

## Past Projects and Current Research on Guastavino Tile Ceilings, Domes and Vaults

### PAST PROJECTS

As part of our work inspecting and documenting historic buildings, Vertical Access (VA) has been involved with several projects investigating original Guastavino tile ceilings, vaults and domes. Notable buildings constructed with Guastavino tile surveyed by VA in New York City include Cram and Goodhue's St. Thomas Church and Bertram Goodhue's St. Bartholomew's Church, St. Paul's Chapel at Columbia University, the Oyster Bar in Grand Central Terminal, the Battery Maritime Building and the Federal Reserve Bank. Outside of New York City, VA has performed survey work on All Saints Cathedral in Albany, NY, designed by Robert W. Gibson, and Cram, Goodhue and Ferguson's Cadet Chapel at the United States Military Academy. In the fall of 2006, VA performed a comprehensive investigation of St. Francis de Sales Church in Philadelphia, a Byzantine Revival structure designed by Henry D. Dagit in collaboration with the R. Guastavino Company.

The structure contains several large Guastavino vaults and domes, including a central dome measuring 61 feet across that originally employed exposed Guastavino tile at both the interior and exterior.

Other recent projects include Soldiers' and Sailors' Monument in New York City; Nebraska State Capitol in Lincoln; The Basilica of St. Lawrence in Asheville, NC; Toronto Union Station and Buffalo Central Terminal.

### CURRENT RESEARCH

Building on this project experience, VA employees have undertaken research into Guastavino tile assemblies and presented their findings in a variety of venues. **Kent Diebolt**, Vertical Access Founder and President, was the grant writer and chair of the program planning committee for a one-day symposium entitled "Preserving Historic Guastavino Tile Ceilings, Domes and Vaults" held at Columbia University in February 1999. Kent facilitated the publication of the papers presented in the symposium as well as the 24 United States patents held by the Rafael Guastavino and his son, Rafael Jr. as a dedicated special issue of the APT Bulletin (Volume XXX, No. 4, 1999). Kent has been invited several times to lecture on the evaluation of Guastavino tile structures at symposia organized by the

Universitat Politècnica de Catalunya in Barcelona, Spain. Kent coordinated the construction of a full-size Guastavino vault as part of a hands-on workshop for the APTI annual conference held in 2013.

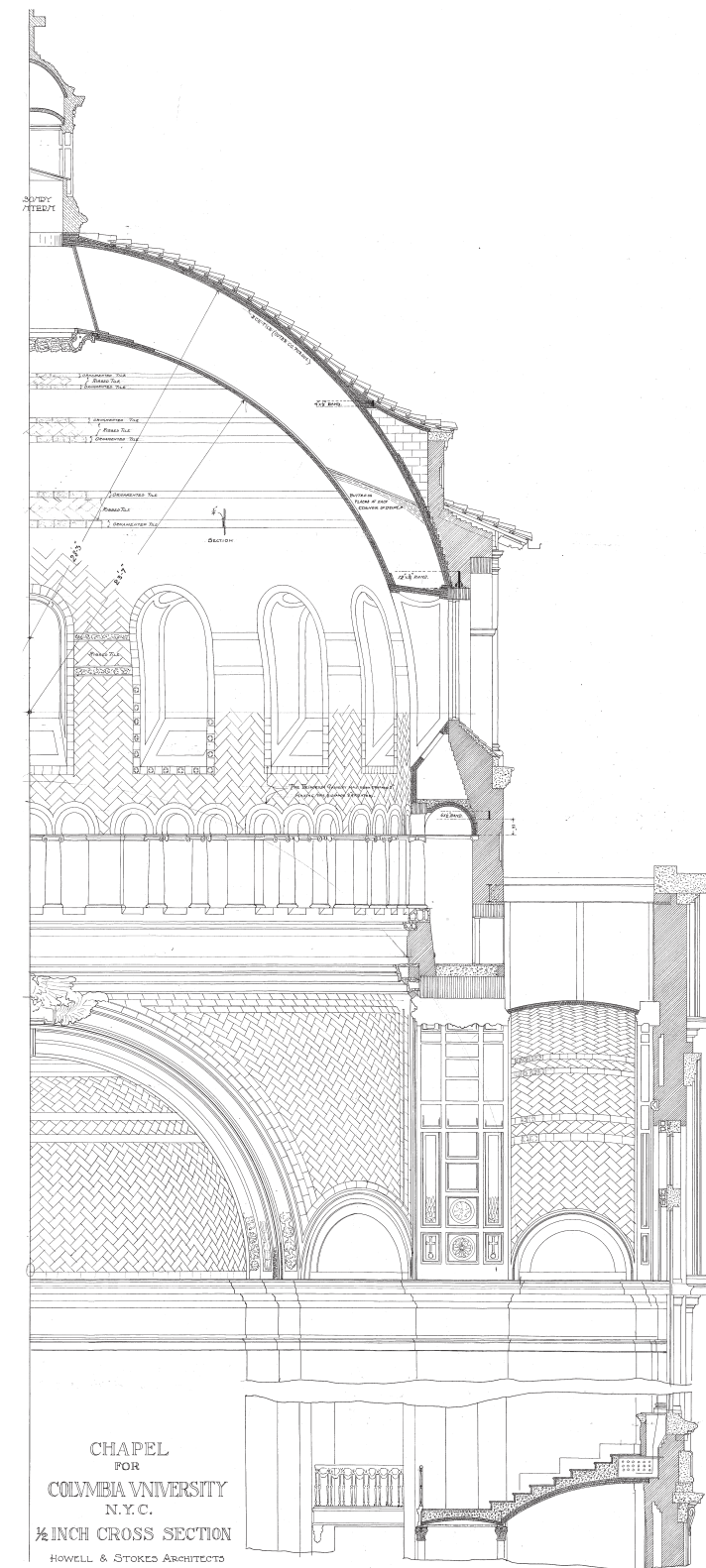
**Kelly Streeter**, a licensed structural engineer with VA, has undertaken a testing and research program to define and evaluate the acoustic properties of Guastavino tiles and the use of non-destructive evaluation of Guastavino tile as an assessment tool. As part of this research, she has conducted two pilot studies to measure pulse velocity and frequency responses at Guastavino vaults in New York City's St. Thomas Church and Battery Maritime Building for the purposes of determining the feasibility of using ultrasonic frequency response for the evaluation of Guastavino tile structures. Building on these pilot studies, VA's current research involves the construction of full-scale mock-ups of Guastavino vaults for the investigation of non-destructive evaluation



### BIBLIOGRAPHY

The following is a selected bibliography of general resources useful in the study and evaluation of structures incorporating Guastavino construction systems:

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Drawing from *The Guastavino Fireproof Construction Company / George Collins Architectural records and drawings*. Avery Architectural and Fine Arts Library, Columbia University.