

**Sure-Weld® TPO**  
Roofing Systems

CASE STUDY

**Carlisle TPO Keeps El Dorado YMCA  
Cool and Dry**



**JOB PROFILE**

**PROJECT LOCATION:**  
El Dorado, KS

**CARLISLE APPLICATOR:**  
Mahaney Roofing Company

**BUILDING OWNERS:**  
Young Men's Christian  
Association (YMCA)

**ROOFING SYSTEM:**  
Carlisle Sure-Weld TPO  
Membrane with APEEL™  
Protective Film

In 2017, Kansas experienced a total of 60 tornadoes, a number just slightly below the state's yearly average for the last half-century. Tornado-prone states like Kansas deal with a plethora of challenges, one of which is keeping roofs intact – particularly the flat rooftops that are common on commercial buildings.

This concern was top-of-mind for the Young Men's Christian Association (YMCA) of El Dorado, Kansas. Prior to 2017, this state-of-the-art exercise and community facility had been heavily damaged by high winds, and the 15-year-old roofing system was showing signs of wear. Some of the rooftop details were starting to disassemble, creating the potential for greater damage or even leaks.

The facility owner and contractor both knew that when a new roofing system was chosen, it would need to stand up to El Dorado's severe weather. After comparing several different systems, the owner chose to replace the entire 44,542-square-foot roof with a mechanically fastened 60-mil Sure-Weld TPO roof manufactured by Carlisle SynTec Systems.

Before the new Carlisle roof could be installed, the crew from Mahaney Roofing Company had to tear off the existing system. They originally planned to re-use the existing three-and-

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a-half-inch layer of polyiso insulation, but soon determined that a section of polyiso above the swimming pool would have to be replaced. Once the polyiso was removed, the crew found that the metal deck above the pool area was rusting around each fastener. After this discovery, the crew from Mahaney Roofing concluded that an air and vapor barrier was needed for that roof section.

Before installing the air and vapor barrier, the crew would need to prime the metal deck with Carlisle's CAV-GRIP III Low-VOC Aerosol Contact Adhesive/Primer to promote adhesion. CAV-GRIP III is applied using a convenient self-contained spray system which provides quick and easy coverage and significantly speeds up the installation process. Most importantly, the CAV-GRIP III would provide the adhesion needed to keep this roofing system in place.

Once the CAV-GRIP III adhesive had been applied, Carlisle's VapAir Seal™ MD Air and Vapor Barrier was rolled out directly on top of the metal decking and broomed in place. VapAir Seal MD will help protect the roofing components from internal condensation from the pool and is ideal for direct application to metal decks in installations where insulation is mechanically fastened.

Over the existing three-and-a-half-inch layer of polyiso insulation, the crew installed a half-inch layer of coverboard before rolling out the new 60-mil TPO membrane with APEEL Protective Film.

Sure-Weld TPO provides excellent puncture resistance, durability, and long-term performance, and Carlisle's patented APEEL Protective Film application guards the membrane's surface from scuffs and dirt accumulation during installation, eliminating the need to clean the roof once the project is complete. Durable and easy to remove, APEEL Protective Film helps save time and labor, improves aesthetics, and increases customer satisfaction.

The crew then installed a half-inch layer of coverboard before rolling out the new 60-mil TPO membrane. Manufactured with a strong polyester fabric encapsulated between TPO-based top and bottom plies, Carlisle's Sure-Weld TPO provides excellent puncture resistance as well as elevated breaking and tearing strengths. Sure-Weld TPO is unmatched in its durability and long-term performance because it includes Carlisle's Octaguard XT™ weathering package, a one-of-a-kind blend of eight performance-enhancing ingredients, including UV light stabilizers, heat-stabilizing antioxidants, and UV absorbers. With this weathering package, Sure-Weld TPO can withstand years of exposure to UV rays and temperature fluctuations.

Combined with the additional wind resistance of a mechanically fastened system, Carlisle's Sure-Weld TPO was an ideal solution for this building. Due to the previous rusting of the metal deck, the crew at Mahaney Roofing Company chose to use stainless steel fasteners when installing the membrane on that area to prevent further rusting and potential damage to the new roof.

The last step in the installation process was to flash all curbs and penetrations with Carlisle's Sure-Weld TPO Flashing. This was a detailed process, as the rooftop presented a unique, non-uniform design with a multitude of penetrations.

While this re-roofing project involved an extensive tear-off process, during which multiple additional challenges were discovered, the project was completed in just over two months. With the utilization of Carlisle SynTec Systems' adhesive, fasteners, air and vapor barrier, and TPO membrane, this project was completed quickly while also exceeding requirements and expectations for product performance and long-term durability. With a Carlisle TPO roof, the El Dorado YMCA will be cool and dry for decades to come.