

Adding Value to Building Maintenance & Operations

Situation

The Architect of the Capitol (AOC) was planning a major capital repair project to rehabilitate the dome of the United States Capitol. The rehabilitation project was scheduled for several years in the future, but the AOC was aware of conditions at the cast iron ornament of the dome that could potentially affect public safety.

Challenges

The inspection work required an access approach that could be put in place quickly and efficiently. The project also required that the information gathered during the periodic inspections of the dome could be used for planning a major rehabilitation project.



Actions

An initial inspection of cast iron ornament on the dome, documenting conditions of deterioration as well as

installing temporary waterproofing measures was performed. Two years later, a comprehensive inspection of the entire exterior of the dome was done using industrial rope access, updating the initial survey where conditions had continued to deteriorate and providing graphic, location and quantity data, which was used to create construction documents for the dome rehabilitation project.

Results

The periodic inspection approach to the maintenance of the U.S. Capitol Dome was a cost-effective way to address public safety issues and plan for capital repair projects.

The cost of performing the temporary stabilization measures and documentation of conditions using industrial rope access was more than two orders of magnitude lower than just the estimated cost to install pipe-frame scaffold on the dome, which would have been over \$10,000,000.

In addition, the comprehensive hands-on inspection of the dome using industrial rope access and direct digital documentation took just three days, compared to the weeks that it would have taken just to install the scaffold.



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The Peter W. Rodino, Jr. Federal Building in Newark, NJ is a 16-story concrete frame building with pre-cast concrete panels. Cracks ranging from hairline width to larger separations resulting in spalls were observed in the pre-cast panels.

Challenges

Some of the cracks present in the pre-cast concrete panels were likely present soon after the building was constructed in 1967, and others have developed due to ongoing corrosion of reinforcing in the panels. One of the challenges for maintaining the exterior façade of the Rodino Building was to determine the changes in the cracks over time.

Actions

Iterative inspections of the exterior envelope were performed to document the location and severity of cracks in the pre-cast concrete panels. As part of the inspections, public safety concerns were also addressed by removing loose concrete and installing netting to stabilize areas of cracked concrete.



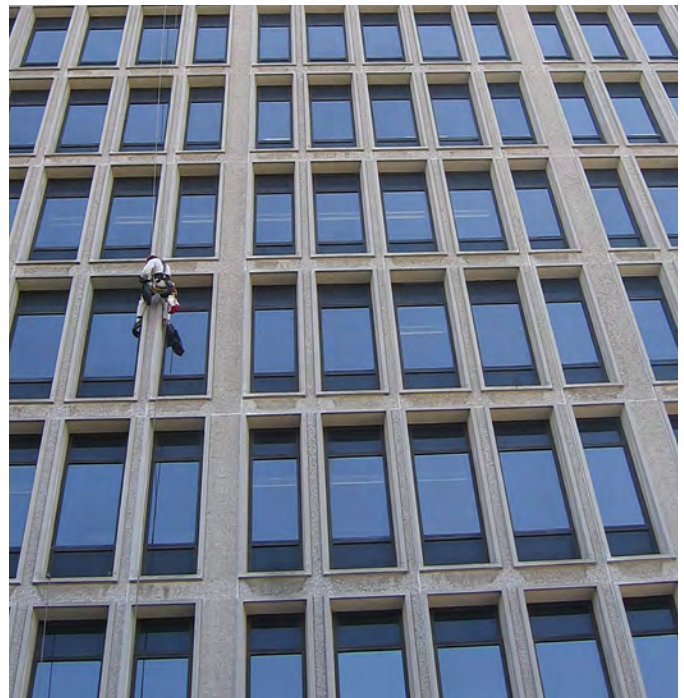
Results

Information gathered during periodic inspections of the exterior façade of the Rodino Building has been used to track changes in the cracks over time. With the data collected over several years, appropriate treatment of the exterior envelope could be developed. The temporary stabilization measures undertaken

have addressed public safety concerns at the building.

All of the work was undertaken efficiently using industrial rope access with no impact on the building occupants. Using suspended scaffold access, the total time for the inspection of the Rodino Building would have taken three to five times as long, depending on the number of swing stages platforms utilized, due to longer set-up and mobilization times and the extra time to move staging around the building.

The total cost for just the swing stage rigging would have been twice as much as the cost of the rope access inspection including documentation.



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