



SERVICE PROFILE

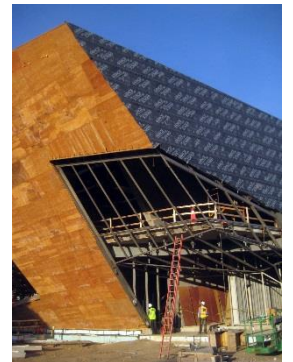
Building Science



- Coupled heat and moisture transport/storage modeling and analysis
- Building air and smoke flow modeling
- Moisture intrusion and condensation investigations
- Investigation of natatorium performance issues
- Building thermal envelope performance studies
- Wind-driven rain studies
- Condensation risk analysis
- Material and product performance evaluation

Buildings, no matter how modern or structurally imposing, can't avoid the influences of their surrounding environment. Climate, vegetation, light, and site orientation play a significant role in a building's effectiveness at fulfilling its intended functions, including facilitating the health and productivity of its occupants. The interaction between external and internal environments can be a source of issues throughout a building's service life or, when carefully considered, can be optimized to promote sustainability, safety, efficiency, and comfort.

WJE's building science expertise and resources are the result of a commitment to understanding the true nature of building performance issues related to heat, air, and moisture transport and storage. Our expert professionals, equipped with state-of-the-art laboratory and field testing capabilities, provide clients with a wide range of analytical and empirical methods for assessing their structures, including building performance modeling and simulations, pressure and flow measurement, and temperature and humidity studies. From the resulting data and analysis, our project teams can better understand the cause and origin of complex building enclosure failures or resolve challenging design conditions.



Building Science

REPRESENTATIVE PROJECTS

- Broward General Medical Center - Fort Lauderdale, FL: Diagnostic air pressurization testing and air leakage investigation
- Cardiovascular Institute at the St. Mary's Medical Center - Racine, WI: Design review of window interface detailing and thermal analysis of window conditions
- Federal Building and U.S. Courthouse - Anchorage, AK: Exterior envelope insulation and design assistance
- James K. Polk State Office Building - Nashville, TN: Acoustic emission and vibration monitoring
- Liberty Township Recreation Center - Powell, OH: Water infiltration testing and hygrothermal analysis
- Knapp Center for Biomedical Discovery - Chicago, IL: Air barrier investigation and repairs
- Massachusetts General Hospital, Lunder Building - Boston, MA: Testing and analysis of condensation issues in new construction
- Michigan State University, Broad Art Museum - East Lansing, MI: Testing of microclimates for adherence to strict temperature and humidity requirements
- Union Station - Seattle, WA: Glass breakage investigation
- United States Air Force Academy Cadet Chapel - Colorado Springs, CO: In situ instrumentation for one year, wind study, analytical model, and recladding design

