

Tucson Convention Center

Highly Reflective White EPDM Offers Solution to Roof Moisture Issues

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Blistering bubble formations with a slightly raised surface and ponding in some areas. This scene of moisture penetrating the roofing membrane was all too familiar to Tucson, Ariz., city officials affiliated with the Tucson Convention Center (TCC).

The Tucson metropolitan area has a population of 1.2 million and the TCC is an important part of the local economy. The Tucson Convention Center South Exhibition Hall needed a new roof in order to continue hosting events such as the Gem and Mineral Show, the Ringling Bros. and Barnum and Bailey Circus, and the annual Southern Arizona Home Builders Association (SAHBA) conference. Consequently, Tucson city officials sought a watertight, energy-saving roof with a long warranty that would allow TCC to successfully host events for many years to come.

On Sept. 26, 2011, Progressive Roofing started the 101,500 square-foot roofing project. According to Bob Gardner, general manager of Progressive Roofing Tucson office, they first performed a moisture scan to help determine the extent of the damage to the existing roof. The results of the scan showed that there was wet insulation in many areas requiring the existing roof to be completely replaced. "TCC was experiencing moisture penetration throughout the existing roofing system, despite the fact that the roof actually had decent drainage," said Gardner. "This was a 25-year-old hypalon roof that simply outlived its lifespan and needed to be replaced. To meet the project's goals, it was imperative that we use durable, energy-efficient products for the new roof."

With the moisture scan complete, Progressive Roofing had to confront their first challenge: scheduling and staging. The crew had to demolish the

existing single ply material while working around the schedule of numerous Tucson Convention Center events scheduled to take place during the re-roofing, including car shows, Disney on Ice, and Tucson College Night. Between set-up, teardown and the events themselves, there was seldom a time when the facility did not have a lot of activity. Progressive utilized a three-part solution to mitigate this issue: evaluate and analyze the schedule, effectively communicate with all parties involved, and do detail work (e.g., walls, laps and seams, and roof venting) when possible to reduce noise during TCC events.

Following the demolition of the existing single ply material; roof workers installed Firestone ISOGARD(TM) HD Cover Board. This cover board material is easy to cut and lightweight, which helped reduce labor and installation costs, particularly in terms of transportation and delivery of the material.

After installing the cover board, the roofing crew installed 90-mil Firestone RubberGard(TM) EcoWhite(TM) Platinum EPDM on the TCC roof. The architect chose this product because the white membrane reflects sunlight and keeps the roofing membrane cool, two attributes that are critical to helping the project achieve its energy-savings goal. In addition, the EcoWhite Platinum membrane combines the eco-friendly attributes of a white membrane with the proven achievement of traditional EPDM, so the architect was confident that it would stand the test of time.

Reflective roofs can reduce air conditioning expenses, and with an average high temperature of 83.1°F in Tucson, a highly reflective roofing system like EcoWhite Platinum EPDM will help reduce energy consumption at TCC. A cool roof transfers less heat throughout the building, thereby saving money on energy costs. In addition, as one of America's sunniest cities with an annual percentage of possible sunshine at 85%, the new white roof on the TCC exhibition hall will reflect UV radiation, unlike a traditional black

roof. In addition to the numerous energy savings, the product was specified because EcoWhite offers the benefits of the Firestone Red Shield® 30-year Platinum Warranty.

“Our new reflective roof helps reduce the effects of weathering and can also readily accommodate solar panels, which we intend to install at a later date,” said Octavio SantaMaria, project manager with the City of Tucson. “Saving energy is good public policy and installing a reflective roof meets that need in a way that is both cost-effective and good for the environment.”

Another feature of the EcoWhite Platinum EPDM membrane is that the QuickSeam(TM) adhesive is applied to the sheets prior to delivery. With only eight weeks to install the new roof to meet the project’s deadline, the roofing crew appreciated not having to apply any additional adhesives. EcoWhite Platinum EPDM is also manufactured in 10-foot wide, no fold seamless panels. For the TCC project, the EcoWhite EPDM rolls were 100-foot long by 10-foot wide, so the crew was able to cover a great deal of roof area at one time.

“The whole installation process felt like it was expedited by using Firestone EcoWhite QuickSeam flashing accessories,” said Gardner. “The adhesive is already applied to the panel seams and activated with the accessories, in contrast to gluing the adhesive to the seams yourself. We probably saved 15-20 work days on the EPDM installation alone.”

Although the QuickSeam products helped reduce the installation time, the extreme Arizona weather proved to be yet another challenge. Tucson temperatures in the fall, when the TCC roofing project occurred, frequently reach the high 90s during the day. On occasion, temperatures may reach 100° well into October. At these high temperatures, performing hard manual labor outdoors is dangerous. According to Gardner, it’s important for workers to stay hydrated and know their limits. “Southern Arizona is hot, plain and simple,” said Gardner. “Our workers are familiar with this

environment and make the necessary adjustments. For example, if we know it's going to be especially hot tomorrow, we'll be sure to come in earlier to avoid the afternoon heat. It's a matter of working smarter to ensure you do not over exert the crew in extreme temperatures."

The TCC reroof was completed just before Thanksgiving on November 24, 2011. Up to 25 Progressive Roofing employees worked up to six days per week for 10 hours per day to complete the project on time. Everyone from the roof workers to the architect to Tucson City officials, enjoyed a satisfying Thanksgiving dinner knowing they achieved the TCC South Exhibition reroofing project goals.

According to SantaMaria, other roof areas in TCC are experiencing the same moisture problems that plagued the old South Exhibition Hall roof. "The roofs of the galleria and main arena sections are showing signs of blistering," said SantaMaria. "Funding will determine when those future roofing projects will start, and we intend to use Firestone products because of their proven track record for durability, excellent warranty coverage and energy saving characteristics."

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