



PROJECT PROFILE

# Minnesota State Capitol

Comprehensive Facade Inspection and Marble Assessment | St. Paul, MN



**CLIENT**

J.E. Dunn Construction

**BACKGROUND**

The Minnesota State Capitol, situated on a hill overlooking downtown St. Paul, was completed in 1905. Modeled after St. Peter's Basilica in Rome, the capitol was the first major public building designed by Cass Gilbert, the architect who would later design the U.S. Supreme Court Building and the West Virginia and Arkansas state capitol buildings.

Ongoing restoration work at the capitol revealed that numerous exterior marble wall units were highly deteriorated with portions of marble falling where distress was most severe. In response to safety concerns, the building underwent a preliminary investigation, which revealed extensive spalling, disaggregation, surface roughness, and loss of surface area, especially on decorative stone elements. Subsequently, the client engaged WJE to perform a comprehensive investigation of the exterior marble elements and to evaluate potential repair options.



**SOLUTION**

Using swing stages and industrial rope access equipment where necessary, WJE architects and engineers carried out a visual survey of the marble exterior, recording observations on inspection data sheets that utilized CAD elevation drawings drawn from laser scans prepared by others. At select locations, petrographic evaluations using field microscopy were performed to determine the extent and nature of the deterioration. The team also identified locations to extract core samples for laboratory testing of the marble, mortar, and patch materials.



Specifically, the marble samples will be subjected to a variety of chemical treatments designed to conserve stone. WJE will evaluate each treatment's ability to reduce water penetration and increase long-term resistance to weathering. Shelter coat treatments will also be tested and considered to improve water run-off and reduce the rate of soiling. Finally, the marble treatment samples will undergo a series of laboratory tests to assess the effects of water absorption, cyclical weathering, and exposure to UV light. WJE will issue prioritized recommendations for repair and conservation upon completion of the investigation.

