Project Profile

Project
Orange Grove Center
Chattanooga, Tennessee

Owner
Orange Grove Center, Inc.

Roofing Consultant
Roof Design & Consulting Services, Inc.
Knoxville, Tennessee

Roofing Contractor
Total Building Maintenance, Inc.
Chattanooga, Tennessee

Roofing System
EnergySmart Roof® System
using adhered 48 mil Sarnafil®
G410 feltback membrane

Project Size
134,700 square feet

Completed
January 2008

Sika Sarnafil Roof Keeps Orange Grove Center Leak-Free

Dianne Aytes, deputy director of the Orange Grove Center in Chattanooga, Tennessee, remembers well the headaches caused by the old roofs on the training and service complex for developmentally disabled children and adults. "In heavy rains the roofs would leak and water would fall into the classrooms and drip onto the equipment," she explained. "In addition, rain would fall on the tile and concrete floors — making them very slippery. We would have buckets and barricades up everywhere to prevent people from slipping on the wet floors."

The Orange Grove Center is a private, non-profit community center that stretches about three blocks, and is comprised of buildings such as a recycling center, a gymnasium/ natatorium, an industrial training center, and a cafeteria.

The roofs of these various buildings were made of a hodgepodge of different materials. Some were EPDM, some tar and asphalt built-up roofs, some were asphalt shingles. What they all had in common was that they leaked and needed to be replaced.

Roof Design and Consulting Services (RDCS) Inc. of Knoxville, TN was asked to survey the condition of the roofs and make recommendations on the best roofing systems to replace the failing roofs. Sidney Hankins III, AIA, RRC, president of RDCS, said one of his goals was to find a roofing material that could be used on the wide variety of roof decks in the complex, which included cementitious wood fiber decks on heavy timber framing, metal decks, concrete slabs, and lightweight concrete decks. In addition, the roof material selected for the low slope areas had to be able to interface with the new metal roofs that were to be installed on the steep slope areas.

Another requirement was that the membrane be white, since white reflective roofs can decrease heat flow into the building envelope and reduce air-conditioning costs. "The older buildings were built before energy was a consideration, so I wanted to improve the energy efficiency of the roofs," he stated.

Finally, the owner wanted a roof that was durable, long-lasting, would meet building codes, and also be pleasing to look at. "The Orange Grove Center is very concerned about fitting into the mostly residential

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neighborhood surrounding them," Hankins explained.

Of the roofing systems considered for the low sloped portions of Orange Grove Center's roofs, the Sika Sarnafil adhered Energy Smart Roof® system was selected. "We've used Sika Sarnafil on a number of projects in the past, and feel like they are among the better manufacturers of thermoplastic products," Hankins said. "They have a proven track record of helping us and standing behind their products."

A Complex yet Smooth Installation

When the roofing crew from Total Building Maintenance (TBM), Inc. of Chattanooga TN began work on the tear-off and installation of the new roofs, they found their work was cut out for them. Literally.

"One of the biggest challenges we faced was working on multiple small roof areas, which meant we had to do a lot of cutting," said Stuart Shankles, an estimator for TBM. "We had to tie all the low-slope sections into each other and into the steep-sloped, metal roofs, which meant there were a lot of transitions, termination bars, and gasket seals."

Another challenge TBM faced was tearing off three to four roofs on certain buildings, and making some of the existing decks structurally sound. "Most of the existing decks had a lot of undulations and ponding water, which we had to continuously pump off," Chris Fetty, project manager at TBM stated. The sagging decks were corrected with tapered lightweight concrete.

An additional problem was getting materials to a certain flat portion of a roof that was surrounded by four to five feet tall walls. "We had to go up and over the steep slopes to reach the flat portion of the roof, and had to figure out a way to move materials back and forth," Shankles said. "One way we did this was by moving the materials with an extended-reach fork lift."

The numerous buildings at the Orange Grove Center utilize a wide variety of roof decks. Sika Sarnafil's EnergySmart Roof (pictured above) was selected to cover low slope roof areas at the complex due, in large part, to the membrane's versatility and energy efficiency.

Finally, TBM had to be very conscious of not disturbing the clients of the Orange Grove Center. "TBM did a wonderful job of scheduling and staging the job," Aytes explained. "They were very good about coordinating their work schedules with the Orange Grove Center program coordinators so no one was inconvenienced."

"There were a lot of potential problems with this installation but we tried to anticipate them and work around them," Shankles remarked.

Hankins stated that teamwork played an important part in the success of the installation. "The Sika Sarnafil representatives provided a lot of on site assistance and were very good about making sure our concerns were satisfied," he said. He added, "TBM also did a good job and assisted us with value engineering to make the plan within an acceptable budget." In fact, the collaboration between RDCS and TBM resulted in a 20 percent reduction in the final project cost.

As might be expected, the fact that the project came in under budget and without disruption made the non-profit Orange Grove Center very happy. "We were very pleased with Sidney's recommendation to use the Sika Sarnafil roof," stated deputy director Aytes. "He was very complete and thorough and we felt that in the end we would have new roofs that would last 20 plus years."

It was this thoroughness, problem solving, and outstanding design and specification work that earned Roof Design & Consulting Services Third Place in Sika Sarnafil's 2008 Roofing Consultant Project of the Year.

Making the Bucket List

Today the roofs of the complex are leak free, and are expected to perform well for many, many years to come.

"We achieved all of our roofing goals and have received a lot of favorable comments from the owners," Hankins stated.

"We are very pleased with the roof and would definitely use the Sika Sarnafil material again," Aytes stated. "Not only does it perform well, but it also looks beautiful."

Another thing Aytes enjoys with her new roofs is a lack of headaches. "This week we had 10 inches of rain in two days, and I couldn't help but think how wonderful it was not to have any buckets in the hallways!"

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