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FEATURED PROJECT

Water-Immersion Coatings

APPLICATION OF A IMPACT RESISTANT COATING SYSTEM FOR A COOLING TOWER BASIN

CUSTOMER
MATEP, LLC.

APPLICATION TEAM
A&G Industrial Services

SYSTEM
Water-Immersion Coating System

LOCATION
Boston, MA

DATE OF APPLICATION
December 2018

SUBSTRATE
Concrete

PROBLEM

To conserve space, an urban power generation facility constructed cooling towers on the roof of its building. Due to continuous immersion in water and damage caused by the impact of falling ice that forms on the structure, multiple leaks developed over the years. A leak repair and prevention solution design needed to meet two major requirements: the repair needed to withstand water-immersion and the impact conditions caused by ice build-up and it needed to be installed in the winter months when the cooling towers were not in operation.

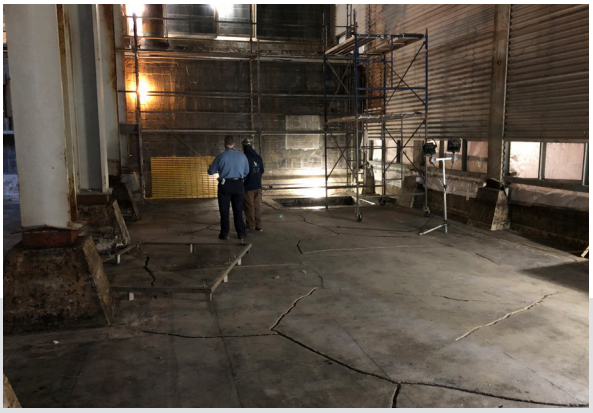

Figure 1 Cracks in the Concrete Basin Floor After Removal of the Tile Liner

SOLUTION

The power station turned to Advanced FRP Systems to design a custom elastomeric coating system reinforced with ballistics-grade kevlar fabric. The entire system was designed to hold up to water immersion, provide the needed impact resistance, and be applied during a cold weather.

STEPS:

1. The concrete was shot blasted to remove any laitance and provide a rough profile.
2. FRP 200 Concrete Sealer was applied at 3 - 5 mils to reduce pinholing.
3. Cracks were filled with HP-300 Elastomer; an elastomeric, immersion-grade epoxy
4. Kevlar fabric was saturated with FRP 200 Saturant and over the entire basin.
5. HP-300 Elastomer was applied by brush and roller over the kevlar fabric.
6. The system was allowed to cure for 72 hours at ambient temperature to ensure a functional cure prior to return to service.

Figure 2 Installation of the Kevlar Reinforcement Fabric

The customized coating system was installed successfully during a cold New England winter, on-time and on-budget. The material has been in service without any leaks or issues for over 2 years.

BENEFITS

- The composite reinforcement system can withstand cracks in the concrete and impact from falling ice
- The system was designed for cold temperature application, down to 35°F.
- The HP-300 Elastomer provides over 100% elongation, allowing for movement in the expansion joints.
- This system will provide a 20-year, maintenance-free service life.

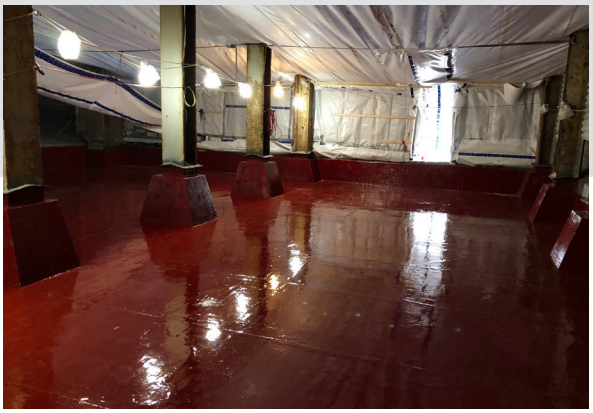

Figure 3 Final Basin After Application of the HP-300 Elastomer