

Project Profile



Project

University of Iowa
Greenhouse Classroom
Iowa City, Iowa

Owner

University of Iowa

Waterproofing Consultant

Shive-Hattery, Inc.
Cedar Rapids, Iowa

Waterproofing Contractor

Dryspace, Inc.
Cedar Rapids, Iowa

Waterproofing System

Adhered system, using
60 mil Sarnafil® G476
Self-Adhered membrane

Project Size

7,236 square feet

Completed

October 2008

Sika Sarnafil Waterproofing System is Clear Choice for Greenhouse Classroom

When the University of Iowa decided to replace the failing waterproofing system beneath its greenhouse classroom at its Iowa City campus, the choice of a replacement system was clear: the Sika Sarnafil Self-Adhered waterproofing system. “We had leakage problems with the original waterproofing systems and greenhouse assembly from day one,” said Jeff Hayes, design project manager at the University of Iowa. “Every time it rained, water would drip on the offices below — we had drip pans everywhere.”

The university called on architectural and engineering consultants Shive-Hattery, Inc. of Cedar Rapids, Iowa to recommend what to do with the leaking EPDM waterproofing system. “We determined the problem was improper installation of the exterior flashing, which was attached to the knee wall supporting the greenhouse, but which did not continue all the way through the wall,” Mitchell Kelchen, RRO, CDT, CSI, roofing and building envelope consultant at Shive-Hattery explained. “We did core cuts and found water under the existing waterproofing system, so we recommended it be replaced.”

Why was Sika Sarnafil waterproofing system the obvious choice as the replacement system? “We have past experience with Sika Sarnafil products at the university, and knew we could really count on their products to give us the protection we needed,” Hayes explained. “We also like that the G476 SA is self-adhered so water will not travel under the membrane. It has an edge so the seams are heat-welded and no glues or adhesives are involved.”

Sika Sarnafil’s Self-Adhered G476 membrane gives building owners and specifiers additional comfort since the membrane bonds tenaciously to the substrate, thereby preventing water migration under the membrane in the event the membrane is damaged.

G476 SA has a closed-cell foam layer to cushion and protect the waterproofing layer from irregularities in the substrate. Like all other Sarnafil membranes, the seams are hot-air welded to create a secure, watertight seal. G476 SA is a versatile, “all-in-one” product that simplifies installation and enhances productivity. Mitchell Kelchen indicated that Shive-Hattery had used the Sika Sarnafil waterproofing system on another project with good results. “It’s a great product,” he said.

Sika®

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A Pane-ful Challenge

While the decision to use the Sika Sarnafil waterproofing system was an easy one, the installation was going to be anything but easy. The greenhouse classroom was on the fourth floor of the Biology Building, which is located in Iowa City's busiest intersection. This meant there was no direct access to the roof, and that special care had to be taken to accommodate sidewalks full of students and shoppers, said Dennis Runyan, president of Dryspace, Inc. of Cedar Rapids. In addition, installing the proper flashing on the knee walls supporting the greenhouse meant lifting the 28-foot-wide, 120-foot long greenhouse — preferably without breaking any of the greenhouse windows.

"We were one of only two installers crazy enough to bid on the project," Runyan said. "Our guys love challenging work — in fact our company saying is 'If it was easy, anyone could do it!'"

"No one else wanted the headaches and risks of this job," Hayes added. "There was a big unknown in the shoring of the greenhouse — there could've been a lot of glass breakage."

A "High-Glass" Installation

The first challenge facing Dryspace was figuring out how to lift the greenhouse. "Our superintendent, Dan Remington, came up with an ingenious method to build support jacks that would attach to the structural beams without modifying or drilling holes," Runyan stated. "These jack supports and a dozen ten-ton jacks worked out quite well."

Once the greenhouse was suspended "in the air," Dryspace got to work removing the pavers and wall panels (which would be reused) and disposing of the EDPM membrane and insulation. They then installed the 60 mil G476-15 SA membrane in all the field and wall areas, and the 60 mil G410-15 membrane to the interior greenhouse walls. The Self-Adhered G476 exterior wall flashing stopped at the top of the wall, while the interior wall flashing went over the top of the concrete block wall and was subsequently hot-air welded to the exterior G476 SA. The wall flashing system was finished with a Sarnaclad cap with heat-welded joint covers. Once all the flashing



The 'Greenhouse Classroom' at the University of Iowa is located four stories up from street level in a highly congested area. Dryspace was able to lift the Greenhouse, install a new waterproofing system beneath it, and return it to its original location.

was complete, the greenhouse was gently returned to its resting place.

Runyan pointed out that during a preconstruction meeting he had been asked how much money he had budgeted for broken glass. "When I announced I had budgeted the sum of zero, the concern on the gathered faces deepened," Runyan explained. As it turned out, Runyan's confidence was justified; only three windowpanes were broken during the installation. Sika Sarnafil representatives also played an important role during the installation, Runyan said. "They were constantly involved and very thorough. They helped us with a lot of the details."

The waterproofing system also included an Electric Field Vector Mapping® (EFVM) system which consists of an impulse conductor wire that is installed on top of the waterproofing membrane and uses a low voltage circuitry to identify leaks. This system was adhered directly to the concrete substrate and the concrete acted as a ground for the EFVM testing. "We had to install the EFVM system in four different stages because we were moving pavers back and forth and didn't have much room," Runyan stated. "It was tedious but fun. Our guys love challenging work, so they were in their element."

"Dryspace did a great job," Hayes remarked. "They seem to excel at difficult projects."

Kelchen added, "Dryspace was able to address the owner's concerns about damage to the greenhouse and figure out a way to do the project with minimal disruption."

It was this professionalism and willingness to take risks that earned Dryspace, Inc. Third Place in Sika Sarnafil's 2008 Project of the Year, Waterproofing Category.

A Sparkling Future

Today the Sika Sarnafil waterproofing system is performing well. "Sika Sarnafil and Dryspace did a great job, and I'm very glad that we selected Sarnafil for this project," Kelchen said.

"We're also very impressed with the EFVM system and how easy it will be to use in the future for leak detection," he continued. "It will be great not to have to disrupt the overburden and the tables full of plants in the greenhouse if we need to identify a leak."

"I'd say the EFVM is a requirement for all future waterproofing jobs," Hayes agreed. "I was actually hoping they would find a leak during the installation so I could see the system in action. But Dryspace did too good a job for that."

Hayes added, "I have nothing but good feelings for Sika Sarnafil and its products. It's great to be able to get rid of those drip pans!"

Sika Sarnafil

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