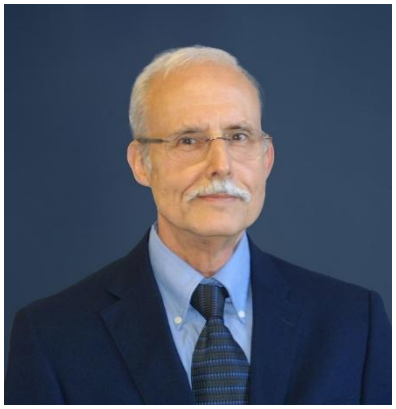
PERSONNEL QUALIFICATIONS

L. Brad Shotwell | Associate Principal



EDUCATION

- Kent State University
  - Bachelor of Science, Earth Science, 1971
  - Master of Science, Geology, 1973
  - Post-Graduate Training, Engineering Geology, Clay Mineralogy, and Groundwater Hydrology, 2004–2008

PRACTICE AREAS

- Petrographic Evaluation
- Microscopy
- Historic Preservation
- Facade Assessment
- Materials Evaluation and Research

REGISTRATIONS

- Professional Geologist in IL

PROFESSIONAL AFFILIATIONS

- American Concrete Institute
- American Institute of Professional Geologists
- ASTM International
- Geological Society of America

TECHNICAL COMMITTEES

- ASTM C09.65 - Petrography

CONTACT

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EXPERIENCE

Brad Shotwell provides materials consulting and evaluation services. His work includes petrography of concrete and concrete raw materials, mortars, plaster, dimension stone, and the application of petrographic techniques to solve materials problems. Mr. Shotwell has special expertise in petrography of early concrete structures for historic preservation. He has also developed a computer-assisted modified point-count apparatus used for air void system analysis of hardened concrete.

Prior to joining WJE, Mr. Shotwell performed numerous petrographic studies and managed petrographic laboratories for both a major construction materials manufacturer and a national materials testing laboratory. In this capacity, he performed failure analyses of concrete from a variety of structures and evaluations of aggregates for use in nuclear power plant construction, and approved raw materials for high-performance packaged grouts and mortars.

REPRESENTATIVE PROJECTS

Petrographic Evaluation of Concrete

- ASM International World Headquarters - Russell, OH: Petrographic evaluation of deteriorated concrete
- Cleveland Hopkins International Airport - OH: Petrographic evaluation of deteriorated concrete
- Kansas City International Airport - MO: Petrographic evaluation of distressed runway concrete

Petrographic Evaluation of Natural Stone

- Minnesota State Capitol - St. Paul: Field and laboratory evaluation of weathered marble cladding
- Swarthmore College - Swarthmore, PA: Evaluation of quarry in Switzerland proposed as a source for dimension stone
- Union Theological Seminary - New York, NY: Evaluation of dimension stone condition and of cast stone replacement material
- Second Mormon Temple - Nauvoo, IL: Field and laboratory characterization of Mississippian limestone proposed for reconstruction

Microscopy

- Bethany Village Center - Dayton, OH: Laboratory examination of distressed wood veneer panels

Historic Concrete and Masonry Preservation

- Mississippi State Capitol, House and Senate Domes - Jackson: Field and laboratory studies of deteriorated structural concrete elements of House and Senate domes
- R.E. Lee Building - Jackson, MS: Field evaluation of pointing mortar deficiencies
- Perry's Victory and International Peace Memorial - South Bass Island, OH: Field examination and petrographic studies of historic concrete

Dimension Stone Facade Assessment

- Nebraska State Capitol - Lincoln: Evaluation and documentation of various stone cleaning methods
- New York Public Library, Main Branch - New York, NY: Field and laboratory petrographic evaluation of dimension stone deterioration and mortar repairs
- Wisconsin State Capitol - Madison: Microscopic evaluation (both field and laboratory) of abrasive cleaning methods proposed for cleaning of granite facade
- American Museum of Natural History - New York, NY: Laboratory characterization of granite surface alteration and comparison to aggressive cleaning methods

AWARDS

- Association for Preservation Technology International, 2011 Oliver Torrey Fuller Award: For development of a field-capable device used for rapid collection of stereo images for documentation of microscopic textural features of dimension stone and mortar