct-Attach system was selected for its strength, durability and ease of installation.

S-5!'s new PVKONCEAL module skirt creates an attractive, clean finished look. It also keeps critters, debris and other unwanted objects out from under the solar array.

Additionally, S-5!'s ColorGard mounted to every roof surface protects the grounds from dangerous melting snow and ice sliding off the roof. ColorGard was chosen for its excellent performance, compatibility with Englert's standing seam panel design and aesthetics.

## Long-Term Outlook

**With strong support for this pilot project, Suntuity Home hopes to set a new visionary trend for sustainable homeownership throughout the country.**

**The S-5! attachments enabled them to achieve the quality look they wanted, maintain the roof's integrity, complementing the look of the roof, with a clean appearance and perfect color and finish-matching, designed and engineered to last the life of the roof.**

### Additional Environmental Features

- ✓ Warmboard geothermal heating system to heat the entire home
- ✓ 5-zone cooling system that follows the path of the sun from East to West
- ✓ Dual hybrid backup heat pump system
- ✓ 100% LED lighting throughout
- ✓ 3-pane, argon-filled Low E windows
- ✓ Panoramic doors
- ✓ 18,000-square-foot rain catchment system that will save and recycle up to 40,000 gallons of water per year
- ✓ 29,000-gallon infinity pool

### How Did the S-5! Products Help?

- ✓ Provided the aesthetic solution the contractor desired
- ✓ Reduced labor hours by eliminating the assembly and installation required by traditional railed solutions
- ✓ Minimized the amount of time workers spent in harness
- ✓ Snow retention provided safety measures to residents and property below
- ✓ Reduced the amount of product and cost required due to S-5! engineered system capacity
- ✓ Eliminated the risk of a voided roof manufacturer warranty—no holes/no damage

**"We are so confident in S-5! products that we selected them as a partner in one of our most important and high profile endeavors to date, our Net Zero Home Program. S-5! roof attachments are a game-changer and the gold standard in the industry — more importantly S-5!'s commitment to quality and innovation aligns perfectly with our own core philosophy. We are proud of our association with S-5!, and we look forward to partnering with them in providing renewable energy solutions to building owners and homeowners for years to come."**

**—Mitch Gaber, Partner Development, Suntuity Solar**



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