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Mini Rooftop Parking

By Jen Kramer

The Seattle Mini Cooper car dealership had a problem. They were just too popular. Simply put, they had to keep so many cars in stock that they didn't have enough spaces to park them. The logical way to increase space would be to install parking on their 14,000 square foot rooftop, but they were challenged to do so in a lightweight and cost-effective manner. And whatever system they installed had to be totally waterproof. After all, it couldn't rain in the showroom below every time the Minis above were being washed.

The dealership turned to a general contractor, Rushforth Construction, and the design and bidding process began. Off to a fairly quick start, they soon slammed on the brakes when confronted with some significant challenges.

According to Jim Meyers, president of Vector Construction, Inc., the coatings contractor ultimately charged with solving the dealership's problem, "The original system designed for the Mini dealer [rooftop parking project] was far over the existing concrete, protection board, Dow's High Load 100 Extruded Foam Insulation sloped to the drains, more protection board, and a 3" layer of asphalt. The asphalt system proved to be too problematic during mock-ups because they couldn't use a plate-compactor and the heat from the asphalt melted the foam board. So Greg Schultz with Rushforth, whom we had worked with before, asked us if we could come up with a solution that would meet their weight limitations and carry a 10 year warranty. We would also have to use the Dow insulation since that was already in place."

Solving Major Problems At Mini

Meyers and the Vector crew were more than ready for the challenge. He explains, "With the help of BEE consulting, CG Engineering, and Specialty Products, Inc. (SPI), we came up with a system using two layers of fire-rated 3/4" plywood coated with SPI's Polyprime and 100 mils of Ultra Bond HT polyurea. We specified 8 lb. Enveloseal SPF for around the drains and for some slope corrections. The new system weighed 7 lbs. compared to the previously specified 28 lb. asphalt system."



Meyers adds, "The city had an uplift calculation of 12 lbs., so in order to keep the new system from flying away, we needed to attach it to the concrete. Mechanical attachment was not a good option with the waterproofing requirement, so our friends at Forbo Bonding Systems engineered glue that would adhere to all

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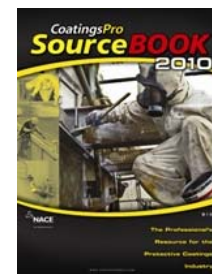
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of the different layers.”

The Mini dealership accepted the Vector proposal, and Meyers and his crew were given the green flag to start the project.

Start Your Engines

First, they constructed wind screens to protect against overspray. Although the dealership was not open, all of the dealerships around it were and “somehow overspray always manages to find cars,” Meyers says with a laugh. “We never want that to happen.” The Vector crew created 8' high wind screens by mounting 2x4s on the roof's parapet and hanging sheets of 6 mil Visqueen in between. “The weather was hot and still, but we weren't going to take any chances,” states Meyers.



In fact, the weather was unseasonably hot for the Seattle area with daily temperatures reaching into the 100s. “We are just not used to that kind of heat. Our Project Manager, Rob Crispin, and Rushforth, held daily safety meetings to remind the crew about the signs of heat stroke. We also had the crew pre-hydrate in the morning and at least every hour after.”

Prep in place, the crew took over the roof and removed the protection mat, foam insulation and drain mat. “We dismantled everything down to the tar, and then reassembled the parts using the Forbo adhesive,” says Meyers.

Two layers of 3/4" fire-rated plywood were then glued and screwed leaving a 1" gap around the perimeter and 6' around the drains for sloping. Then, “we sprayed the 8 lb. density Enveloseal SPF using a Gusmer 18/18 and ground the rough shape with a Calman Industries foam plane, finishing with a Clarke floor sander,” Meyers says. “For the parapet to floor transition, we used 1" backer rod with Jaeger Tape to allow for expansion and contraction.”

Next, the crew primed the surface, using rollers to apply 8 mils WFT of SPI's Polyprime. Then “using a Gusmer 20/35 we sprayed SPI's Ultra Bond-HT polyurea onto the roof, parapet wall, and all penetrations,” explains Meyers. Applied in four coats to a thickness of 100 mils DFT, the Ultra Bond was specified as it is able to withstand the amount of heavy traffic to which it will be subjected, as well as for its strong adhesive properties. In fact, this polyurea is unique in that it can even adhere to other polymeric substrates – old and new.

In between the third and fourth coats, the crew used a drywall hopper to broadcast aluminum oxide into the Ultra Bond, adding a non-skid surface for traction.

Massive Amounts Of Mini Parking

The Mini dealership was very pleased with the new roofing system. The Vector crew and SPI had indeed solved their problem by providing a lightweight, cost-effective, and water-tight parking lot on top of the dealership itself. It also solved the dealership's popularity problem. The job freed up space and the dealership was able to expand their inventory.



As for Meyers and his crew, they drove away with the satisfaction of a job well done. And when Meyers returns for periodic inspections he finds, “the roof/parking deck is performing beautifully.”

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