

FleeceBACK® KEE HP
Roofing Systems

CASE STUDY

**Carlisle's FleeceBACK® KEE HP
Rehabilitates Norfolk Harbor Museum**



JOB PROFILE

PROJECT LOCATION:
Norfolk, VA

SQUARE FOOTAGE:
55,000

ROOFING CONTRACTOR:
Roof Services Corporation

PROJECT DURATION:
3 Months

ENGINEER:
Hentz Engineering, Inc.

ROOFING SYSTEM:

- 115-mil gray FleeceBACK KEE HP membrane fully adhered with FAST Adhesive

If you have ever visited Norfolk, Virginia, you have probably seen the city's popular maritime museum, Nauticus. Built in 1993, this contemporary museum features interactive exhibits that highlight and educate visitors on global maritime commerce.

By 2015, the museum's smooth-surface asphalt built-up roof system was in need of repair. The coating on the rooftop was failing, and significant leakage was inhibiting museum operations. In 2004, the roof membrane had been coated with a polyester fabric reinforced coating to address leakage and deterioration, and that coating was now failing. The coating system had delaminated, causing the reinforcing fabric to tear off the rooftop during high wind events, which happened frequently on the harbor.

A team of experts from Hentz Engineering and Roof Services Corporation managed the 55,000-square-foot re-roofing project. The roofing system chosen was Carlisle SynTec's 115-mil FleeceBACK® KEE HP membrane fully adhered with Carlisle's FAST™ Adhesive, a low-rise two-component polyurethane adhesive, which enabled the crew to meet the conditions and performance requirements of the existing roof without having to apply an additional coating.

Combining a 55-mil fleece backing with a 60-mil KEE HP membrane, Carlisle's FleeceBACK KEE HP offers extreme durability and resistance to the most severe weather conditions. The combination of FleeceBACK KEE HP membrane and Carlisle's FAST Adhesive was the ideal choice for Nauticus, as this system can withstand winds of up to 120 miles per hour, such as those often experienced by this beautifully designed harbor-side museum.

CASE STUDY

This rooftop presented many unique challenges, not the least of which was the aesthetic requirements of the facility—the roof system needed to color-match the building's metal wall panels, which Carlisle's gray membrane did perfectly. Another challenge was the installation itself. The rooftop was separated into eleven sections, varying in height from 67 to 104 feet above grade. The roof system would also interface with the corrugated deep-rib, metal wall panels, as well as several large skylights and standing-seam metal roof systems. The coping on the roof system parapet walls were also color-matched and sealed to the wall panels. Not only was weather performance a factor, but maintaining and improving the aesthetic appeal of the museum was of critical importance in this project.

During the installation process, the existing coating system was cut into sections and peeled off of the roofing membrane. In order to minimize installation costs, the built-up roof membrane remained in place, after it was determined that it could meet wind-uplift testing requirements, and cleaned thoroughly. The existing membrane was then primed with Carlisle's CAV-GRIP™ Low-VOC Adhesive/Primer in preparation to serve as the substrate for Carlisle's FleeceBACK membrane.

In order to enhance the wind uplift resistance of the new rooftop assembly, the installation crew installed base sheet fasteners through the existing built-up assembly along the perimeter and corners of the rooftop. Once the rooftop was prepared, the FleeceBACK KEE HP membrane was fully adhered to the roof deck using FAST Adhesive, applied in a ribbon pattern to the substrate, to provide maximum strength and long-term performance.

One of the unique aspects of this application was the detailing of the rooftop, which allowed the FleeceBACK membrane to be applied continuously up the walls, eliminating any seams in the flashing details and providing mechanical securement of all roof-to-wall membrane transitions.

This process required a number of installation steps. First, the existing sheet metal coping and counterflashing were removed; once these were removed, new flashing was installed, and the tops of the parapet walls were wrapped with fully adhered non-reinforced EPDM membrane. The coping metal was then reinstalled and sealed to the exterior metal wall panels with butyl tape sealant and gasket screws. At this point, strips of FleeceBACK KEE HP membrane were mechanically fastened along the roof perimeter at all roof-to-wall transitions.

The FleeceBACK KEE HP rooftop membrane was then adhered to the mechanically fastened perimeter strips using FAST Adhesive. The rooftop details were completed with PVC-coated metal and preformed PVC flashings to seal all penetrations, including conduits, vent pipes, and lightning protection equipment.

In addition to premium strength, Carlisle's FleeceBACK system provided the long-term performance and enhanced durability and weather resistance needed for this harbor location. Carlisle's roofing system also provided the unique aesthetic appeal needed for a landmark that attracts many Norfolk residents and tourists. While the rooftop is complete, many other facets of construction are still underway. The newly outfitted and weatherized Nauticus was completed in June 2016.

