

**PATRICIA AGUIRRE, PE, REWC**

**SENIOR CONSULTANT**

paguirre@btc.expert

Tricia Aguirre is a consultant to Building Technology Consultants, Inc.

## REGISTRATIONS

- Licensed Professional Engineer (**PE**), Virginia
- Registered Exterior Wall Consultant (**REWC**)
- Construction Document Technologist (**CDT**)



## PROFESSIONAL EXPERIENCE

Tricia Aguirre has been involved in the **evaluation**, testing, **analysis**, and **repair** of **structures** and **building facades** for over 15 years. She is a building envelope consultant in Bristow, Virginia, who began consulting with Building Technology Consultants, Inc. in 2018. She was previously employed as a Senior Engineer at Building Technology Consultants, Inc. from 2016 to 2017. Prior to joining Building Technology Consultants, Inc., she was employed by WDP & Associates Consulting Engineers in Manassas, Virginia, from 2002 to 2015.

Her professional experience includes:

- Investigation of deterioration, **water leakage** issues, and construction deficiencies in **building envelopes**;
- Assessment of building envelope systems for **building code** compliance;
- Structural analysis and design;
- Nondestructive testing;
- Development of **repair alternatives** to address building deficiencies;
- Repair **design** and preparation of Contract Documents;
- Evaluation of **design** and **construction deficiencies** in new buildings; and
- **Forensic investigations** and litigation support.

Tricia Aguirre has been involved with investigations of various exterior wall claddings, including **brick**, **concrete masonry units**, **stucco**, **EIFS**, **adhered veneer**, **glass fiber reinforced panels**, **dimension stone**, and **fiber cement siding**, as well as **low-slope** and **steep slope roofing** projects including **standing seam** metal roofing, **clay tile**, **slate**, and **asphalt shingles**. Her expertise is concentrated in the area of litigation support with respect to the building envelope design and construction.

## EDUCATION

Tricia Aguirre earned a **Bachelor of Science** degree in Civil Engineering from **Virginia Polytechnic Institute and State University (Virginia Tech)** in 2000. She earned a **Master of Science** degree in Civil Engineering from **Virginia Tech** in 2002.

Since her graduation, she has attended numerous seminars and symposia related to construction technology, roofing, waterproofing, and building envelopes.

## PROFESSIONAL ACTIVITIES

- Member of **International Institute of Building Enclosure Consultants (IIBEC** – formerly **RCI, Inc.**)
  - Former member of **Interface Committee**
  - Former member of **Registered Exterior Wall Consultant Exam Development Task Force**
  - Major contributor to development of **Exterior Wall Quality Assurance** Course
- Member of **ASTM** International
  - Member of Committee C11, Gypsum and Related Building Materials and Systems

## PUBLICATIONS

- Aguirre, P. and Innocenzi, M. "**Analysis of Areas of Unbonded Stucco Using Plate Mechanics**," Thirteenth Canadian Masonry Symposium, June 2017.
- Aguirre, P. "**Understanding the Terminology: Air Barriers, Vapor Retarders, and Water-Resistive Barriers**," RCI Interface, April 2017.
- Aguirre, P.; Innocenzi, M.; and Whitlock A. R. "**Required Tensile Bond Strength of Direct-Applied Stucco**," Twelfth North American Masonry Conference Proceedings, Denver, Colorado, May 2015.
- Aguirre, P.; Peterson, J. E.; and Hess, G. "**Investigation of Staining of Hard-Set Sandstone Masonry Pavers**," Twelfth Canadian Masonry Symposium, June 2013.
- Innocenzi, M. and Aguirre, P. "**More is Less with Stucco Lath**," The Construction Specifier, August 2012.
- Innocenzi, M. and Aguirre, P. "**Avoiding Problems with Stucco over Fiberglass-Faced Sheathing**," The Construction Specifier, July 2012.
- Innocenzi, M. and Aguirre, P. "**How to Get What You Paid For: Value Engineering for Masonry and Building Envelopes**," The Construction Specifier, May 2012.
- Innocenzi, M. and Aguirre, P. "**A Nice Ending to Your Clerestory**," The Construction Specifier, April 2012.
- Peterson, J. E.; Aguirre, P.; and Whitlock, A. R. "**Influence of Insufficient Water Content on Porosity, Water Permeability and Calcium Carbonate Efflorescence Formation of Masonry Mortars**," Tenth North American Masonry Conference Proceedings, St. Louis, Missouri, June 2007.
- Buchanan, P.; Mokarem, D.; Weyers, R.; and Sprinkel, M. "**Shrinkage of Latex-Modified and Microsilica Concrete Overlays**," Transportation Research Record, No. 1834, pgs. 33-39.

## REPRESENTATIVE PROJECTS

### **Terraset Elementary School** – Reston, VA

Performed advanced **computer modeling** and **structural analysis** to assess the condition of an elementary school undergoing renovation due to damage caused by a shoring failure. This failure also caused subsequent damage and deformation to the conventionally **reinforced concrete** roof slab and supporting structure. Tasks included reviewing the original structural drawings, performing site visits to map the location and extent of damage, **testing** to locate and verify the size and configuration of existing steel reinforcement, developing **preliminary repair details**, and designing the **final repairs**.

### **Grove's Residence** – Washington, DC

Assisted in **building envelope consulting** to assess the cause(s) of damages alleged to have resulted from the excavation and construction of a condominium project immediately adjacent to a single family home. Determined an appropriate **allocation of responsibility** and created a **budget for repair** on behalf of the condominium developer in the litigation brought by the homeowner.

### **1100 Adams Street** – Hoboken, NJ

Working on behalf of the mason, assisted in the **litigation** brought forth by the owners of the mid-rise **brick veneer** condominium project by assessing alleged design and construction issues, evaluating the cause(s) of reported damage, and proposing effective **repair solutions** and **cost projections**.

### **Absolute Snow Removal** – Norwalk, CT

Working on behalf of the snow removal contractor, assisted in the **litigation** brought forth by the owner of an office building alleging damage to a 17-year old **roof** membrane during snow removal operations, including reviewing documents, developing an appropriate **scope of repairs** with **cost projections**, and determining a suitable **allocation of responsibility**.

### **Port Liberte II** – Jersey City, NJ

Assisted in the **litigation-related investigation** of a high-profile development consisting of 19 multi-family **brick and precast concrete-clad** structures facing lower Manhattan. Responsible for evaluating the claims brought forward by the Plaintiffs' consultants, reviewing the repair scope, and developing an **independent cost analysis** and **repair cost projections**.

### **Memphis City Schools** – Memphis, TN

Assisted in the **litigation-related investigation** of nine **brick masonry-clad** schools. Performed a review of contract documents, observed on-site testing and investigation performed by others, and assisted in the development of **repair solutions** and **responsibility allocation** for arbitration purposes.

**Immaculate Conception Church** – Trenton, NJ

Assisted in **condition assessment** and **development of repair documents** for the **roof** of a 120-year old load-bearing masonry church. Development of repair documents included analyzing the existing wood roof support structure, designing the necessary repairs, preparing **project specifications**, and reviewing design drawings.

**Indiana Harbor Coke Company** – Indiana Harbor, IN

Performed advanced **computer modeling** and **structural analysis** using STAAD, including second-order effects and beam-column interaction, to satisfy building code criteria for strength and serviceability of a large industrial facility, to **retrofit** the internal **steel** framing for wind resistance.

**Landings at Beckett Ridge** – Cincinnati, OH

Assisted in the **litigation-related investigation** of **asphalt shingle** blow-off throughout several buildings. Performed **laboratory testing** that identified an allegedly insufficient seal-down feature as the cause for the shingle blow-off.

**Charleston Oceanfront Villas** – Charleston, SC**Sea Crest Resort** – Myrtle Beach, SC**Beach Club I Condominiums** – North Myrtle Beach, SC**Beach Club III Condominiums** – North Myrtle Beach, SC

Assisted in the **litigation-related investigation** of **fiber-reinforced plaster** (FRP) application over **light gage metal framing** of high-rise hotel resorts along the coast of South Carolina. Involved in the analysis of the FRP cladding over steel studs, review of original project documents, **field investigation and testing**, and development of an **expert report** outlining the observations and conclusions of the investigation to assist counsel.

**Virginia Tech Efflorescence Study** – Blacksburg, VA

Assisted in the **field investigation and testing** of the **stone veneer** of both academic and residential buildings to determine the causes of the **efflorescence** visible on many campus buildings, which were found to be the result of both the wall design and construction methods. Aided in the development of a **new campus-wide specification for stone masonry construction** and a **stone masonry construction inspection checklist**.

**Virginia Tech Litton Reaves Hall** – Blacksburg, VA

Assisted in the **field investigation and testing** of the veneer for the renovation of a **brick masonry and limestone panel-clad** academic building. Performed **laboratory testing** and a **conceptual feasibility study** for recladding the building with stone to match nearby buildings.

**University of Virginia Bice House** – Charlottesville, VA

Assisted in the **structural and building envelope consulting services** for a \$5 million renovation of a high-rise residential building. Performed structural calculations in the **analysis** of the existing framing system and **design of repairs**. Assisted in the development of the **repair drawings** and **project manual** and performed **on-site observation services** throughout construction.

**West Virginia University Evansdale Residential Campus** – Morgantown, WV

Assisted in **building envelope consulting services** for the renovation of four high-rise residential buildings. Participated in the **masonry veneer investigation** and **laboratory testing**.