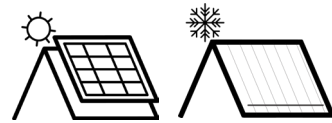




Case Study — The University of Kansas Studio 804

PVKIT® Black | ColorGard®



At-A-Glance

Project Name

432 Indiana Street House

Location

Lawrence, KS

Architect

Studio 804

General Contractor

Studio 804

Module Manufacturer

Q-Cell Q.Peak Duo

Inverter Manufacturer

Enphase

Roof Profile

1¾" snap-lock standing seam (16" pan width)

Industry

Residential

The Situation

The students had clearly defined sustainability goals and set out to achieve LEED platinum status with a solar PV mounting system that provided a simple, economical and penetration-free method for direct attachment of modules to the roof. They also required a fully engineered snow retention system that would both match the roof and last the life of the roof.

The Result

They chose the low-profile PVKIT solar mounting solution (in black) that is warranted for the life of the solar system, has aesthetic appeal and did not damage the roof. And they were able to reduce the home's electricity consumption by about 85%. ColorGard was custom-designed and engineered for this project to mitigate any potential rooftop avalanches causing harm to residents or property below.

Project Stats

Roof Measured: 2000+ square feet on the main house + detached garage with an accessory dwelling unit

Roof Pitch: 45 degrees

Products Supplied:

- ColorGard® 8' long sections (170 ft.)
- S-5-S™ (126)
- SnoClip™ III (122)
- PVKIT® in black (48)
- S-5-S™ Mini (48)



The Project

Studio 804 is a hands-on learning program at the University of Kansas for graduate students in their final year of studies seeking a Master of Architecture degree. Founded in 1995 by Professor Dan Rockhill, each year students design, procure and execute a complete house in just nine months.

The 432 Indiana Street House is the 16th consecutive LEED Platinum project completed by Studio 804. This residence is located in the historic Pinkney Neighborhood, one of the oldest in the city of Lawrence, Kansas. It is a short walk to parks, the Kansas (KAW) River and the cultural vibrancy of downtown Lawrence. It is a perfect location to appreciate the history of Lawrence while addressing the future of sustainable living. The building site was an overgrown infill lot surrounded by a deep ditch that drains the neighborhood stormwater runoff to the Kansas River. It had been vacant for years and required attention to avoid problems with trash and vagrancy.

The 1800-square-foot home and adjacent 500-square-foot accessory dwelling unit are (wall-)clad in glossy black fiber cement panels and topped with a 24-gauge matte black standing seam metal roof. The roof features a 16-panel solar array of Q-Cell Q.Peak Duo 400W modules secured in place with the S-5! PVKIT® and is expected to offset approximately 85% of the homeowner's energy consumption. The roof also features the complete ColorGard® snow retention system.



The Challenge

The students experienced many project challenges during the construction of the roof. The extreme angle of the roof (12:12) made working on it a challenge from start to finish. Supply chain issues also presented difficulties for the delivery and installation of the roof materials. With a hard deadline fast approaching, Studio 804 needed a solution for the solar array and a snow retention system that would be quick and easy to install (by the students) yet high-quality and able to meet the architectural language of the project.

Rooftop solar was a necessary design component to achieve Studio 804's sustainability goals, to obtain LEED platinum status and to supplement the energy consumption of the residence.

Additionally, to protect the home and homeowners from any potential damage or harm caused by a potential rooftop avalanche due to the steepness of the roof, a snow retention system was a must. The project required a product that complemented the aesthetic vision, in addition to a durable, maintenance-free system that would not penetrate the concealed-fastened roof.

The Solution

The students chose the PVKIT direct-attach™ solar solution and the ColorGard snow retention system by S-5! to achieve their goals.

The PVKIT helped Studio 804 complete the project on time due to the reduced time required to install the rail-less solar PV system. Having minimal hardware to install on the steep-sloped roof allowed students to complete the installation in just a couple of days. This helped Studio 804 achieve the simplistic gable form while not penetrating the roof.

After the PVKIT installation was completed, Studio 804 again turned to S-5! for a snow retention system that would last for decades to come. S-5! ColorGard was the perfect solution for Studio 804 as it blended form and functionality perfectly. The clean datum line it provides along the eaves of the roof does not distract from the architectural form Studio 804 set out to achieve. The ColorGard system also provides the safety and functionality Studio 804 wanted for the winter months.

Long-term Outlook

The S-5! attachments enabled Studio 804 to meet its sustainability goals, achieve the quality look they wanted, maintain the roof's integrity and complement 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

- Curtain wall units are salvaged from a failed commercial project
- Exterior louver shading system maximizes passive heating/cooling strategies
- Mini-split system for heating and cooling interior spaces
- Hybrid hot water heater with heat pump technology
- 100% LED lighting throughout
- Permeable driveway
- Rain garden with native plants captures stormwater from the site while encouraging biodiversity

How Did S-5! Products Help?

- Provided an aesthetic solution that met and exceeded the design goals
- Reduced time spent on installation allowing the project to be completed on time
- Snow retention provided safety measures to residents and property below
- PVKIT reduced the amount of product required due to S-5! rail-less system
- Eliminated the risk of any potential leaks—no holes/no water penetration

“Each year, we complete a house or a university-related commercial building, alternating between standing seam roof and flat roof projects. For each metal roof project, we incorporate S-5! Normally, we prefer a pitched roof form and a high gable roof to take advantage of the full interior height without interruption to the floor plan, so directly attaching the PVKIT to the standing seams makes our job quite easy in comparison to the alternative flat roof system, which requires a fairly expensive support system. Integrating into the standing seam saves us thousands of dollars, and S-5! is quick and easy to install.”

—Dan Rockhill, Professor, University of Kansas School of Architecture & Design; Founder, Studio 804



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