



## PROJECT PROFILE

# St. Clare's Hospital

Condensation Investigation and Repair Design | Weston, WI



### CLIENT

St. Clare's Hospital

### BACKGROUND

St. Clare's Hospital is a healthcare facility located in central Wisconsin. The building structure is brick-clad with glazed curtain wall elements and punched windows. Shadow box spandrels on the exterior wall consist of clear insulated glass units and a painted metal back-pan with foil-faced insulation taped to the curtain wall framing.

Beginning shortly after original occupancy, the windows displayed wintertime condensation within the shadow box spandrels on the exterior wall. Knowing the facility humidifies the air for patient comfort and equipment safety, WJE observed that the insulation was not 100 percent sealed to the framing, allowing moist air to exfiltrate. This condition created unsightly clouded spandrels and unacceptable water penetration. WJE was retained to perform comprehensive testing and to develop a repair that could be quickly implemented before the next winter.



### SOLUTION

Several four-square-foot mock-ups of different shadow box spandrels identical to the hospital's windows were made by the original project window contractor for WJE. WJE developed several repair techniques and tested the spandrels in an environmental chamber capable of creating extreme wintertime temperatures on the outside as well as the interior temperature and humidity conditions of the hospital. The mock-ups were instrumented to measure surface temperatures, and a view panel was installed to observe condensation within the shadow box spandrel. Based on results from the testing, WJE met with the hospital and design/construction team and proposed repair options for their consideration.



Repairs were implemented by the original contractor over a four-month period. All repairs, including removal and reinstallation of the existing glass, were completed from the exterior of the building to avoid disruption to hospital operations. WJE made periodic visits to the hospital to observe that the installation was in accordance with the repair designs and offered recommendations to keep the project on time and help assure a successful outcome.