L.A. Confidential: Cracked Concrete At Police Headquarters

BY JENNIFER FRAKES

PHOTOS COURTESY OF POLYCOAT PRODUCTS

When Pacific Waterproofing & Restoration, Inc., of Pomona, Calif., is called to the parking structure of the police headquarters in downtown Los Angeles, the uncoated concrete is severely cracked, and the schedule for repairs and coating application is extremely aggressive. Can they solve the case of the cracked concrete before it's too late?

CSI: CONCRETE SUBSTRATE INVESTIGATION

"The parking structure roof is 57,000 square feet (5,295.47m²). It is a huge area, and we only had three weeks to complete the project," says Ron Bithell of Pacific Waterproofing. "Ideally, I'd like five to six weeks to finish a job of that size, but I knew we were up to the challenge."

The City of Los Angeles Police Department Headquarters is located in downtown Los Angeles, and the parking structure was built in 2010. The roof of the structure was left uncoated, and with the exposure to the elements, cracks started to develop in the unprotected concrete substrate. According to Bithell, all police personnel at headquarters park in the structure, making it a high traffic and highly essential area.

Pacific Waterproofing was hired to repair all cracks in the uncoated concrete and apply Polyprime 21 primer and Poly-I-Gard 246SC basecoat to the roof and any other exposed areas. "Coating the concrete was an afterthought," says Bithell, "but once it became obvious that coating was necessary, we had to get in there quickly and fix the roof."

Bob Parsons of Polycoat Products, manufacturer of the coating system, concurs. "The surfaces were uncoated and in desperate need of repair," says Parsons. "Some of the cracks were ⅛" to ¼" (0.32cm to 0.64cm) wide. Before any coating could be applied, the cracks needed to be repaired."

However, there was a twist to this cracked concrete caper. A

ABOVE ▲ Built in 2010, the 57,000 square feet (5,295.47m²) concrete roof of the parking structure for the police headquarters for the City of Los Angeles Police Department sees a lot of traffic. Left uncoated, after a year of exposure and heavy use, it was in need of protection.

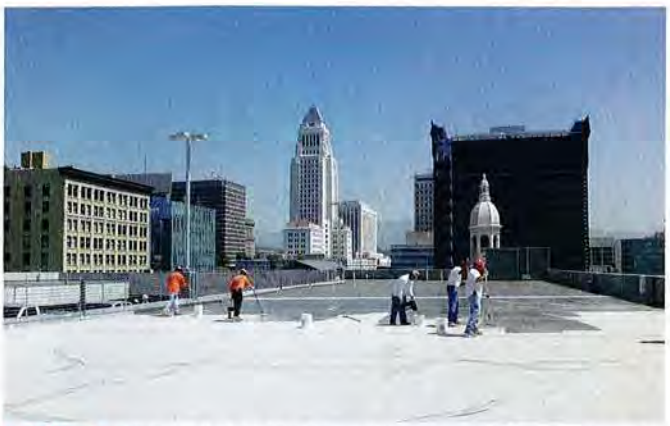
ABOVE ▲ Parsons explains, "Some of the cracks were 1/8" to 1/4" (0.32cm to 0.64cm) wide. Before any coating could be applied, the cracks needed to be repaired."

heavy trowel finish had been applied to the entire parking structure roof and had to be removed before any repair work could begin.

CALLING FOR BACK-UP

The heavy trowel finish had been applied to the concrete in order to create a slip-resistant surface. Prior to any concrete repair or coating application, the surface had to be ground down and shot-blasted. "With the existing slip-resistant surface, there were many highs and lows in the concrete. This means that any material put on the substrate would settle unevenly and not provide proper coverage and protection," says Bithell.

With this additional step in the process, suddenly the



ABOVE ▲ "We called in EER Inc., of Pomona, Calif., to perform the surface preparation of the concrete," says Bithell. "They removed all of the heavy trowel finish and then shot-blasted the entire roof area."

tight timeline got even tighter. Could Bithell and the Pacific Waterproofing team prep the concrete, repair the cracks, apply the Polyprime 21 and Poly-I-Gard 246SC in time?

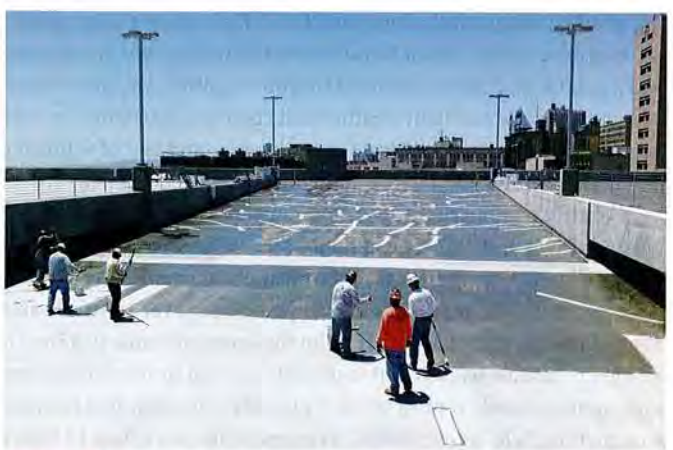
"We called in EER Inc., of Pomona, Calif., to perform the surface preparation of the concrete," says Bithell. "They removed all of the heavy trowel finish and then shot-blasted the entire roof area."

According to Bithell, the project was divided into two sections. It took approximately one week to prep both sections and one week per section to repair the cracks and apply the Polycoat Products coating system.

Repairing all the cracks was no small job. As soon as the EER crew finished shot-blasting the first section, the Pacific Waterproofing crew got to work repairing the cracks in the concrete substrate.

BEATING THE RAP

Repairing the many cracks in the concrete required a three-step process. First, a grinder with a diamond blade was used to open up the cracks. Then the cracks were primed and Sikaflex 2c NS



ABOVE ▲ Witch the clock ticking the crew divided the large deck into two sections, taking one week to prep both sections. Then they took one week per each section to repair the cracks and apply the coatings.

JOB AT A GLANCE

PROJECT:

Repair cracked concrete and apply Polyprime 21 and Poly-I-Gard 246SC to the roof of the parking structure for the City of Los Angeles Police Headquarters

COATINGS CONTRACTOR:

Pacific Waterproofing & Restoration, Inc.
2845 Pomona Blvd.
Pomona, CA 91768
(909) 444-3052
www.pacificwaterproofing.com

SIZE OF CONTRACTOR:

Small, family-run business with 20 employees

PRIME CLIENT:

City of Los Angeles

SUBSTRATE:

Previously uncoated concrete with many cracks, some 1/8" to 1/4" (0.32cm to 0.64cm) wide

SIZE OF JOB:

57,000 sq. ft. (5,295.47m²)

DURATION:

3 weeks

SIZE OF CREW:

Up to 12 men

UNUSUAL FACTORS/CHALLENGES:

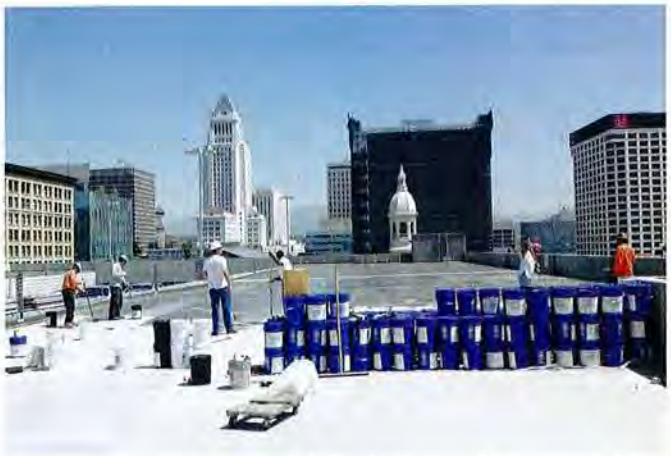
- The entire roof area had a heavy trowel finish that had to be ground down and shot-blasted before any repair work could begin.
- The repair work was quite extensive, especially given that the structure was recently built.
- Due to Southern California's stringent VOC regulations, the products used needed to be very low in VOCs.
- The schedule for the job was very aggressive; surface preparation, concrete repair, and coating had to be completed within 3 weeks.

PROCESS:

- EER, Inc., was called in to perform the surface preparation of the concrete. They removed all of the heavy trowel finish and then shot-blasted the entire roof area.
- The Pacific Waterproofing crew repaired the cracks by first opening up the cracks with a grinder with a diamond blade and then applying Sikaflex 2c NS EZ joint sealant. A detail coat of Poly-I-Gard 246SC was then applied to the area.
- Once all the cracks were repaired, the crew applied Polyprime 21 to the entire roof.
- An intermediate coat of Poly-I-Gard was applied, and sand was broadcast into the coating. In some areas, such as driving lanes, turn radiuses, and ramps, a second broadcast was done.
- The final top coat of Poly-I-Gard 246SC was then applied.

SAFETY CONSIDERATIONS:

- The crew wore 3M half-face respirators, hard hats, long pants, boots, safety glasses, and gloves for the duration of the project.



ABOVE ▲ The system specified for this high-profile project, Polycoat Products' Polyprime 21 and Poly-I-Gard 246SC are in compliance with South Coast Air Quality Management District (SCAQMD) strict low volatile organic compound (VOC) requirements.

ABOVE ▲ The Pacific Waterproofing & Restoration, Inc. crew used squeegees to apply the Polyprime 21 primer to the substrate at a thickness of 5 mils (0.13mm) DFT. Following the pour, squeegee, and backroll application, the prime coat was allowed to cure for approximately six hours.

EZ joint sealant was installed. Sikaflex2c NS EZ is a two-component, non-sag, polyurethane-based elastomeric sealant. It has high elasticity and excellent adherence to concrete, and it provides good chemical and weather resistance.

The Pacific Waterproofing crew filled all cracks with the Sika joint sealant and then applied a detail coat of Poly-I-Gard 246SC over the newly repaired areas. "In some of the bigger cracks, we also installed a reinforcing fabric manufactured by Polycoat Products," says Bithell.

All in all, the repair job was pretty labor intensive. According to Bithell, at times there were as many as a dozen crew members on site. "It was a big job with a lot of legwork before we could even begin the coating application," he explains. "Because of the tight timeline, we had to power through and get it done. Depending on where we were in the process, we worked some long days, up to 10 to 12 hours, to make sure that we never got behind schedule."

With all of the challenges that the crew faced on the job, one thing they didn't have to worry about was Mother Nature. The Southern California weather cooperated completely, providing Bithell and his crew with perfect conditions for completing the project. "We worked on the project from late April to mid-May," says Bithell. "We had good weather that time of the year. The rains had ended, and it wasn't too hot yet."

And this was a very lucky break for Pacific Waterproofing – there was no room in the schedule for any delays, weather or otherwise.

ON THE JOB

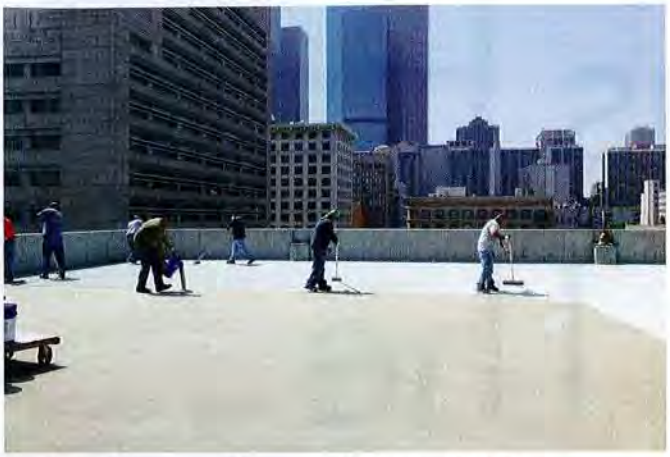
For Bithell and his crew working on the roof of a downtown Los Angeles parking structure, the city sprawled out before them provided an excellent backdrop and created an additional challenge. The parking structure lies within the boundaries of the South Coast Air Quality Management District (SCAQMD). Fortunately, the chosen coating system, Polycoat Products' Polyprime 21 and Poly-I-Gard 246SC, meet Southern California's low volatile organic compound (VOC) requirements. Both are high solids coatings that comply with the SCAQMD air quality standards. The SCAQMD regulates stationary sources of air pollution for most of Los Angeles, San Bernardino, Riverside, and all of Orange counties. This area encompasses approximately 10,750 square miles (27,842.37km^2) and is the second most populated area in the United States. According to Parsons, coatings with a high percentage of solids contain a lower percentage of solvents. This means that high solids coatings, such as Polyprime 21 and Poly-I-Gard 246SC, have a lower percentage of solvents that will evaporate into the air and pollute the environment during the coating application. Parsons also points out that Poly-I-Gard 246SC is specially formulated to meet the stringent SCAQMD regulations.

Another advantage of applying low VOC coatings is that they provide better coverage. "For example, a 100 percent solids coating applied at 1 mil (0.03mm) will give 1,604 square feet (149.02m^2) of coverage. A 50 percent solids coating (a coating with 50 percent solvent or water) applied at 1 mil will give only 802 square feet (74.51m^2) of coverage," says Parsons.

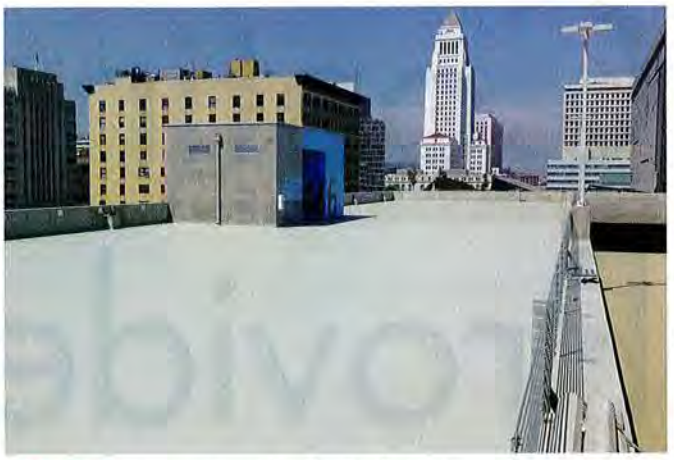
In addition to meeting the low VOC requirements and providing good coverage, the Polyprime 21 and Poly-I-Gard 246S, which is a moisture-cured, aromatic polyurethane waterproof membrane, was a great match for the needs of the job. Together, the primer and basecoat provide excellent weather and chemical resistance, as well as protect the concrete substrate from the wear and tear of vehicular and pedestrian traffic.

With a proper coating system chosen, the concrete surface ground down and shot-blasted, and all cracks repaired, the crew was finally ready to get down to the business of coating the parking structure roof. The Polyprime 21 was poured onto the substrate and applied using a squeegee at a dry film thickness of 5 mils (0.13mm). The area was then back-rolled to provide an even finish. The primer took approximately four to six hours to cure. The crew had to make sure that the Poly-I-Gard 246SC was applied no more than 12 hours after the primer became tack-free.

The Poly-I-Gard 246SC was poured out and applied at a dry film thickness of approximately 11 mils (0.28mm) using a squeegee.



ABOVE ▲ An intermediate coat of Poly-I-Gard 246SC was squeegee-applied at a DFT of 11 mils (0.28mm). Following a sand broadcast, the topcoat was squeegeed, backrolled, and allowed to cure for 16 hours.



ABOVE ▲ An arresting sight. The Pacific Waterproofing crew handed the freshly coated parking garage roof deck back over to the City of Los Angeles Police Department right on schedule.

Then sand was broadcast into this intermediate coat. According to Bithell, excess sand was swept up, and any residual sand and aggregate was blown off prior to the application of the top coat. "We also applied an extra sand broadcast coat to the drive lanes, turn radiuses, and ramps," says Bithell.

The topcoat was then applied and back-rolled to get rid of any marks in the coating that occurred during the application process.

The crew had to make sure that they allowed each coat to cure at least 16 hours before applying subsequent coats; however, any recoats had to be applied within 48 hours to ensure proper adhesion between coats.

All in all, 195 gallons (738.16L) of Polyprime 21 and 2,100 gallons (7,949.36L) of Poly-I-Gard 246SC were used by Pacific Waterproofing to solve the case of the cracked concrete.

And of course, during the entire CSI (concrete substrate investigation) process, safety was the number one priority on the jobsite, as it is with all Pacific Waterproofing projects. The crew wore 3M half-face respirators, hard hats, long pants, boots, safety glasses, and gloves. According to Bithell, because the application took place out in the open air on the roof of the parking structure, full face fresh air was not required.

CASE CLOSED

Thanks to the hardworking crews from EER, Inc., and Pacific Waterproofing and a product that was a perfect match for the conditions and specifications of the job, the cracked concrete caper was solved right on schedule. Pacific Waterproofing has an excellent relationship with the City of Los Angeles, the owner of the parking structure, and the material supplier, Polycoat Products. Pacific Waterproofing, a family-run business in operation since 1976, also has a great relationship with EER, Inc. On jobs such as the City of Los Angeles Police Headquarters parking structure — a big project with complex steps and a tight timeline — these positive relationships play a large role in ensuring that the job will be done right and finished on schedule.

Bithell says that the success of the project was also due in large part to the fact that he and his crew have worked with the Poly-I-Gard 246SC product before. "We are familiar with the product; the guys know how to work with it," he says.

He also credits Polycoat with their willingness to provide technical advice. "They are very hands-on and willing to help if we have any problems. They came out and made sure that everything was going alright," says Bithell.

Additionally, Bithell points out that, in his opinion, the Polycoat products are reasonably priced. In today's world, that is an important consideration for coatings contractors on any job, especially one as large as a 57,000-square-foot (5,295.47m²) roof. CP

VENDOR TEAM

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