



PROJECT PROFILE

Saint Mary of the Angels Church

Dome Repairs | Chicago, IL



CLIENT

Saint Mary of the Angels Church/Archdiocese of Chicago

BACKGROUND

The Saint Mary of the Angels Church was constructed in the Polish Cathedral-style and was completed in 1920. The church is a large brick and terra cotta masonry structure with embedded structural steel components. The church dome roof consists of clay roof tiles with intermittent terra cotta ribs. Located in the Bucktown neighborhood of Chicago, Illinois, the church is notable to many Chicagoans due to its prominence along the Kennedy Expressway.

As a result of long-term moisture infiltration damage throughout the church, particularly at the dome, the church was temporarily closed. Funding was established, and in the early 1990s, exterior repairs were implemented by others to address the sources of water damage. Despite repairs, leakage below the dome persisted. To address the interior water leakage below the dome and falling plaster on the interior, the church sought a waterproofing expert to investigate the cause of leakage.



SOLUTION

WJE performed an inspection of the dome utilizing the Difficult Access Team. WJE engineers rappelled from the cupola windows to inspect the dome roof, decorative terra cotta ribs, and brick masonry dome drum. The investigation identified potential water infiltration sources at cracked terra cotta units and failed sealant joints. Following the investigation, repairs were designed that included replacing the existing terra cotta ribs and clay roof tiles in order to allow installation of a continuous underlying waterproofing membrane. In order to create new terra cotta masonry based on the originals, pieces were carefully removed, marked, and shipped to a California-based terra cotta fabrication company.



During the course of the project, the fiberglass cupola was also determined to be an active source of leakage. The church elected to not only repair the cupola but to restore the cupola to its original terra cotta facade. Since the terra cotta cupola was removed in the 1960s, original pieces were not available to assist in new unit fabrication. Fortunately, the cupola terra cotta shop drawings remained in the church's possession. The two pages of drawings were used to recreate the cupola terra cotta units.