Project Profile

Project
St. Louis Art Museum
St. Louis, Missouri

Owner
St. Louis Art Museum

Roofing Contractor
Bi-State Roof Systems, Inc.
Valley Park, Missouri

General Contractors
Tarlton Corporation
St. Louis, Missouri

Pepper Construction Group
Chicago, Illinois

KAI Design & Build
St. Louis, Missouri

Roofing System
Adhered EnergySmart Roof® using 60 mil Sarnafil® G410 membrane in white

Project Size
38,000 square feet

Completed
April 2012

Sarnafil Roof a Modern Solution to Protecting Contemporary Art

The St. Louis Art Museum, built in 1904 for the Louisiana Purchase Expedition, recently added a new 200,000-plus square foot East Wing, increasing the museum's total public space by 30 percent and adding 21 new galleries, many designed specifically for displaying modern and contemporary art.

"The new addition houses precious artifacts that are best displayed in a field of filtered natural light, filtered air, controlled temperatures, and exact humidity levels," explained Adrian McWherter, project manager at Bi-State Roof Systems, Inc. of Valley Park, Missouri. "The interior conditions are constantly being monitored and adjusted by a computer to make sure the correct climate levels are maintained at all times."

With so many precautions being taken inside the East Wing to make sure the interior environment is kept at optimum levels, it is no surprise that a lot of care was taken to make sure the outside of the museum also offers protection from the elements. "The number one barrier from the ever-changing outside elements is the Sika Sarnafil EnergySmart Roof membrane," McWherter said.

A Proven Performer with a Long Portfolio

Why the Sarnafil EnergySmart membrane? "The original specification was for a TPO membrane," McWherter stated. "But we've installed Sika Sarnafil roofs for more than 15 years and believe it is superior to other roof systems out there. Plus, the museum has experience with the EnergySmart membrane and likes how it performs."

The Sarnafil roof was installed with the Electronic Field Vector Mapping® grid, which uses pulses of low voltage electricity to detect roof system breaches. This provides additional assurance that the roof is leak-free and that the priceless contents of the museum will be protected.

Another advantage of the EnergySmart membrane was that it could be used on roof areas that were far from typical. "This project was 100 percent custom from start to finish," said Brian Peter, project executive of Pepper Construction Company of Chicago, one of the general contractors on the project. "There were metal panels, internal gutters, and 377 skylights, which meant there were lots of ups and downs, turns and corners."

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A Montage of Different Decks

There were also three different types of decks involved in this project, "each requiring special detailing and attention," according to McWherter. In the Main Gallery area of the new East Wing the roof structure was poured concrete in a series of tray-vaulted coffered ceiling openings. Each opening was covered with a glass skylight, and ¼ inch thick steel troughs with canted edges were placed between each opening and welded end-to-end to create a series of drainage canals to carry the rain water to hidden roof drains on the perimeter.

"The Sarnatherm roof insulation and the gypsum cover board had to be custom cut in our shop so they would fit tightly in each trough," McWherter stated. After the insulation, EFVM grid, and gypsum board were installed on the steel deck, the EnergySmart membrane was then adhered to the cover board. "Planning was critical because the roofing system had to be installed the same day the steel troughs were put in and welded together," he added. "All the membrane seams had to be hand welded and everything had to be totally watertight each night."

"The terminations to the skylight roof system were very complex and required a lot of input from Sika Sarnafil and Bi-State," remarked Anthony Alleman, project manager at Pepper Construction Company. "One big challenge was the profile of the actual gutter, which was two feet deep and three feet wide. "

The roofs over the classrooms and public areas included an exposed EPIC deck — a metal deck with narrow flutes very close to each other for a more attractive exposed ceiling inside. "We had to screw insulation into each rib in a way where the fasteners were not seen," McWherter explained. "Membrane was adhered to the metal deck laps and ends, sealing the joints of the EPIC deck."

A structural concrete deck was installed over the mechanical equipment "well" and the kitchen area, which required tapered insulation and special flashing details to tie the well into the main roof area membrane.

All of this work was done during winter, which required storing roofing materials in the recently completed underground parking area and using heaters to keep the materials warm and ready to be used as needed.

After the roof on the East Wing was completed, Bi-State was asked to reroof a portion of the original 1904 building with the EnergySmart membrane. "The 'Friends Auditorium' is located on the upper level and required us to remove the old roof and bring it to ground level," McWherter stated. "Careful planning and safe movement of the old materials was an absolute must."

Installation Earns Rave Reviews

Throughout the installation, Sika Sarnafil representatives were available for technical support. "They were very good and discussed details and options for where the gutter troughs ran into the perimeter," McWherter commented.

Alleman added, "The Sika Sarnafil representatives were very helpful. They brought some good ideas to the table and we used them."

Peter and Alleman were also very pleased with Bi-State Roof's work on this project. "They worked well together professionally and did a great job," Peter remarked. Alleman said he was so impressed that he wrote a letter of recommendation for Bi-State.

It was this professionalism that earned Bi-State Roof Systems Second Place in Sika Sarnafil's 2012 Contractor Project of the Year, Low Slope Category.

A Masterpiece of a Roof

Today the roof is performing as expected and is keeping contents and the 500,000 annual visitors to the Museum dry and comfortable. "The quality control person at Pepper Construction Company came out and did an extremely thorough on-the-spot inspection of the roof," Peter said. "He thought we had done the right thing by going with the EnergySmart membrane and Bi-State Roof Systems."

McWherter added, "The St. Louis Art Museum was so pleased with how the roof turned out that they recently awarded us another Sika Sarnafil project in another area of the museum. You can't ask for a better sign of customer satisfaction than that!"

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