PERSONNEL QUALIFICATIONS

Kimberly Steiner | Principal and Unit Manager

EDUCATION

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

PRACTICE AREAS

- Corrosion
- Coatings
- Construction Materials
- Laboratory Evaluations
- Chemical Analysis
- Research and Product Evaluation
- Microscopy

PROFESSIONAL AFFILIATIONS

- American Water Works Association
- Association of Materials Protection and Performance (formerly NACE International)

CONTACT

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EXPERIENCE

Kimberly Steiner focuses on failure analysis, consulting, and research on construction materials. She conducts on-site evaluations and laboratory characterization and analysis of materials to investigate failures, corrosion, incompatibilities of materials with the surrounding environment and general chemical and compositional analysis. Information Ms. Steiner gains 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 a variety of wet chemical techniques.

REPRESENTATIVE PROJECTS

Corrosion

- 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
- Commercial Buildings - Nationwide: Corrosion failures of fire sprinkler 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
- Green Bay, WI: Evaluation of corrosion of bolts in a buried sewer line

Coatings

- Manufacturing Plant - NC: Evaluation of coating/lining failures on process equipment
- Sports Arena - Western U.S.: Evaluation of coated exterior panels
- Residential Building - FL: Evaluation of corrosion failure of coated aluminum windows

Construction Materials

- Various Buildings - Nationwide: Evaluation of staining of stone and facade materials
- Commercial Buildings - Nationwide: Staining of glass windows related to exposure to construction materials
- Various Buildings - Nationwide: Evaluation of causes of fracture of tempered glass
- Various Buildings - Nationwide: Analysis for bond breakers in precast and tilt-up concrete structures
- Commercial Buildings - Southern U.S.: Evaluation of moisture retention on concrete slabs ("slab sweating")
- Commercial Buildings - Nationwide: Evaluation of blistering of flooring materials
- Commercial Buildings - Nationwide: Evaluation of rundown of Polyisobutylene sealant in insulated glass units

Laboratory Evaluations

- 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

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