

# **SWR Institute Trinity Projects Awards Program**

## **Project Information: Entry Form II**

**Project Title: PIER THREE CONDOMINIUM ATRIUM REHABILITATION PROJECT**  
**Location: 3 North Columbus Blvd., Philadelphia, PA**

**Entry Classification: Waterproofing**

**Project Cost: \$3,900,000.00**                      **Duration: 462 Calendar Days**

**Start/Completion Date: April 29, 2019 to July 31, 2020**

**WORK SCOPE:** The Project is located within an upper atrium level above the grade level parking garage of a 4-story condominium building. The Atrium is fully surrounded by the building with the only access via stair-cases and elevators. The 2nd floor unit owners' only access to their units is through the atrium area work zone. Contractor installed portable aluminum bridges with wooden steps over the work areas which were repositioned throughout the project to allow the owners access to their units during all hours. In order to fully expose the atrium slab, the existing wooden planter boxes, unit decks & walls, landscaping, existing topping slab and concrete steps were removed. For debris removal, a 4 SF access hole was cut into the slab over the garage and a dump trailer was positioned below. Once the demolition was complete, the original bituthene membrane was removed to expose the structural slab. Asbestos containing mastic was discovered on the vertical walls of the lower atrium which had been covered by the wooden structures and concrete steps. After testing, it was decided to leave in place and covered with cement boards prior to applying Cold Applied Waterproofing System. Miscellaneous structural concrete repairs were performed to the structural slab, where required by EOR. The structural slab was then prepped (via shot blast to a CSP #6) to help fully bond the new sloping slab to the structural slab. A sloping slab was installed over the entire area to divert water to the plaza drains. The slab was cured before a new waterproofing system could be installed. The selected waterproofing system consists of a primer and 3-layer reinforced liquid urethane membrane. It was applied to the areas in phases to accommodate the resident's access. The material was installed terminating at drains, columns, and penetrations, and to vertical surfaces. During the one of the termination mockups at the transition under the EIFS façade, it was discovered that over the years of water infiltration, the backup sheathing was deteriorated, and the wall studs were severely corroded. The Project Team determined that three (3) feet of EIFS façade and the deteriorated sheathing should be removed above the upper atrium slab. Exposed portions of the corroded steel studs were replaced or sistered to provide a sound surface for the new wall system and waterproofing termination. After the waterproofing system was applied and terminated, the EIFS was replaced to match the surrounding area. Drainage mat was installed over the cured waterproofing system on the Lower Atrium to promote flow to the split-level drains. A 4" topping slab was installed in 4 phases (Pumped concrete over 200 LF) over the entire atrium area sloping to the drains. Additionally, on the underside of the Atrium Slab, corroded steel beams of the elevated structural slab were either replaced or reinforced with supplemental steel plates. The missing fireproofing

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that had deteriorated over the years from leaks along with the repaired steel beams were fireproofed with spray applied lightweight material.

### **WHAT MAKES PROJECT WORTHY** (100 words)

Difficult Access, Safety of Pedestrians/Owners, Concrete Pumping over 200 LF, Multiple phases, repositioning of access bridging, Debris Removal and Topping slab slope tolerances.

This project saw many challenges during its successful execution, as safe access always had to be maintained for the condo residents. Temporary access paths were constructed and moved throughout the job site, directly over the work area, while allowing Pullman to work without delays.

Prior to mobilization, existing structural beams were temporarily supported with shoring posts due to the excessive corrosion that had taken place over years.

Very tight slope tolerances in the finish topping slab down to a 1/16/LF fall in some directions resulted in no standing water

### **UNFORESEEN CONDITIONS**

Lead-Based Paint removal to repair Steel Elements, Asbestos-Containing Material, Deteriorated Sheathing under EIFS and lack of simple Waterproofing terminations

### **PROBLMES/CHALLENGES/SOLUTIONS**

Challenges: Maintain Resident Access, Pedestrian Safety, Hazardous Materials.

Solutions: Build temporary bridges to maintain access into the residence, maintain partitions and utilize flagmen during concrete pumping and the moving of equipment, Encapsulate and professionally abate hazardous materials

### **SAFETY CONSIDERATIONS**

Control of the silica dust and debris with vacuums and dust shrouds on equipment during demolition. Erected containments during the lead paint removal. Over 16,000 manhours without a recordable or serious incident. Worked among residents and had no issues despite over a year of disruptive construction within feet of their front doors.

### **COMMUNITY/ENVIROMENTAL IMPACT**

Pier 3 structure, which is surrounded on Three (3) sides by the Delaware River was originally used as a shipping storage facility. Early 1980's converted to condominiums. Residents were very pleased with our quality workmanship, safety efforts and the fact that we maintained safe access for the entire project.

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Due to the site being located on and surrounded by the Delaware River, extra caution was taken to control dust and remove all debris.

### **TECHNOLOGY/INNOVATION**

3D scanning of existing slab- Scanned the original topping slab to record the elevation heights and maintain through project completion.

Electronic Leak detection to confirm that new membrane was installed properly

Created an access hole in the structural slab for debris removal to grade level.

### **SITE CONSTRAINTS**

Access to the Atrium was down the side walkway between the building and the river and all materials, etc. were lifted up to the elevated Atrium level via telescoping forklift.

Maintain access for residents with clean walkways and properly erected portable walkway bridges. Very long and difficult routes to remove debris and pump concrete

### **QUALITY CONTROL/FIELD TESTING**

Third party Special inspections for concrete placement, post-installed anchors, and structural welding.

Acceptance and field testing of waterproofing by Electronic Leak Detection, EOR, and Waterproofing Manufacturer

### **RIGGING APPROACH** –

Installation of a retractable lanyard attached to an overhead structural beam and clipped to the harness of the employee that was disposing debris through the 4 SF opening in the Atrium slab to the grade level garage area.

### **SUSTAINMENT**

Removal and Reinstallation with slight modifications to the existing aluminum handrails to meet building code requirements. Provided a 30-year waterproofing system warranty.