Project Profile

Project
H-E-B Distribution Center
San Marcos, Texas

Owner
H.E. Butt Grocery Company
San Antonio, Texas

Roofing Contractor
Merit Roofing Systems, Inc.
Richardson, Texas

Roofing System
RhinoBond Roof System using white 72 mil S327 EnergySmart Roof® membrane

Project Size
396,126 square feet

Completed
August 2009

RhinoBond Roof Forms Quick Attachment to H-E-B Warehouse

The H.E Butt Grocery Company had a problem. Their San Marcos, Texas Distribution Center had a leaking standing seam roof, and several efforts to remedy the situation – including elastomeric coatings – had failed. The H-E-B facility is used to store and distribute household, cosmetic and pharmaceutical products, and the building's 396,126-square-foot roof was in trouble "because of its size and the movement in the metal" said Brian Kimbrell, president of Merit Roofing Systems, Inc. of Richardson, Texas.

Realizing the only answer was to reroof, H-E-B turned to Sika Sarnafil, who had been supplying roofing solutions to H-E-B for 12 years. The original specification was for a Sika Sarnafil mechanically fastened system, with a 72-mil S327 EnergySmart membrane. However, the roof had to qualify for Factory Mutual approval and carry a FM 1-75 rating, and the 24-gauge standing seam panels on the H-E-B distribution center roof were not recognized by Factory Mutual as being an approved substrate for mechanical securement. This meant that the Sika Sarnafil roof would have to be fastened into the structural steel purlins, which would be very labor-intensive and make it difficult for Merit Roofing to meet the specified 180-working days installation timetable.

In addition, there were numerous electrical conduits running on the underside of the decking that had to be taken into consideration when installing fasteners. "We didn't want to do anything that would interrupt the electric power, because this building has a lot of conveyor belts and other equipment that relies on electricity," Kimbrell stated. Potential danger to the roofing crew was a concern, as well.

RhinoBond Resolves Sticky Situation

Fortunately, a Sika Sarnafil representative knew of another roofing alternative: the RhinoBond Roof System. This mechanical attachment system is based on induction welding technology, and is ideal for metal retrofit applications.

RhinoBond uses a special electromagnetic welding tool that bonds the underside of the PVC membrane to specially coated plates affixed to the roof deck.

The process creates a strong bond without penetrating the membrane and uses the same fastener and plate to secure both the insulation and membrane, as opposed to

Sika® Sarnafil®

traditional mechanically attached systems that attach insulation and membrane separately. When compared to traditional mechanically attached systems, RhinoBond can reduce fasteners by 25 to 50 percent and increase installation productivity.

In metal retrofit applications such as the HEB Distribution center, RhinoBond offers several benefits. First, while the membrane is attached to the structural purlins, the fasteners do not have to be installed in the seams of the membrane, so contractors do not have to worry about ordering special width materials or burying extra material in the laps. Second, membrane width and orientation are not issues. Full width material can be installed parallel or perpendicular to the purlins. As with any mechanically attached system, extra fastening around perimeters and penetrations may be required. With the RhinoBond system, this is accomplished by simply adding extra fastners and plates in these areas to create a tighter pattern. Fastening per FM guidelines may also be required.

In addition, the plate bonding process takes only seconds, and an experienced operator can comfortably weld five plates per minute or 300 per hour.

A Quick Learning Curve

Kimbrell admits that Merit Roofing was hesitant at first about using the RhinoBond assembly. "Although the system seemed relatively straightforward to install, we did not have first-hand experience working with RhinoBond, and so were somewhat reluctant about using it," he explained. "However, encouragement from our Sika Sarnafil representative along with our long-standing relations with Sika Sarnafil was enough to convince us to give it a try."

According to Kimbrell, the new roof assembly consisted of pre-cut insulation to fit in between the flutes of the standing seam roof, followed by half-inch gypsum roof board, and then the Sika Sarnafil EnergySmart membrane.

The ability to roll out 10-foot sheets of membrane was an important factor in the productivity of the crews. "The support and help from both Sika Sarnafil and representatives from OMG, Inc., the developers of the RhinoBond system, also

played a crucial role in getting the crew proficient working with the new technology," he stated.

"Once we got into a routine we really started to see productivity increase," Kimbrell remarked. "We had two crews working on opposite sides of the building, and as they became more comfortable with the RhinoBond system it almost became a competition between them to see who could work the fastest."

Kimbrell added, "Ultimately we watched as our production increase to an average of 220 squares per day. Considering that the work was being performed over an active food storage and distribution facility during an 18-day period with temperatures averaging 104 degrees, we were quite impressed!"

In the end, the RhinoBond system enabled Merit Roofing to complete the project on-time, within budget, and even beat their initial profit projection by over five percent.

"This project was proof-positive that the RhinoBond system is a revolutionary method of installation that has countless benefits for both the clients and the contractors," Kimbrell stated.

A Lasting Solution

The RhinoBond system was not only fast and easy to install, but it is also expected to perform well for many years to come. Kimbrell was especially pleased with how the system stood up to strong winds. "We faced some fairly heavy, sustained winds, and the system performed more like a fully adhered system, with very little movement in the sheet," he explained.

The white roofing membrane, which reflects the suns rays and warmth, has also resulted in a reduction of the ambient temperature inside the facility.

"We were so pleased with the RhinoBond system that we are now using it on another roof," Kimbrell said. "The bottom line is that this system is a winner in many ways for both H-E-B and Merit Roofing Systems."

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