



EDUCATION

University of Illinois at Urbana-Champaign

- Master of Science, Civil Engineering, 1997
- Bachelor of Science, Civil Engineering, 1996

PRACTICE AREAS

- Concrete Petrography
- Aggregate Evaluation
- Air-Void System Analysis
- Stucco Evaluation
- Historical Mortar Examination
- Concrete Troubleshooting
- Damage Assessment
- Materials Research
- Litigation Support

REGISTRATIONS

Professional Engineer

- Illinois

EXPERIENCE

Ms. Jennings has over 20 years of experience in the evaluation of concrete structures and materials. Her expertise is in the use of optical microscopy for the analysis of materials and material-related distress. She has performed microscopical examinations of concrete, mortar, floor tile, and other construction materials to evaluate condition, quality, and composition. She has also conducted petrographic examination of aggregates to assess their quality and suitability for use in concrete and performed air-void system analysis to evaluate the freeze-thaw resistance of concrete.

As project manager for over 400 projects, Ms. Jennings has coordinated various aspects of materials evaluations, including microscopy, chemical analysis, and physical testing, to determine the causes for deterioration and distress. Prior to her work as a petrographer, she served as an evaluation engineer, performing condition surveys, field inspections, and field testing on various construction and rehabilitation projects. Through this experience, Ms. Jennings gained first-hand exposure to many of the common deterioration mechanisms in concrete.

Ms. Jennings is routinely invited to give presentations on petrographic examination and its applications to various audiences, and has lectured on the topic for several instructional courses.

REPRESENTATIVE PROJECTS

Materials Evaluation

- Spartan Stadium, East Lansing, MI– Condition assessment of seating support structures prior to stadium renovation.
- Lee Nuclear Station, Cherokee County, SC– Large-scale testing program to characterize concrete foundation materials.
- Water Treatment Plant, Guayaquil, Ecuador– Evaluation of the extent of degradation in concrete retention basins prior to repair.
- Anderson Air Force Base, Guam– Examination for deleterious components in aggregates to be used in airfield pavements, performed in accordance with USACE sequential testing program.

Materials Performance Issues

- KY121 Bridge over Purchase Parkway, Graves County, KY– Investigation of deck concrete low compressive strength test results.
- Hamm Residence, Jupiter Island, FL– Evaluation to identify the composition of a “gold” glaze on pool tile samples and determine the cause for localized discoloration of the glaze.
- Highway Sound Barrier Walls, Broward County, FL– Laboratory testing to determine composition and source of surface deposits.

Damage Evaluation

- Stop Thirty Road Over SR6 Bypass, Sumner County, TN– Assessment of the extent of fire damage after the explosion of a tanker truck under the concrete overpass.
- Residential Facade, Honolulu, HI– Petrographic examination to determine the cause of exterior surface scaling of concrete masonry walls.
- Sacramento United Methodist Church, Sacramento, KY– Evaluation of widespread surface delamination in newly constructed interior floor slab.
- Millennium Carillon, Naperville, IL– Investigation of cracking and spalling in precast concrete bell tower.

Historical Structures

- Bridge of the Hídalgos, Santa Fe, NM– Evaluation of general condition and probable future performance of the concrete, and estimation of mix proportions.
- Nauvoo Historic District, Nauvoo, IL– Assessment of mortar composition and proportions prior to restoration of historic masonry residences constructed ca. 1840.
- Desert View Watchtower, Grand Canyon National Park, AZ– Examination of plaster from mural-covered wall within stone masonry structure built in the 1930s.
- Harvard Club of New York City, NY– Evaluation of composition and condition of artificial stone wall panels installed ca. 1905.
- Vautravers Building, Chicago, IL– Laboratory testing of mortar, brick and stone to characterize materials prior to relocation and restoration of the historic apartment building.

Litigation Support

- Affinity at Colorado Springs, CO– Laboratory testing and examination of failed gypsum underlayment.
- Filling Station Lofts, Miami, FL– Examination of interfaces between stucco and various substrate materials; evaluation of stucco delamination and cracking.
- Gillespie Dam, near Gila Bend, AZ– Investigation of the failure of an 80-year-old concrete dam.