



#### EDUCATION

- Illinois State University
  - Bachelor of Science, Chemistry, 1997

#### PRACTICE AREAS

- Analytical Chemistry
- Inorganic/Organic Chemistry
- Materials Evaluation and Research
- Mortar Composition Analysis
- Wood Testing and Analysis
- X-Ray Diffraction

#### CONTACT

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#### EXPERIENCE

Since joining WJE in 1997, Tonya Werner has acquired expertise in various chemical methods, primarily for the purposes of failure analysis, evaluation, and laboratory characterization of construction materials, repair recommendations, and historic restoration. She is proficient in many ASTM and AASHTO analytical procedures of chemical analysis.

Ms. Werner performs various analyses related to solving construction material problems, including materials such as concrete, cement, mortars, stuccos, grouts, soils, water, wood, plaster, clays, coatings, efflorescence, gypsum-based materials, and corrosion products. She has expertise in instrumental analyses and specialized spectral interpretation using atomic absorption, x-ray diffraction, and infrared spectroscopic techniques. In addition, Ms. Werner has experience with wet chemistry, including acid and water soluble chloride analysis, pH, and water analysis for corrosion potential. She routinely performs sulfur analysis by both evolution-titration and gravimetric methods as well as compositional analysis of mortars and fire retardant-treated wood.

#### REPRESENTATIVE PROJECTS

##### Analytical Chemistry

- Analyses to determine chloride penetration of concrete at various depths
- FTIR analysis of coatings
- Studies to evaluate sulfate levels of grouts
- Analyses to determine availability of sulfate in soils
- Materials analysis for identification of components

##### Mortar Composition Analysis

- Historic Restoration: Analyses of mortars from historic and landmark structures for restoration purposes

##### Wood Testing and Analysis

- Fire Retardant-Treated Plywood (FRT): Analyses and testing of plywood and discolored lumber

##### X-Ray Diffraction

- Identification of efflorescence to determine sources of moisture intrusion
- Identification of FRT treatments of wood