

Sure-Weld® TPO
Roofing Systems

CASE STUDY

The Right Roofing System Helps to Sell Flooring



JOB PROFILE

PROJECT LOCATIONS:
Gilroy, California

CARLISLE APPLICATOR:
AAA Roofing

BUILDING OWNERS:
Floor & Décor

- ROOFING SYSTEM:**
- » Sure-Weld 16' TPO membrane
 - » SecurShield® Polyiso
 - » RhinoBond® Fastening Plates
 - » CAV-GRIP® III

Floor & Décor is a leading specialty retailer of hard surface flooring, offering a wide selection of tile, wood, and stone flooring as well as related tools and accessories. The Atlanta-based company was founded in 2000, has 133 stores in 28 states, and is one of Fortune's 100 fastest-growing companies. As part of an ongoing corporate expansion initiative, the company is taking over a former RV dealer and Walmart store located in Gilroy, California.

"The facility's roof was in dire need of replacement," said Daniel Garcia, a project estimator for AAA Roofing, the company hired to replace the 112,000-square-foot roof on the facility. AAA Roofing is a commercial roofing contractor that specializes in roof replacements, coatings, new construction, tenant improvements, maintenance, and leak detection. The NRCA-member company is one of the leading commercial and industrial roofing companies in the Western States with three offices – Riverside and San Jose, California, and Boise, Idaho – and over 180 million square feet of installed roofing.

“The old roof on the Gilroy project was a two-ply built-up roof with an acrylic coating over the top, and it had some serious moisture problems that needed to be addressed,” said Garcia. “We had to replace nearly 2,500 square feet of the half-inch plywood roof deck, which was shot due to the moisture in the assembly.”

The good news, however, was that the roof was fairly wide-open, with only a few penetrations and drains to address.

Building Enclosure Solutions, Inc., (BES) is an independent manufacturer’s representative firm based out of Northern California. BES represents some of the best names in commercial construction products, including Carlisle SynTec Systems. Given the building’s wide-open roof design, BES specified the new roof using Carlisle’s 16' Sure-Weld TPO membrane to be installed with the industry’s popular RhinoBond Induction Welding technology.

“We really like Carlisle’s 16' TPO membrane installed with induction technology,” said Jonah Cross, partner and founder of BES, “especially on wide-open roofs. The contractor can achieve great productivity, plus there are fewer rolls to handle on the roof and significantly less seaming.”

The Roof Design and Installation

The roof slopes slightly from the center in all directions. An expansion joint bisects the roof at the center ridge, and another one bisects the roof perpendicularly from eave to eave at the center of the structure.

“The slope was 1:12 in each quadrant, sloping toward the eaves and end walls,” said Garcia. “A parapet wall runs around the front and sides of the structure, rising about seven feet along the front of the building, with four scupper drains in the front façade.”

Once the plywood deck was repaired, the balance of the roofing work could begin. A layer of 1.75-inch Carlisle SecurShield Polyiso was mechanically fastened across the roof deck to provide an R-10 value, which is a California code requirement.

The insulation was installed using Carlisle HP-X Fasteners for maximum driving performance and back-out and corrosion resistance, and 3-inch Carlisle TPO RhinoBond Fastening Plates.

“The specification required six fasteners and plates per 4 x 8-ft board in the field of the roof, with eight in the perimeter and 12 in the corner areas,” said Garcia. “The design provides protection for winds up to 55 mph, although the facility is not FM-insured, so it does not require an FM wind rating.”

AAA Roofing had the roof loaded in two phases. They moved the materials on the roof to various locations for staging and storage using membrane carts.



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“This was the first time that we used the 16' rolls,” said Garcia. “We really liked working with them, and we were able to achieve really great production on the roof, particularly because it was so open, and due to the effectiveness of the RhinoBond system.”

In total, there were only six internal drains and about 10 air handling units on foot-high curbs across the entire 387-foot-long roof, providing AAA Roofing with a wide-open area for installing the membrane.

As each section of the old roof was removed and the decking and insulation were installed, AAA’s eight-person crew installed the membrane using the Carlisle RhinoBond System. RhinoBond is one of the fastest-growing methods of thermoplastic single-ply attachment in the industry.

The system uses the same fastener and plate to secure the membrane and insulation in place without penetrating the membrane. The result is an FM-approved assembly that provides decreased labor costs, requires fewer fasteners than traditional mechanically attached systems, and provides superior wind uplift performance.

“With the 16' membrane, we actually reduced the overall seaming by about 33 percent,” said Garcia, “which, on this roof, resulted in a substantial time savings.”

RhinoBond induction welding plates are coated with a special hot-melt adhesive. Once the membrane is rolled out over the top, an induction welder is activated over each plate. The electromagnetic process heats the plate and fuses the bottom of the membrane to the top of the plate in about five seconds. A magnet is placed on the membrane directly over the plate to help cool it, and to promote a strong bond.

“We’ve installed hundreds of roofs with induction technology,” said Garcia. “It’s an awesome process and with the wide membrane, it’s really a time saver. On this job, with two installers



using induction tools, we were able to get good daily productivity rates, which helped us complete the job in just a few weeks.”

In addition to not penetrating the new membrane, the induction system more evenly spreads the wind load since the fasteners and plates are spread only a few feet apart and not concentrated in the lap seams of the roof. It also helps to eliminate membrane flutter.

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At the base of each of the air handling curbs, the AAA crew terminated the membrane with fasteners and plates, then welded another piece of membrane at the base and ran it up the curb with Carlisle CAV-GRIP III to the top and terminated it with Carlisle Termination Bar and a bead of Water Cut-Off Mastic. AAA then installed a shop-bent counterflashing over the term bar for maximum water protection.

On the three sides where there were a parapet wall, AAA again terminated the membrane at the base of the wall, welded a new piece of membrane at the base, and installed it up the wall with CAV-GRIP III Low-VOC Adhesive/Primer. Shop-bent coping was installed over the top into the existing wood nailer.

For the back side of the roof, AAA secured TPO Coated Metal over the edge, then stripped in the membrane and replaced the gutter over the top. They also stripped in a 60-mil cover strip over the expansion joints.

The final step was installing Carlisle Sure-Weld TPO Crossgrip Walkway Rolls, which offer a firm, slip-resistant surface from the roof hatch opening to each of the HVAC units across the roof.

“The project only took us about 8 weeks to complete,” said Garcia. “It was a great success due to Carlisle’s wide TPO rolls and the RhinoBond induction installation process. Most importantly, everyone is very pleased with the finished results, and Floor & Décor has a great new roof that will last a long time on their new store.”