

Gina Crevello

Architectural Conservator and Principal, Echem Consultants LLC

Biography

Gina Crevello is an architectural materials conservator, and founding principal of Echem Consultants, LLC (Echem). Ms. Crevello was educated at Columbia University's Graduate School of Architecture, Planning and Preservation. She holds an MSc and Advanced Certificate in Conservation Science. Her firm is a leading investigative and forensic consultancy in the field of corrosion and material durability. Specializations include steel frame building and concrete assessments, diagnostics and failures analysis, and electrochemical corrosion remediation. Ms. Crevello is Vice President of the Board of the Association of Preservation Technology (APT), co-chairs the National Association of Corrosion Engineers (NACE) Concrete Service Life Extension Conference and is active in the American Concrete Institute (ACI), the International Concrete Repair Institute (ICRI) and the American Institute of Conservation (AIC).

Predicting Concrete Performance as Preventive Conservation

Understanding the impact of engineering material degradation, rates of deterioration, and condition state changes are critical in making sound repair choices for historic concrete structures. Forecasting remaining service life and planning for durability is critical, particularly when the subject structure is a key structure in a major urban center, or an irreplaceable landmark. Understanding the consequence of material interactions as materials begin to degrade can guide future repair choices.



Rehabilitation guidelines and

service life extension options can be established once the team understands the rate at which a structure is degrading. By monitoring the performance of a structure, a corrosivity and degradation index are established. Multiple parameters on the subject reinforced concrete structure are monitored with bespoke sensors, based on programs that have been developed to alert the asset / landmark owner of changes in their structures' condition states. The data is then utilized in durability and service life models to understand where the structure is in regard to critical performance thresholds and when a structure may encounter critical failures. The team can then provide proactive repairs, mitigate issues prior to failures, and make more informed material selection choices going forward. When applied to historic structures this approach can help provide an understanding of 'anticipated remaining service life' and to assist in developing a proactive repair to minimize future degradation to historic building fabric.