

Sure-Seal® EPDM
Roofing Systems

CASE STUDY

Winco Fireworks Distribution Center Reroofing



JOB PROFILE

PROJECT LOCATION:
Grandview, MO

CARLISLE APPLICATOR:
Quality Trusted Commercial
Construction & Roofing,
of Brooklyn Park, Minn.

BUILDING OWNER:
Shafer Richardson
of Minneapolis

ROOFING SYSTEM:
Fully ballasted Sure-Seal EPDM
with factory-applied seam tape

The old adage, ‘good things come to those who wait,’ may not always be true, but for Quality Trusted Commercial Construction & Roofing (QT Commercial), of Brooklyn Park, Minn., it was certainly the case when it came to re-roofing the Winco Fireworks distribution center in Grandview, Missouri.

Winco, which started as a roadside firework stand in 1964, is today the sole U.S. distributor of the Black Cat brand of fireworks and one of the nation’s largest fireworks companies, with multiple distribution centers and retail stores. Its Grandview distribution center – which is owned by Shafer Richardson of Minneapolis – is approximately 500,000 square feet with 32 shipping docks. The concrete structure has tilt-up walls, and a concrete roof deck that includes over 130 smoke hatches with skylight tops, as well as some air handling equipment, and a parapet wall that slopes in height from 6- to 48-inches.

The building’s ballasted EPDM roofing system, which had reached the end of its long functional service life, was leaking, and needed to be replaced. The roofing assembly was 45-mil EPDM, loose laid over 1.5-inches of expanded polystyrene insulation (EPS) and covered with ballast from a local stone quarry.



QT Commercial, which specializes in all aspects of commercial, industrial, and institutional roofing, including maintenance and repair work, was hired for the Winco job. Bob Olson was the Senior Project Manager.

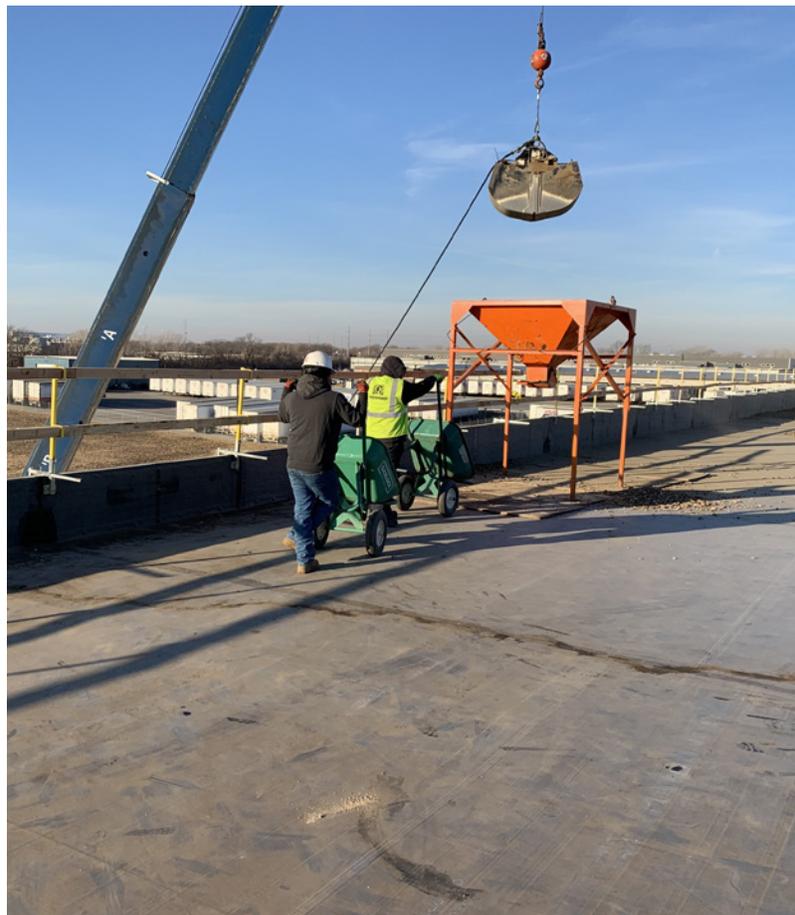
“One of our areas of expertise is ballasted EPDM roofs,” said Olson. “Since this was a ballasted roof to begin with, we recommended removing the ballast and old membrane, leaving the existing insulation in place, installing some additional insulation where needed, and then recovering the structure with a new 60-mil EPDM membrane, and re-using the ballast.”

For the project, QT Commercial selected Carlisle’s Sure-Seal EPDM with Factory-Applied Tape™ at the seams.

“We like Carlisle EPDM for several reasons, including its history of long-term weathering performance and its sustainability performance, including reduced carbon footprint and low contributions to smog, acid rain, and global warming,” said Olson. “Sustainability is really important to us and was critical to this project.”

“This was an impressively large roofing project,” said Olson, “but what made it an even larger project was that there were actually two layers of old EPDM membrane on the roof that needed to be removed. That’s a million square feet of material, and we didn’t want that all going into local landfills.”

Chris Kann, Product Manager of Sustainability for Carlisle, explained that the company drives sustainability in many ways, including within the organization and the industries it serves.



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“We are strong proponents of recycling roofing materials, and we promote that heavily among our contractor base,” said Kann. “Reducing what goes into landfills is not only beneficial for the environment, but it also helps improve the product’s total lifecycle by bringing renewed life to the material for new and different applications.”

According to data from the U.S. Environmental Protection Agency, more than 40 million tons of roofing waste are put into American landfills annually, representing more than 25% of all solid construction waste. Furthermore, a recent report from Transparency Market Research predicts that the volume of construction waste generated worldwide every year will nearly double to 2.2 billion tons by the year 2025. This is one reason that part of QT Commercial’s business philosophy is focused on the environment and on sustainability. As such, whenever it is possible and makes financial sense, the company wants to avoid sending excessive roofing materials to the landfill, and Grandview was a perfect project for that.

Recycling the Roof

Through previous research, Olson was familiar with Nationwide Foam Recycling (NFR) based in Framingham, Mass., a company that specializes in reclaiming foam insulation and roofing membrane from jobs across the U.S. Olson thought this would be the perfect opportunity to finally work with NFR and to reclaim as much of the old roofing membrane as possible.

“I reached out to Richard Garrison, Vice President of Nationwide Foam Recycling, and we were able to put together a great deal that worked for both companies,” said Olson.

According to Garrison, NFR services roofing contractors, construction companies, and roofing product manufacturers across the country to collect roofing membrane and/or insulation to be reclaimed and repurposed in a wide range of applications. Since it was founded in 2007, the company has completed over 1,000 projects.

“Unlike some recycling services, we do not send these materials to be ground up as feedstock for other new products,” said Garrison. “The market for that is developing but is just not there yet. Instead, NFR has spearheaded the development of nationwide re-use markets for roofing membrane for things such as landscape weed control blankets, roof patches, backyard decorative pond liners, general industrial tarping, and the like.”

“For most projects, we pay about \$2,000 per semi-truck load to dispose of project waste,” said Olson. “On the Grandview project, instead of paying for disposal, we paid Nationwide to pick up and haul the membrane for re-use. The cost of the pickup was about the same as we would have paid for disposal, so the total additional cost was just the time it took to palletize the membrane for shipping.”



Did you know?

Carlisle offers contractors an environmentally friendly Rooftop Recycling Program focused on reducing the environmental impact caused by roof tear offs.

Receive a rebate on the materials that are used to replace the torn-off roof when those materials are purchased and warranted through Carlisle.



CASE STUDY

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Preparing the membrane for pick-up was straightforward for QT Commercial. After removing the stone ballast, which was stored on site for re-use, the team removed both layers of the old loose-laid EPDM membrane. The next step was to cut the membrane into manageable pieces of about 20 feet square. The pieces of used membrane were then folded and placed onto 40- x 48-inch pallets, strapped down, and stored on site until they were picked up. A full truckload was 24 pallets, and in total QT Commercial shipped six, 48-foot flatbed truckloads of material for re-use.

“Our guys were very careful about folding and packing the pallets for transportation,” said Olson. “We estimate that each pallet took about an hour to load with membrane and prepare for transit, so we had a bit more labor in the project due to this activity. However, we did receive some financial support for this from Shafer Richardson, the building owners. They believed in this recycling program strongly enough to contribute to the added labor cost for recycling the roof.”

Installing the New Roof

“Probably the biggest challenge we faced for this project was due to the size and magnitude of the building,” said Olson. “We were using 20 x 100-foot rolls of EPDM, so just moving those from the edge of the building to the center of the roof took some effort. In addition, there were over 130 smoke hatch penetrations with skylight covers. Each one needed new gaskets, and each needed to be flashed, plus we had to be very cautious working around those penetrations, from a safety perspective.”

It took QT Commercial’s crew of 30 people about five weeks in total to finish the job, which was completed over the course of about three months from February to April of 2021 due to numerous weather delays.

Once the ballast and two layers of old membrane were removed from the roof, their first task was to add insulation to parts of the building.

“Originally, there was 1.5 inches of EPS across the entire roof,” said Olson. “We added 4.5 inches of EPS over the conditioned areas of the roof, and used tapered EPS for the transition areas, which worked out really well.”

Once the insulation was installed, the new 60-mil EPDM membrane was loose laid and secured at the perimeter and penetrations. The pre-taped seams were sprayed with Carlisle’s CAV-Prime™ from a canister and rolled in place.

“The factory-applied seam tape makes the installation go very quickly and smoothly,” said Olson. “Our team really like this system and it’s about ten times faster to seam with the factory-applied tape than with traditional EPDM. We love it.”

For the parapet walls, QT Commercial used Carlisle’s EPDM SAT (Self-Adhering Technology™) membrane, which is fully backed with pressure-sensitive adhesive. They primed the concrete parapet walls and installed the membrane up and over the top, then finished the project with a new coping cap.

“The self-adhered membrane works really well,” said Olson. “It eliminates all the steps involved with applying bonding adhesive to the wall, so we were able to save lots of time on this process too. We’ve had really good success using that product on several projects.”

The last step was to re-install the ballast at the required 10 lbs./square foot. The company re-loaded the roof with the stone in sections and spread it out, working from the center outward.

In the end, QT Commercial, Shafer Richardson, Winco, Carlisle, and Nationwide Foam Recycling were all very happy with the results of the new roof, and with the recycling program.

“This was a great sustainability project from start to finish,” said Olson. “Not only did we save some 300 cubic yards of EPDM membrane from being put into the local landfill, but we were also able to re-use the existing insulation and stone ballast.”

“The roof recycling program with Nationwide Foam Recycling and Carlisle was very easy and simple to administer,” Olson said. “We will do this again in a heartbeat for the right project, and we hope that many more roofing contractors will be looking towards sustainable solutions like this in the future.”