

Case Study: Photovoltaic system integrates with existing cool roof for energy savings and energy generation



Description: The Engineering Club at the Clearwater campus of Saint Petersburg College was hard at work researching cutting-edge solar technologies for their new 17.5-million-dollar science and math building. The structure had already achieved LEED-Gold Certification: laboratories, classrooms and offices had the latest energy-savings and performance features, including R-16 insulation and a Johns Manville GlasKap CR cool roof. These future environmental leaders wanted more. They sought to turn the roof from a maintenance expense to an energy-generating asset.

Challenges: The solar solution needed to integrate with the roofing system installed in late 2008, without compromising its 20-year guarantee. Roof penetrations could not be allowed to interfere with performance – there needed to be uninterrupted coverage. The solar components had to withstand frequent gale-force winds along the coast in what is known as “hurricane alley.” There were many solar options from which to choose, but only one company could provide a single-source turnkey solution with a portfolio of systems to address different owners’ needs, locations and building requirements: Johns Manville.

Solution: Students and administrators knew that Johns Manville’s JM E³co. was dedicated to emerging technologies. Teaming with roofing consultant Howard Piper, McEnany Roofing and Contracting and the JM Eco-leadership™ Company, a 3.46 kW roof-integrated thin-film photovoltaic system (known as JM E³co. PowerBlanket) was recommended and installed over a five-day period. “After just three months, the production of electrical energy is already exceeding our expectations,” reports professor John Williams. “The fleece-backed solar blankets adhere to the existing GlasKap CR roof with JM MBR Bonding Adhesive so winds can’t sweep under these solar components and blow them away.” It was the “obvious choice,” according to Williams. The system is expected to generate an estimated 5 megawatt hours of electricity annually for the building.

As a learning institution, it was important to the college to have a comparative system for data collection and to help quantify the savings of a solar system for the college. An identical test system was installed at JM’s Technical Center in Denver. “Now we can study the effect of different latitudes, elevation, temperature, and atmosphere on energy generation, while making comparisons between the systems. Our goal is to take photovoltaic campus-wide. Imagine what a 50 kW system could save the college,” exclaimed Williams.

Location:

Clearwater, Florida

Building Representative:

Saint Petersburg College

John Williams,
Professor of Physics and Astronomy
and Engineering Club Advisor

Roofing Consultant:

Piper and Associates, Inc.

Howard Piper

Contractor:

McEnany Roofing and Contracting, Inc.

Michael McEnany, President

JM Peak Advantage® Peak Contractor

Roofing System Solution:
Roof-Integrated Photovoltaic
20-Year Peak Advantage® Guarantee

Hybrid JM SBS/BUR Roof System
GlasKap® CR Cool Roof Membrane
MBR® Bonding Adhesive
JM E³co. PowerBlanket™

LEED® is a registered trademark of the U.S. Green Building Council.