

Project Profile



Project

United Airlines Cargo Facility
O'Hare International Airport
Chicago, Illinois

Owner

City of Chicago

Roofing Contractor

A-1 Roofing Company
Elk Grove Village, Illinois

Architect

Ghafari Associates
Chicago, Illinois

Vegetated Green Roof Contractor

Robert Ebl, Inc.
Carol Stream, Illinois

Roofing System

Vegetated green roof system
(105,000 sq. ft.) and adhered
60 mil Sarnafil® G410 membrane
in white (135,000 sq. ft.)

Project Size

240,000 square feet

Completed

September 2011

Airport Facility Sticks with Sika Sarnafil Roofing System

One of the best tests of roof performance is severe weather. One roof that passed this test recently with flying colors was the roof of the United Airlines Cargo Facility at O'Hare International Airport. "In spring of 2012 we had a number of severe storms with wind shears and gusts of 60 – 70 miles per hour," said Dave Brandenburg, director of design and construction for United Airlines. "While there was quite a bit of storm damage around the airport, including a wall being blown down on one of our hangars, our new roof had no damage whatsoever."

That new roof was the Sika Sarnafil adhered EcoBond Roof, which was selected for the United Airlines Cargo Facility after meeting several requirements.

"As an airport we wanted a non-ballasted system because we obviously can't have any debris flying off the roof," explained Brandenburg. "We also wanted a roofing membrane that could be installed quickly." Wind uplift was also obviously a consideration. But the biggest concern, he said, was selecting a roof membrane that would be compatible with a green roof.

As part of the O'Hare Modernization Program (OMP), the United Airlines cargo facility roof had to meet the City of Chicago's criteria for vegetated green roofing. This meant that 105,000 square feet of the new 240,000-square-foot roof would have green landscaping.

Doug Kren, project manager at Ghafari Associates of Chicago, the architects on the project said, "We looked at some options such as TPO, but they did not have a proven track record with vegetated roofs. It was recommended that we stick with Sika Sarnafil, and that's what we were most comfortable with because of our experience with them in the past."

"I've worked with Sika Sarnafil for 12 years and find they are very involved in green roofs and are very quality conscious," remarked Karen Morby, project manager at Robert Ebl, Inc. of Carol Stream, Illinois, the vegetated green roof contractor. "Our green roof system provider on the job, Roofmeadow, Inc. of Philadelphia, also has a long history with Sika Sarnafil. I also like how the Sika Sarnafil membrane serves as a root barrier."

Sika®

Sarnafil®

One factor that added to that comfort zone was the Sika Sarnafil roofing system that had been installed on the FedEx Relocation Facility at O'Hare in 2010, which also had a large green roof. "The fact that the Sika Sarnafil roof on the FedEx site was performing well definitely played into our decision to go with the Sika Sarnafil system," Brandenburg stated.

In addition, it was agreed that an Electric Field Vector Mapping® system (EFVM®) would be installed, which uses low voltage electricity to identify breaches on the roof. "The concept of EFVM is phenomenal," Brandenburg said. "Anything that will pinpoint a leak right away is good for the building owner."

A Sticky Installation

The roof installation started with a double layer of Sarnatherm 1.7 isocyanurate PSI 25 insulation mechanically attached. On the green roof sections a stainless steel screen for the EFVM system was installed over the isocyanurate, followed by numerous tapered saddles and a ½ inch of gypsum-based cover board. Finally, the G410 60 mil Sarnafil membrane was adhered using the water-based Sarnacol® 2121 low VOC bonding adhesive. The assembly met the requirements necessary to achieve an 1-90 FM rating

A-1 Roofing of Elk Grove Village, Illinois was hired to install the very large roof, but immediately faced delays due to a wet spring. "We couldn't start installing the roof until mid-July, and United Airlines wanted the building to be under the roof by mid-August," David Rabin, vice president at A-1 Roofing explained.

Rabin said one of their first challenges was figuring out how to apply the water-based adhesive in an efficient manner for a roof of this size. "The Sika Sarnafil representative suggested we spray on the adhesive instead of rolling it," Rabin stated. "So we tested and adapted our small Graco sprayer to apply the adhesive."

The spray technique "really added to our production," Rabin commented. "There



was less waste, and the set-up time of the adhesive was almost instantaneous. Thanks to the spraying technique we were able to achieve an installation rate of 20,000 square feet a day in the open field."

Since this procedure had never been done in the Midwest, Sika Sarnafil representatives were close at hand to make sure the adhesive formed a secure bond. "They actually took a toilet plunger and spent the entire day trying to separate the membrane from the substrate," Rabin said. "They took a lot of care into making sure the adhesive worked. In the end, it passed beautifully."

Thanks to the hard work of both A-1 Roofing and Sika Sarnafil, the roof was done on time. "A-1 performed very well," Brandenburg



commented. "They did a great job installing a very durable roofing system."

"A-1 Roofing had a high quality standard and I was very happy with their work," Kren added.

It was this professionalism and creative problem solving that earned A-1 Roofing Company Second Place in Sika Sarnafil's 2011 Contractor Project of the Year, Waterproofing Category.

A Good Fit

Today, despite the occasional severe weather, the Sarnafil and green roofs are both doing well. "There are no leaks and the spray adhesive method has done so well that we have plans to use it again on some future jobs," Rabin stated.

Kren added, "We are very happy with the roof and would definitely suggest the Sarnafil roof again. In fact, it is now our recommended roof for green roof installations."

After seeing firsthand how well the Sarnafil roof can perform under adverse circumstances, Brandenburg said he would "absolutely" use the Sarnafil system again. "We wanted a long-term solution and a membrane that would perform well with a green roof, and that's what we received. It was a good fit all around and we are very happy."

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