

Project Profile



Project

Ronald Reagan Washington National Airport
Terminals B and C
Washington, DC

Owner

Metro Washington Airports Authority

Architect

Metro Washington Airports Authority
Washington, DC

Roofing Contractor

Pioneer Roofing Systems
Lorton, VA

Roofing Systems

Décor Roof System[®], using 80 mil, G410
feltback membrane in custom "Threshold"
gray

Project Size

26,000 square feet

Completed

September 2005

Sika Sarnafil's Décor Roof System Solves Problems with Leaking Metal Roof

When the new metal roof at Ronald Reagan Washington National Airport started leaking, the Metro Washington Airports Authority (MWAA) found themselves almost literally over a barrel. The distinctive stainless steel roof on Terminals B and C had 10 barrels and 10 valleys -- and had been leaking steadily since shortly after the new terminals opened in July of 1997.

"The roofs leaked continuously from day one," said Steve Wann, president of Pioneer Roofing Systems of Lorton, VA. "This was due to many reasons, most caused by faulty installation." Joe Shuffleton, president of Engineering and Technical Consultants, Inc. of Sterling, VA added, "In a city of monuments, this monument had a black eye."

Faulty Installation the Culprit

Many of the installation issues were caused in part because of the way the stainless steel metal sheets were soldered together.

The heat of the soldering damaged the waterproofing-type submembrane and the rosin paper underneath. The soldering did not hold up well to the roof's movement, so some moisture also came through the cracked soldering.

"The first roof was a total disaster," Wann stated. "They needed a solution that would not fail."

Sika Sarnafil Offered a Cost-Effective, Aesthetic Solution

Engineering and Technical Consultants, acting as subcontractors to engineering consultants Dewberry, put together a study and proposal listing the pros and cons of different solutions. Two options involved repairing the 26 drains and patching the roof and valleys, one option was replacing the metal roof with another metal roof, and the fourth option was using the Sarnafil Décor Roof System[™], which provides the look of a metal roof with the advantages of a heat-weldable, single-ply PVC membrane.

Sika[®]

Sarnafil[®]

"Any repairs would involve taking off the stainless steel roof because of the problems with the submembrane underlayment, and once you take stainless steel off it is tough to put it back on. Our analysis was that it was cheaper to take the stainless steel off, fix the underlayment and put on a different membrane that was aesthetically acceptable," Shuffleton explained. "The Décor Roof system would do a good job approximating the appearance of the stainless steel, could accommodate the barrel-shaped roof, and it also offered the chemical resistance needed at an airport."

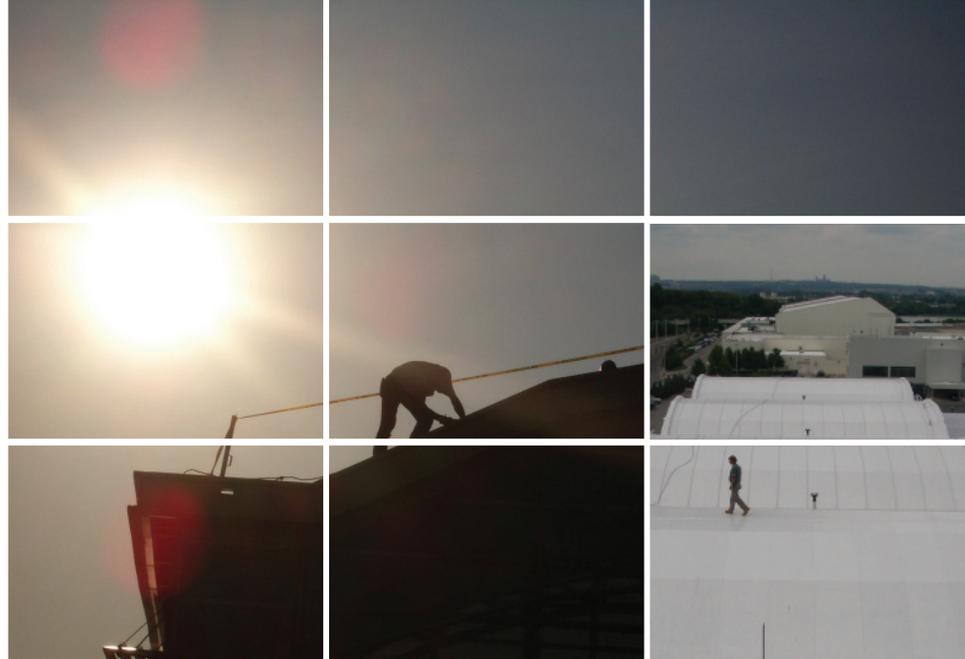
There were other advantages with the Décor Roof System. The cost of installation was lower, it had a 20-year manufacturer's warranty, and it was easier to identify and repair leaks than with a metal roof.

The nearby Union Station in downtown Washington, D.C. was viewed as an example of a Sika Sarnafil adhered roof in action on a barrel shaped roof. This roof was retrofitted with G410 Sarnafil roofing membrane after the original metal roof leaked. The fact that this roof had performed well in winter under lots of snow and water spoke well of how the Sika Sarnafil roof would perform at the airport.

Installation Quickly Provides Solution

The new Sarnafil Décor Roof System was installed by Pioneer Roofing and while it took over a year to completely install, the contractors were considered heroes in short order. "As soon as they started work and took care of certain sections of the roof, the leaks stopped," Shuffleton said. "From the moment these guys stepped foot on the roof there was instantaneous satisfaction."

"The installation was done in two phases – starting with the B terminal, which was leaking the most," said Dave Mowry, project manager at Pioneer Roofing. "During the first stage of installation we had the area waterproofed in six days, which was very much appreciated."



The Sarnafil Décor Roofing System being installed by Pioneer Roofing Systems on the Ronald Regan Washington National Airport Terminals B and C.

According to Wann, the installation involved tearing off the stainless steel metal and replacing any damaged submembrane. Dens-Deck™ was then installed over the existing insulation assembly, and then the 80-mil feltback Sarnafil membrane was adhered.

"This was a very cool project because we basically took what was architecturally designed to be a metal roof and got the same look with a single-ply membrane," Wann stated. "In the process we went from a roof that had many leaks to one with no leaks."

The installation was not without its challenges. Safety and security were two major issues. "The barrel shape of the roof required safety measures for the workers such as a perimeter warning line, a full-time, on-site safety monitor from Pioneer Roofing, and ensuring all men working on the edge of the roof were permanently tied off," Mowry said.

Another challenge was waiting for the special-ordered metal copings to arrive. "It took two months to get the metal, so we actually left the job site during that time," Mowry

explained. "Once the copings were in we installed them and the Décor profiles, which went up and over the barrel. That process only took about three days to install."

After seeing how well the B terminal installation came out, the green light was given to Pioneer Roofing to do the C terminal, which was started in the spring of 2005.

A Leak-Free End Result

According to Shuffleton, the new Sika Sarnafil roof has performed "almost flawlessly" since it was installed and he would "absolutely" recommend the Décor system again. "This is definitely an option to consider for the right application," he added. "Sarnafil is a very good company to work with and one of the best – if not THE best – in the area of PVC membranes."

Wann agreed. "Sarnafil's quality of product is second to none. The Décor Roof System resolved both the aesthetic issues and had the flexibility and waterproofing to keep the airport dry," he said. "I think the Décor system is a phenomenal roof system."

To learn more:

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