

High-Tech Coatings Help History Raise The Roof

By Jen Kramer

"To live at Marlborough House is a mark of social distinction." Thus read a 1927 Seattle, Washington newspaper ad describing the newly opened, 12-floor apartment building conveniently located in the city's fashionable First Hill district. Built in the Art Deco style by famed Seattle architect Earl W. Morrison, Marlborough House was a brick and reinforced concrete marvel.

Fast-forward 80 years and the social distinction had turned to social stigma. The once beautiful apartment building had fallen on hard times and was in need of revitalization. "The building was in desperate need of a new roof," says Rob Crispin, vice president of Vector Construction, Inc., the coatings contractor hired for the project. "Because the owners wanted to rent the vacant building out as soon as possible, we would be working a tight schedule, around multiple other trades, regardless of the weather conditions."

Asbestos Removal 13 Stories High

Crispin and his crew of eight were joined on the roof deck by a specialized firm contracted by the general contractor for asbestos removal. "Safety was our first order of business," Crispin says. "Since three sides of the 4,000 sq. ft. (371.61m²) roof had no parapet and the roof was full of dozens of trip hazards such as penetrations, a/c vents, hoses, etc., we used complete fall protection including a safety wire and flags around the perimeter, full body harnesses and lanyards with retractable lines, and a dedicated supervisor watching the crew at all times. We also held daily safety meetings and one of the things that we discussed was the hazard of dropping things off of the roof—this included tools, products, and most importantly ourselves. Nothing could drop off of the roof. Especially in Seattle's wind, we had to be on constant guard."



While the specialized firm removed the asbestos-containing old tar roof, the Vector crew followed at a safe distance—wearing dual cartridge full face mask respirators, Tyvek suits, gloves, and goggles—using hand tools to clean and prep the concrete roof.



"When we had cleaned and prepped about 75% of the roof, the economy crashed," Crispin says. "The project went into receivership and everything stopped."

"The building sat without a roof throughout that winter. The rain poured in and damaged three floors. It was a shame."

He continues, "We rebid and came back onto the job under the General Contractor, Rushforth Construction, to finish."

Starting Over

Once back on site, the Vector crew had to re-clean and prep the bitumen residue from the exposed concrete substrate. They also had to prep the transitions which included brick parapets, concrete and wood curbing, metal flashing, and cast iron piping.

"Although the asbestos removal crew had rigged an elevator system to the outside of the building so that they wouldn't have to take 400 to 500 lb. (181.4kg-226.8kg) buckets of tar down the buildings stairs, we didn't have that luxury," Crispin says. "We had to bring all of our equipment up onto the roof using the stairs."

The crew did however have unique ways to run the hoses for their Gusmer 20/35 and Gusmer 18/18 spray equipment. "We blocked off the street around the building. Then, we had a man put on safety gear and hang out of a window on every other floor of the building," Crispin explains. "We pulled and lifted the 250' (76.2m) of hose for the 20/35 and the 100' (30.48m) of hose of the 18/18 from the street to the top of the building. The hoses got quite heavy as you can imagine. The smart guy was at the top of the chain," he says with a chuckle.

High Winds And No Overspray

Seattle is famed for wet and windy weather. In fact, the interior of Marlborough House had already seen more than her fair share of water so it was time to get a new roof on the historic building as quickly as possible. But surrounding buildings made overspray a major concern.



"Because of high winds, wind screens wouldn't work, so as soon as the surface prep process was complete, HippWrap came on site and constructed full containment. It came all the way down to the edges of the parapet. In fact I had to crawl in to the corners to spray," Crispin explains.

With crew and city protected, it was time to begin the process of protecting the historic building.

First, any cracks were prepped and filled with Tremco and Bostik polyurethane caulking. "We used caulking guns to apply the caulking," Crispin recounts. "We used bond breaking tape on anything over 1/2" (1.27cm). We also installed mechanical fastenings and termination bars at all perimeters."

Then, using a hand-mix and rollers, the crew primed the entire roof with a 5-6 mil (0.13mm-0.15mm) WFT coat of Gaco Western's tar conversion epoxy primer.

"The brick parapet wall was original and in rough condition," Crispin says. "Mortar was missing. Bricks were loose. We didn't have time to wait for a brick guy so we used 2.7 lb. (1.2kg) Behr System polyurethane foam to smooth out the brick surface. We also used it for sloping on the roof itself. It was applied with the Gusmer 18/18 at a rate of 2" to 3" (5.08cm-7.62cm) to 0" for the slope correction."



Next, the crew used their Gusmer HV 20/35 unit to spray-apply SPI's Polyshield coatings. First came 40 to 150 mils (1.02mm-3.81mm) WFT of Polyshield HT-Slow Cure "to mitigate ponding in any remaining low spots on the roof." Next they applied 100 mils (2.54mm) WFT of SPI's Polyshield HT-101, a polyurea specified for this project due to its high elongation and tensile strength, which allow it to create a monolithic coating to seal the substrate and lock out water.

"We find that if the polyurea is top coated within 12 hours by an acrylic, it receives added UV protection," explains Crispin. For that reason, the crew used brushes and rollers to top coat the HT-101 with 3 to 4 mils (0.08mm-0.10mm) DFT of Rodda Tuff Deck acrylic top coat.

"Then it was time to dismantle HippWrap and turn the job back to the owners," Crispin says. But that process was not without its own challenges. "We had to cut the HippWrap into little pieces because of the high winds. A 16' x 8' (4.9m x 2.4m) piece was almost too big," he remembers with a chuckle.

From Derelict To Fashionable Once Again

According to Cliff Haskins, vice president of marketing for SPI, "The building owner was very impressed with the fact that Vector Construction finished the project within the required timeframe even with difficult weather conditions."

Moreover, the new coatings will move with the historic concrete roof as it cycles—expanding and contracting through Seattle's wild weather changes, just as the building has cycled through Seattle's wild social and economic changes.



Marlborough House is once again a fashionable address in Seattle's reclaimed First Hill district. While the new condominium owners are probably aware of their home's turbulent past, they may not be aware of the high-tech coating solution over their heads. But perhaps it is enough that history itself survives to record the fact. And that is thanks to a forward-thinking coatings crew.

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