PERSONNEL QUALIFICATIONS

Elizabeth I. Wagner | Senior Associate

EDUCATION

- Princeton University
  - Bachelor of Science, Civil and Environmental Engineering, 2011
- Georgia Institute of Technology
  - Master of Science, Civil Engineering, 2013
  - Doctor of Philosophy, Civil Engineering, 2016

PRACTICE AREAS

- Concrete Structures
- Service Life Modeling
- Construction Materials
- Mass Concrete
- Laboratory Evaluations
- Durability Assessment

REGISTRATIONS

- Professional Engineer in IL, IN, IA, MI, and OH

PROFESSIONAL AFFILIATIONS

- American Concrete Institute (ACI)

TECHNICAL COMMITTEES

- ACI 201 - Durability
- ACI 207 - Mass Concrete

CONTACT

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EXPERIENCE

Since joining WJE in 2016, Elizabeth Wagner has been involved in a variety of projects involving field, laboratory, and analytical investigation of reinforced concrete structures and materials. Specific areas of focus include durability assessment of concrete materials, service life analysis of reinforced concrete structures, development of thermal control plans for mass concrete, and development, testing, and troubleshooting of concrete materials. Dr. Wagner also has broad laboratory experience evaluating and testing cements, aggregates, masonry, polymer concrete, and corrosion-resistant reinforcing steels.

Prior to joining WJE, Dr. Wagner conducted research at the Georgia Institute of Technology, focused on the early-age properties and long-term durability of concrete made with portland limestone cement. She has presented and published on work related to ultra-high performance concrete (UHPC), chemical and autogenous shrinkage of cement-based materials, physical salt attack, and transport properties of concrete.

REPRESENTATIVE PROJECTS

Concrete Structures

- Bridge Deck Analysis - Missoula, MT: Condition survey, materials testing, and computer modeling of cracking in twelve bridge decks in western Montana
- Interstate 480 Bridge - Omaha, NE: In-depth inspection, corrosion assessment, service life modeling, and repair program development of bridge piers subjected to electrochemical chloride extraction (ECE)
- Sasol Coal Gasification Plant - Secunda, South Africa: Structural evaluation, service life assessment, and repair program development for eight hyperbolic shell natural draft cooling towers
- Third Avenue Bridge - Minneapolis, MN: In-depth inspection, materials evaluation, and service life assessment of historic concrete arch bridge

Service Life Modeling

- Bored Tunnel - VA: Materials testing, service life modeling, and durability design of reinforced concrete bored tunnel designed to achieve a one hundred-year service life
- Chicago Transit Authority - IL: Durability design and service life modeling of reinforced concrete and steel elements to achieve one hundred-year service life in elevated transit structures
- Iowa Department of Transportation: Service life modeling and life cycle cost analysis of polymer overlays and bridge deck sealers
- Ohio River Bridge East End Crossing - KY: Corrosion service life modeling and durability assessment of landmark bridge elements designed to achieve a one hundred-year service life

Construction Materials

- Bridge Deck Joint Strengthening and Overlay - NY: Development and laboratory analysis of fiber-reinforced polymer concrete materials for precast deck panel infill on new landmark bridge
- UHPC Development - Tampa, FL: Development, testing, and troubleshooting of ultra-high performance concrete for structural precast applications
- Precast/Prestressed Concrete Institute - U.S.: Development and implementation of UHPC mixtures, production guidelines, and materials guide specification for long-span precast elements

Mass Concrete

- Bridge Piles - San Diego, CA: Thermal modeling and DEF investigation of ten-foot-diameter cast-in-drilled hole piles
- Hanover Republic Square - Austin, TX: Mass concrete analysis and thermal control plan for ten-foot-thick mass concrete foundation for high-rise building
- Medical Facility - WI: Mass concrete analysis and thermal control plan for various foundation, slab, and wall mass concrete elements
- Petit Caillou Lock Structure - Chauvin, LA: Thermal control plan for warm weather placement of seven hundred-cubic-yard mass concrete slab for dam lock structure
- Power Generation Facility - PA: Thermal analysis and temperature monitoring of eight-foot-thick foundation slab and mass concrete columns