

Cleveland Laboratory



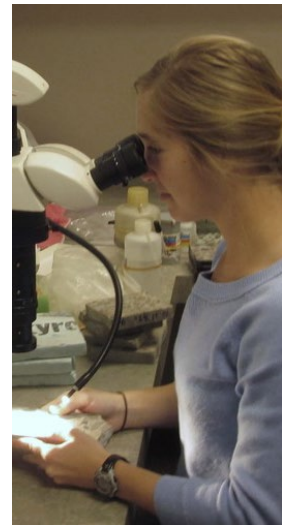
- Materials Science and Testing
- Petrography
- Cement, Concrete, and Mortar Analysis
- Historic Preservation
- Standardized (ASTM and other) and Specialty Testing, including but not limited to:
 - C67
 - C97
 - C295
 - C457
 - C642
 - C856
 - C1195
 - C1324

WJE is a global firm of engineers, architects, and materials scientists that specializes in the investigation, analysis, testing, and design of repairs for historic and contemporary structures. Since our founding in 1956, WJE has focused on delivering practical, innovative, and technically sound solutions across all areas of new and existing construction. To underpin that effort, WJE's Cleveland laboratory, established in 2001, combines state-of-the-art laboratory facilities and testing capabilities with knowledge and expertise that is unparalleled in our profession.

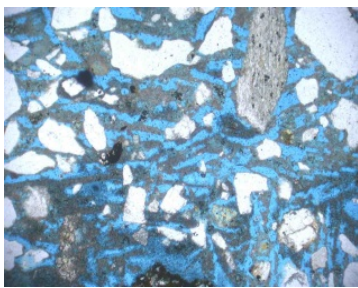
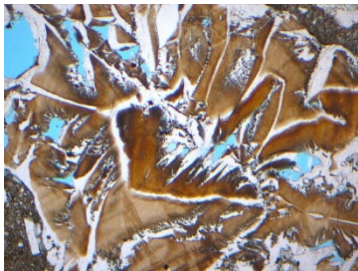
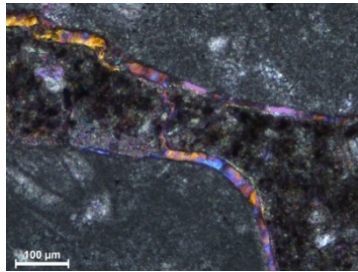
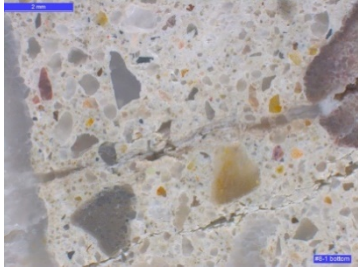
The Cleveland laboratory is a 1,500-square-foot facility with a fully equipped petrography laboratory. Cleveland's materials engineers, scientists, and technicians perform a wide variety of construction materials evaluations, including field observations and testing and optical microscopy.

Our Cleveland staff work closely with WJE's Janney Technical Center facility in Northbrook, Illinois—an expansive 70,000-square-foot testing and applied research facility including a full array of chemistry, petrography, metallurgy, concrete and mortar, corrosion, and structural testing laboratories.

From the laboratory to the job site, from engineering to materials sciences, we have the highly qualified staff and resources needed to develop and test new approaches and create innovative solutions for the built world.



Cleveland Laboratory



BENEFITS

- WJE petrographers have conducted thousands of petrographic examinations. Their experience and knowledge is vital to fully analyzing and understanding materials' qualitative properties.
- Petrographic examinations, which can often be conducted quickly, yield valuable information about the composition, cause(s) of problems, and potential performance of construction materials.
- WJE petrographers routinely augment their studies with a variety of physical tests and chemical analyses to help characterize the material and understand its behavior.

LABORATORY SPECIALTIES

- Physical Properties and Composition
- Evaluation of Concrete Repair Materials
- Concrete Pavements
- Concrete Slabs
- Dimension Stone
- EIFS, Stucco, Plaster
- Mortar and Grout
- Aggregates
- Adhered Masonry Veneer Systems
- Brick Masonry
- Concrete Masonry Units
- Terra Cotta
- Terrazzo
- Coatings
- Flooring Materials
- Historic Materials
- Recycled Materials
- Architectural Concrete
- Roller Compacted Concrete
- Geopolymers

MICROSCOPY

- Petrography
- Air Void Distribution
- Premature Concrete Deterioration and Related Distresses
- Evaluation of Coatings and Concrete Repairs

PROJECT APPLICATIONS

- Assessment of Hardened Concrete
 - Aggregate Deterioration Mechanisms
 - Mix Design Estimates
 - Air Content Determinations
 - Estimated Cement Content
 - Estimated Water-to-Cementitious Materials Ratio
 - Paste Constituents
 - Identification of Concrete Deterioration Mechanisms
 - Freeze-Thaw Distress
 - Alkali-Silica Reaction (ASR)
 - Delayed Ettringite Formation (DEF)
 - Compositional Causes of Variable Compressive Strengths
 - Finishing Problems
- Assessment of Dimension Stone
 - Deterioration Mechanism
 - Quarry Evaluation
- Characterization of Historic Concretes and Mortar
- Analyze Specialty Construction Products
- Assessment of Architectural Cast Stone and Precast Concrete
- Failure Analysis of Flooring Underlayments and Products
- Failure Assessment of Concrete Slabs and Pavements

WJE CLEVELAND LABORATORY

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