PERSONNEL QUALIFICATIONS

Kimberly Steiner | Associate Principal and Unit Manager

EDUCATION

- Arizona State University
  - Bachelor of Science, Chemical Engineering, 1996
  - Master of Science, Chemistry, 1998

PRACTICE AREAS

- Failure Investigation
- Materials Evaluation and Research
- Chemical Analysis
- Laboratory Testing
- Microscopy
- Research and Testing

PROFESSIONAL AFFILIATIONS

- NACE International

CONTACT

ksteiner@wje.com
847.272.7400
www.wje.com

EXPERIENCE

Kimberly Steiner focuses on failure analysis, consulting, and research on construction materials. She conducts onsite evaluations and laboratory characterization and analysis of materials to investigate failures, corrosion, incompatibilities of materials with the surrounding environment and general chemical analysis. Information gained from lab testing is related to the real-world problem being addressed.

Ms. Steiner uses various analytical techniques to solve construction materials problems, including chemical analysis, microscopy, and physical testing. She has expertise in scanning electron microscopy, light microscopy, Fourier transform infrared spectroscopy, UV/visible spectroscopy, atomic absorption spectroscopy, X-ray fluorescence, X-ray diffraction, ion chromatography, gas chromatography with mass spectrometry, and wet chemical techniques.

REPRESENTATIVE PROJECTS

Failure Investigation

- High-Rise Residential Buildings - Chicago, IL: Environmentally assisted cracking (stress corrosion cracking) of copper tubes in HVAC systems
- Residential and Commercial Buildings - Nationwide: Corrosion failures of copper and galvanized steel drinking water pipes
- Residential Buildings - FL and TX: Evaluation of residences with corrosive (Chinese) drywall
- Medical Facilities - Nationwide: Corrosion of copper tubing due to interaction with sealant
- Commercial Buildings - TX: Corrosion of roofing systems from insulation
- Hospital - Southeastern U.S.: Corrosion of hospital equipment related to installation
- Commercial Building, IL: Evaluation of distress of finished wood and identification of source of leakage of water
- Various Buildings - Nationwide: Evaluation of staining of stone and facade materials
- Commercial Buildings - Nationwide: Staining of glass windows related to exposure to construction materials

Materials Evaluation and Research

- Testing of and test method development for ADA-compliant detectable warning systems
- Testing of compatibility of fire prevention gels with building materials
- Testing and characterization of stone consolidants
- Test methods for concrete sealers

Chemical Analysis

- Materials analysis for identification of components
- Chemical analysis of paints, coatings, membranes, and sealants
- Admixture analysis of concrete and mortars by various chemical techniques
- Analysis for bond breakers in precast and tilt-up concrete structures
- Analysis of corrosion products and sources of corrosion

Laboratory Testing

- Chemical analysis of coating systems for composition and degradation of coating components
- Microscopical analysis of coatings for thickness, composition, layers; compliance with standards
- Analysis of anodized aluminum
- Testing of water samples

Microscopy

- Optical microscopy of coatings, cementitious systems, corrosion products, and other systems
- Scanning electron microscopy with energy dispersive X-ray spectroscopy of coatings, fasteners, concrete, dimension stone, and many other systems
- Characterization of protective coatings
- Evaluation of environmental degradation of various materials