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California Tile Installers (CTI)

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C.T. Branin Natatorium

San Francisco International Airport Terminal 1 Boarding Area B Redevelopment





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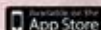
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### 093000 Contractor

A quarterly publication of Tile Contractors' Association of America  
9153 Tahoe Circle, Strongsville, OH 44136  
Ph: 800-655-TILE (8453) | Fax: 216-462-0808  
Lucinda Noel, Executive Director/Secretary



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**093000 Contractor** is a free quarterly publication for signatory tile/stone contractors and architects, designers and project managers and published by TCAA for the purpose of sharing information, views and opinions related to the tile/stone industry. TCAA is not responsible for the accuracy of any information, data or views expressed under the bylines of guest authors or in paid advertisements and publication of such information or views does not imply approval by TCAA.



John Trendell,  
Trendell Consulting LLC  
TCAA President



maxims originating from this publication. The title of this article is one of them.

Which finally brings me to the point of my message. Many people may say that this has been a lost year. Yes, it certainly has been a most challenging year. The way we work has changed and the way work gets done has changed. But to say it has been a lost year, I believe, is to give up on life itself.

### *“Lost Time is Never Found Again”*

I recently read a biography, *Benjamin Franklin, An American Life*, by Walter Isaacson. What a life he led! And yes, it truly was an American life. At 17 he arrives in Philadelphia, as a runaway printer apprentice from Boston. He works for several print shops, opens his own print shop at 22, and the rest, as they say, “is history.”

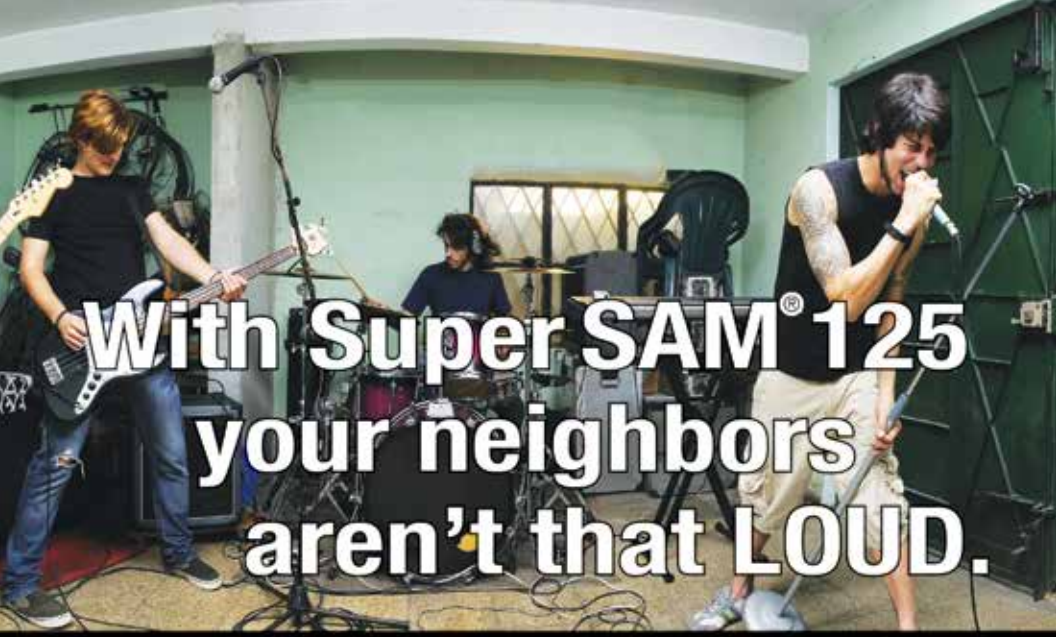
His list of accomplishments is staggering; an artisan, a businessman, a civic leader, a scientist, a politician, and a diplomat. He is the only person to contribute and sign the four most important documents of our nation’s birth, The Declaration of Independence, Treaty of Alliance with France, Peace Treaty with Britain, and the most important of all, the U.S. Constitution.

However, his single most successful venture, which allowed him to “retire” at 42 and contribute so much to our nation and the world was his publication, for 25 years, of *Poor Richard’s Almanack*. We have all heard and read the many

Great examples of not giving in or giving up are the educational, training, and personal interactions with others that can still continue, only differently. The International Masonry Institute (IMI) has offered, almost weekly, webinars to help our employees and contractors with educational and training programs. And while Coverings was canceled at the height of the pandemic last spring, Total Solutions Plus (TSP) showed that ‘the show must go on’ by holding the week-long programming virtually. And speaking of virtual, I for one, who, being technologically challenged, had not even heard of Zoom until this past spring. But now I participate regularly in Zoom meetings. (And I even log in once in a while without my wife, Mary, helping me!)

So, yes, things have changed. But as all of us know, things change every day in our businesses and in our own personal lives. It is those who adapt and take charge of our lives, no matter the circumstances, that will be successful over time. As Ben Franklin said, “You may delay, but time will not.”

Stay well my friends and carry on! ■



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## What is ANSI?

**I**t's not the pet name you call your favorite aunt and no, I'm not nervous about writing this article. It actually is an acronym for the American National Standards Institute. This organization oversees the creation and dissemination of business norms and standards in the United States. And for the ceramic tile industry, our particular standard is ANSI A108, *Specifications for the Installation of Ceramic Tile*. This publication is intended to serve as a guide for the tile industry. It really is the basis for all accepted methods of ceramic tile installation in the U.S.

The ANSI A108 committee usually meets once or twice a year to discuss possible changes and additions to installation practices. Over the years this document has been added to and specs have been dropped and/or changed. Recently there has been an ongoing effort by an Overhaul Committee to review the entire A108. Not because the document is deficient but because

the many changes have, in some cases, made items repetitive, out of date, or no longer applicable.

One example of how the work is being done is an ad hoc committee on Definitions, which I sit on along with other members of the ANSI committee including Scott Conwell of IMI, who chairs our smaller, specialized committee. Our work is focused on terms appearing in the specs that may need clarification due to confusion, ambiguity, or inconsistent use. As in any document, communicating the understandings written into the specs is key to their proper use. I'm glad to help with this work as so many times we as ceramic tile contractors and installers in our discussions with owners, architects, and contractors can sound like we are talking to them in a different language. With a standardization of terms, our communications can certainly improve and benefit the industry. ■■

John Trendell  
TCAA Labor Committee Chair  
Trendell Consulting LLC



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# DEMISTIFYING

## TILE INDUSTRY STANDARDS

By Scott Conwell, International Masonry Institute, November 2020

*The information in this article was adapted from a panel discussion on tile industry standards at Total Solutions Plus. The session, moderated by the author, brought together the diverse perspectives of tile contractors, architects, specification writers, tile distributors, and standards professionals.*

**T**ile standards help safeguard our industry by providing a benchmark for the quality of tile materials and installation. As a longstanding member of the ANSI A108 and TCNA Handbook committees, I have had the opportunity to participate in the standards development process and can attest to how standards shape and advance the tile industry. I have learned that many design and construction professionals have an appreciation for standards but only a marginal understanding of how they are developed and applied. This article will shed some light on the process of standards development, the limitations and impact of the standards, and the ways they are used to benefit the tile industry and the consumer.

### **What are the standards?**

The tile industry makes use of dozens of standards within the purview of the American National Standards Institute

(ANSI), American Society for Testing and Materials (ASTM), International Standards Organization (ISO), and Tile Council of North America (TCNA). Here, we will focus on the most widely used standards of ANSI and TCNA. For a quick-reference guide to the names and numbers of all the tile standards, visit [imiweb.org/tmt](http://imiweb.org/tmt) or contact the International Masonry Institute (IMI) via [sconwell@imiweb.org](mailto:sconwell@imiweb.org).

The ANSI standards for tile generally fall into two categories: material specifications (for example ANSI A137.1 Specifications for Ceramic Tile); and installation standards (for example ANSI A108.5 Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar). The entire family of ANSI standards for tile are developed by the ANSI Accredited Standards Committee (ASC) A108. In addition to the material and installation standards, A108 also addresses sustainability standards and test methods for tile.

The *TCNA Handbook for Ceramic, Glass, and Stone Tile Installation* is a reference guide that is used at least as widely as the ANSI standards by design professionals, distributors, tile contractors, and others.



The *TCNA Handbook* is a nearly 500-page tome organized into sections addressing product selection, installation requirements, and methods for installing ceramic, glass, and stone tile.

### Limitations of the standards

The ANSI and TCNA documents are voluntary standards. In other words, they do not set forth requirements for materials or installation. Construction requirements are established by local and national building codes in the jurisdiction of the project, for example the International Building Code (IBC) or the International Residential Code (IRC).

Product manufacturers are free to produce and sell materials that do not meet the ANSI product standards. Tile work does not necessarily need to comply with ANSI A108 or the *TCNA Handbook*. Only when referenced in the construction documents (the project drawings, specifications, and/or construction contract) do the requirements become enforceable. However, even in their capacity as voluntary standards, these documents do an excellent job of establishing benchmarks for material requirements and best practice installation techniques. Tile materials and installation are often held to these standards even when they are not part of the contract.

### How the standards influence tile work

Before examining how the standards are developed and by whom, let's acknowledge the impact they have on tile work by looking at sample language from the product and installation standards.

Because the quality of materials directly impacts the quality of the tile installation,

we rely on tile that meets the minimum requirements of the ANSI product standards. For example, if a porcelain tile were to have a greater variation in its facial dimension than what the standard allows, the grout joints would be unacceptably wide, misaligned, or both; and if the tile was warped beyond what the standard allows, excessive lippage would be unavoidable. Fortunately, we rely on the ANSI product standards to regulate the physical characteristics of most of the tile we use.

Within the realm of installation standards, ANSI A108 establishes critical requirements for work by other trades as well as for tile work. Flatness requirements for substrates and spacing requirements for light gauge steel studs on walls to receive tile are two examples of work requirements by other trades stated in the *TCNA Handbook* and the ANSI standards. An example of a quantitative requirement for tile work in the standards is the minimum percentage mortar coverage for tile installations, an important metric that provides assurance that the tile will stay bonded.

The installation standards also protect the tile contractor by allowing for realistic workmanship margins. For example, the standards allow lippage of 1/32 inch. or 1/16 inch. in addition to the inherent warpage of the tile, depending on the type of tile, the size of the tile, and the width of the grout joint. The minimum requirement of 80% or 95% mortar coverage for interior non-wet areas or exterior installations, respectively, is another example of how standards help to delineate a line between work that is acceptable and work that is not.

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Clearly, a good set of standards is helpful and essential to everyone from the tile supplier to the tile installer, and from the design professional to the end user.

### The standards committees

The ANSI and TCNA Handbook committees actively and continuously update and improve the current standards and continuously develop new standards as required. ASC A108 meets in person once per year, generally in the spring, and the TCNA Handbook committee meets annually, generally in the fall. Balloting is done electronically throughout the year, and ad hoc committees dedicated to specific issues meet frequently, some as often as bi-weekly.

ASC A108 comprises 65 voting members from all facets of the industry. As of this writing, the breakdown of the committee is as follows:

Manufacturer: **41%** Labor: **25%**  
General interest: **26%** User interest: **8%**

The TCNA Handbook committee comprises about 40 voting members with a similarly diverse makeup.

TCAA holds one labor interest position on the ANSI ASC A108 committee and two positions on the TCNA Handbook committee. The complete rosters of voting members for ANSI and TCNA can be found at the beginning of the respective documents.

The ANSI and TCNA committees hold open meetings. Only delegates can vote, but all interested parties are invited to attend and contribute. Most meetings have attendance of well over 100 participants. Everyone's voice is heard.

### The standards writing process

Tile standards are written by consensus. Committee members must generally agree to the standard or the change being proposed in order to prevent the standard from serving an exclusive interest group.

The process begins with an idea that can come from anyone, not just from voting members. A small task group of stakeholders or an ad hoc committee is formed to further define the idea. When the task group achieves early consensus, they present a draft to the larger A108 or TCNA committee for discussion. If there is interest among the committee, the item advances to a committee ballot and a period of public comment. The committee members vote in one of three ways: positive, positive with comment, or negative. After the ballot is closed, the comments and negative votes are discussed, further changes are made to resolve the comments, and the item goes back to the committee for re-balloting. Sometimes consensus is quickly reached and the standard is formalized. More often, the process of consensus building requires a more protracted period of debate and discussion resulting in a good standard that serves all interest groups.

### Testing

Most product standards and some installation standards may require testing during the development process. TCNA has a laboratory with a high level of expertise and testing capabilities. Additionally, some manufacturers have testing resources. Training programs like those of the International Masonry Education and Training Foundation (IMTEF) and local Joint Apprenticeship and Training Committees, with support

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from IMI, frequently construct mockups for testing workmanship. For example, during the development of the gauged porcelain tile (GPT) installation standard, a series of GPT panel mockups coordinated by a tile manufacturer on the committee investigated minimum mortar coverage requirements for the ultra-large GPT panels and the unprecedented embedment techniques used for installing them.

### The documents

The standards are readily available to all interested parties. As the Secretariat for ANSI ASC A108, TCNA publishes the ANSI standards as well as the *TCNA Handbook* in hard copy paperback and electronic formats. The individual ANSI standards are published electronically as they are approved, with hard copy compilations published at least once per year. The *TCNA Handbook* is published electronically and in hard copy format at the beginning of each calendar year. All the standards are available for purchase at [tcnatile.com](http://tcnatile.com). They are also available free of charge to BAC contractors and other qualifying companies from IMI by request via [imiweb.org](http://imiweb.org).

### How the standards are used

Manufacturers of tile, setting materials, grouts, membranes, backer boards, and other components of the tile assembly market their products as compliant with the standards, establishing a level of assurance that their materials meet or exceed the stated performance criteria. In this respect, the standards establish a level playing field for competing manufacturers. Distributors of tile and related products similarly use the standards as a benchmark of quality for their customers.

Design professionals frequently reference the TCNA and ANSI product and installation standards in project specifications for quality assurance. When referenced properly, the requirements of the standards become part of the project's contract documents, making the tile contractor responsible for delivering an installation that meets the requirements of the standards.

Tile contractors often use the standards, even when they are not part of the contract, to clarify the means and methods of good installation. For example, the use of a lippage control system is required in the



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installation standard for GPT panels, and this practice is commonly recognized among reputable tile contractors as a best practice even when the installation standard is not referenced. The installation standards help equalize competition among responsible contractors who comply with the standards, eliminating bidders who use substandard installation practices to increase their profits.

Well-trained tile installers use the standards as a guide in their craft. With the industry's renewed focus on qualified labor, the TCNA and ANSI standards are heavily used by IMTEF's training and certification programs. The rapid pace of changing materials and technology makes it critical that tile installers stay keenly informed of the most up-to-date standards. IMTEF is deliberate about equipping BAC tile setters and finishers with the most current information in the standards from the pre-apprentice to journeyman level so that they remain the most knowledgeable and skilled workforce in the industry, providing unparalleled value to TCAA tile contractors.

The Advanced Certifications for Tile Installers (ACT) program tests experienced tile installers on their knowledge of the standards as a requirement for certifications in seven skill areas:

- Large format tile
- Grouting
- Membranes
- GPT and
- Mud walls
- GPT panels
- Mud floors
- Shower receptors

Consultants retained to troubleshoot tile failures use the standards to diagnose how a tile assembly has failed. In this respect, the standards provide documentation on how the material or installation was expected to perform, and

which areas of the standards were not followed resulting in the failure.

Consumers and end users of tile are the ultimate beneficiaries of our industry's excellent body of standards, in that their buildings and spaces are expertly designed and constructed with high quality tile materials and installation practices, providing them with beautiful, durable, and healthy finishes.

### Collaboration

While each sector of the industry may apply the standards in a different way, the creation, development, and maintenance of the standards is a collaborative effort. Tile contractors can provide input on material standards, and manufacturers can provide input on how they should be installed. Architects provide perspective on design trends, and consultants have their finger on the pulse of where the materials are prone to failures and how to prevent them. Standards professionals work to streamline the testing and development process, and end users offer accounts of performance history over time. When new materials and innovations in existing materials come along, we work together sharing our collective knowledge to develop standards that expand the market for expertly installed tile. 🇺🇸

### Acknowledgement



The author wishes to thank the members of the 2020 Total Solutions Plus industry panel on Industry Codes and Standards for their insights and inspiration: John Trendell of TCAA and Trendell Consulting;

Katelyn Simpson with TCNA and Secretariat for ANSI ASC A108; Bill Griese, Director of Standards and Development with TCNA; Frank Donahue with Best Tile and Ceramic Tile Distributors' Association; Barbara Larson, architect and specification writer with Delttek / MasterSpec; and James Woelfel with Artcraft Tile and NTCA.



## Grazzini Brothers & Company • ST. PAUL, MN

### Shakopee Mdewakanton Sioux Community (SMSC) Cultural Center — Shakopee, Minnesota

**G**razzini Brothers & Company, a Tile Contractors' Association of America (TCAA) Trowel of Excellence certified contractor out of St. Paul, Minnesota, was selected by McGough Construction, general contractor, to perform the ceramic tile installation at the new Shakopee Mdewakanton Sioux Community (SMSC) Cultural Center in Shakopee, Minnesota. This new 92,500-square-foot multi-purpose facility, designed by HTG Architects, officially called "Hocokata Ti", serves as a community gathering space and cultural activity site with a 3,805-square-foot public exhibit chronicling the history of the Shakopee

Mdewakanton Sioux tribe. The \$41 million SMSC Cultural Center features 40-foot high teepees and a uniquely constructed building that won the 2020 American Association for State and Local History Award of Excellence.

Guido Giori, Grazzini's project manager, oversaw this impressive project which involved 28,000 square feet of ceramic floor tile, stone mosaic floor and wall tile, ceramic tile base and glass wall tile throughout the SMSC facility. Tiles from twelve manufacturers, which required purchasing from five different distributors, were incorporated in



this project. Tiled areas included the River Gallery in the Lobby, the Grand Staircase and Atrium Entrances, along with Men's/Women's Locker Rooms, Showers, and Restrooms. Installation was performed based on industry standards and Tile Council of North America (TCNA) installation methods F113, F121, F122, W223 and W244.

Grazzini's project foreman, Ferid Hasic, a union tile setter, is also the proud recipient of the 2020 NTCA Tile Setter Craftsman of the Year Award. Hasic and his crew encountered several challenges during the course of this project that required innovative solutions. Installation of the river rock pebble mosaic tile was very tedious, involving layout issues and extensive radial cutting. Multiple radial walls along the corridors and a circular tile pattern with flowing river rock surrounding the circle in the River Gallery added to the complexity. The tile layout constantly varied from the original design due to variations in built dimensions. With the intricacy of the patterns, the tile layout in the raised corridors required adjustment to maintain the initial design intent while

also tying in perfectly with the lobby pattern layout. When an adjustment was made in one area of the River Gallery, the same or a similar adjustment had to be made in the rest of the Gallery to maintain a consistent pattern flow. This issue was resolved by using a distance laser and drawing the exact river rock pattern on the floor substrate by hand simultaneously throughout the corridors to determine the precise location for the tile to tie into the lobby pattern prior to snapping chalk lines for the surrounding floor tile. A large wood compass was constructed to generate the layout for the circular pattern in the center of the lobby. Then, once the radius dimensions were established, chalk lines denoting the tile layout were incorporated in the exact pattern including grout joint spacing to ensure design intent was met prior to installation.

Once the design team reviewed the layout, tile installation began with the field tiles followed by the river rock mosaics. All starting points for the layout were dictated based on the location of the river rock accent as this was the main focal point of the floor tile pattern.



The layout of the river rock pebble mosaics was designed to mimic the look of the flowing Minnesota River throughout the River Gallery and the Hall of the Dakotas. The challenge with this was the actual river rock mosaics themselves and the complexity of the pattern. The river rock mosaics were manufactured from actual river rocks by slicing the rocks in half and meshing them together on sheets with the flat face of the rocks facing up as the final floor finish. The mosaics were round on the underside and not equal in thickness. Therefore, a thicker setting bed was required to provide a structurally sound bond to the back of the river rocks and to maintain a flat finished floor surface. Individual pieces of river rock, versus those that were on the mesh sheets, were required in multiple locations. The size of those individual rocks varied based on the spacing at each location.

- Project manager for McGough Construction, Carolyn Wolf, said, *“I don’t know of a single building like it. Every aspect of the space is unique, from the building materials to the floor*

*pattern to the three-tiered roof system. There is only one 90-degree corner in the whole building enclosure. It’s truly a remarkable design.”*

- Grazzini Brothers’ President & CEO, Gregory Grazzini, said, *“It was an honor to be selected to be part of a project that recognizes the history of the Native American tribes of Minnesota.”*

The project was completed on time and on budget. Just one of many success stories by the Grazzini Brothers!

#### **About Grazzini Brothers & Company**

Grazzini Brothers & Company is a nationwide specialty contractor. Since 1923, Grazzini Brothers has provided a full range of tile, terrazzo, stone, and soft flooring installation services. Grazzini Brothers has the financial security, bonding capacity, and credit experience to undertake any size project throughout the country. ■

For additional information about Grazzini Brothers, you may contact Ms. Monique Navarrette at (651) 994-4148 or [mnavarrette@grazzini.com](mailto:mnavarrette@grazzini.com).



## **Youngstown Tile & Terrazzo Co., LLC • CANFIELD, OH**

### C.T. Branin Natatorium – Canton, OH

**Y**oungstown Tile & Terrazzo (YTT) recently completed the ceramic tile work at the C.T. Branin Natatorium in Canton, Ohio, which was a major overhaul project with a total overall price tag of approximately \$3.2 million. (General Contractor: Norman Eckinger Inc. of Canton Township / Architect: Motter and Meadows of North Canton). This natatorium, one of the premier swimming facilities in the Midwest, is located on the McKinley High School campus in Canton, Ohio. It is a nearly 50-year-old facility that serves as the

site for state swimming and diving championships. C.T. Branin Natatorium has hosted USA and Masters swimming and diving championships, as well as championships for the Ohio High School Athletic Association, NAIA, and NCAA among many others. This project was the first major renovation of the natatorium in its history with major improvements in and around the pool. School board members were supportive of the project because of its significance to the Canton school district and the region's economy, generating more than \$2 million in revenue each swim season,





with nearly half of the revenue being realized during state swim meets. The C.T. Branin Natatorium has hosted the boys state meet since 1976 and the girls state meet since 1980.

YTT's project manager, Steve Antal, and Jay Walton, their on-site superintendent, coordinated all facets of the project which required completion in a time span

of approximately six weeks. The installation involved 14,000 square feet of ceramic mosaic tile which included the pool deck, the first three feet inside the pool tank, and locker rooms. The vertical tile inside the pool tank had to tie in with the existing pool tile and the new trough drain, which proved to be quite challenging due to varying elevations. A vertical mud bed was required to connect the pool wall with





the newly installed gutter system and to properly slope the tile in the drain trough. Additionally, depressed steps in the side walls of the pool had to be reconstructed to bring the pool back to its original aesthetics. This was accomplished by fabricating custom forms to mimic the existing depressed steps in the pool wall to receive the new tile. The tile utilized on this project was Daltile's 1"x1" and 2"x2" ceramic mosaic floor and base, which was installed and grouted with Mapei Kerapoxy® Premium Epoxy Mortar and Grout, over a latex modified thickset mortar bed.

#### **About Youngstown Tile & Terrazzo (YTT)**

YTT was founded more than 70 years ago. They are a highly skilled BAC signatory contractor and a longstanding member of the Tile Contractors' Association of America (TCAA). YTT prides themselves as being a national leader in the contract flooring industry delivering quality installations and superior service. They specialize in

commercial flooring projects as well as residential services, offering a variety of products including ceramic tile, terrazzo, natural stone, and mechanical polishing. To learn more about their products and services, or to view a gallery of completed projects, please visit their website at [www.youngstowntile.com](http://www.youngstowntile.com).

For additional information about Youngstown Tile & Terrazzo, you may contact Josh Cohol at (330) 533-4125. ■



# GRUEBY.

## ONE MORE FOR THE ROAD



William H. Grueby 1867-1925

**W**illiam Henry Grueby (1867-1925) ranks among the most highly respected ceramists in American tile history. As a young teenager, he worked and studied for ten years at the Low Art Tile Works in Chelsea, Massachusetts. Following a number of attempts in the early nineties to get into the pottery and tile business for himself, Grueby formed a company in South Boston called Grueby Faience in 1894. From the turn of the century onwards, he received numerous prestigious awards for his pottery at expositions in both the United States and Europe. His matte green glaze, known as “Grueby green,” was emulated by many of the well-known domestic potteries at the time, and today probably more than any glaze color epitomizes the Arts and Crafts movement in America.

In 1907, Grueby Faience Company was commissioned to produce thirty-six tile panels to adorn the frieze in the waiting room of the soon to be built Delaware, Lackawanna and Western Railway station in Scranton, Pennsylvania, which was completed the following year. The massive structure, approximately 80 by 250 feet and five stories high, was designed by Kenneth M. Murchison (1872-1938), a New York architect who had established his reputation with the Hoboken and Buffalo stations a few years earlier.

The structure was built of fireproof brick and steel with concrete floors and partitions on a foundation of anthracite coal. Designed in French Renaissance



style, the exterior is Indiana limestone to the cornice, then topped with architectural terra cotta. Originally built to serve the main line railway traffic east and west, today this historic station houses the Radisson Lackawanna Station Hotel.



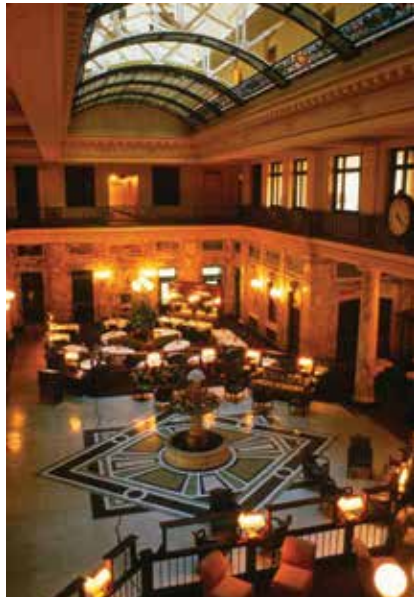
The D. L. & W. Railway Station, now the Radisson Lackawanna Station Hotel, Scranton, Pennsylvania.



Five of thirty-six scenes from along the Lackawanna road in 6x6 Grueby Faience tiles from paintings by Clark Greenwood Voorhees.

All photos from the Tile Heritage Digital Library.

The interior finish of the building is well carried out. The harmonizing tones of the pinkish-yellow Formosa marble welcome the traveler into the 40- by 105-foot waiting room lighted from high above by a vaulted skylight of leaded glass. An original and splendidly executed feature of the room, Grueby's panels were produced from paintings by landscape artist Clark Greenwood Voorhees (1871-1933) depicting actual scenes along the line of the Lackawanna road. Their color is beautifully brought out by the framing of white Italian statuary marble. The introduction of faience into the embellishment of railway station interiors was a new departure for that time, and its successful and artistic effect would lead to further examples of this decorative treatment elsewhere.



Originally the railway waiting room, today the Radisson Hotel lobby. Note the Grueby panels around the frieze.

Quoting from a report issued by the D. L. & W. Railway shortly after the station was completed, "It is a good omen for decorative treatment in America when builders of structures of this character are willing to permit the architect to indulge his artistic sense. The effect produced in this station is one of utmost satisfaction, and finds approval in the artistic mind, and has educational value that is worthy of mention."



Grueby Faience from three paintings by Clark Greenwood Voorhees, 1908

William Grueby refinanced his business in 1909 as the Grueby Faience and Tile Company, the same company that in 1919 was sold to the C. Pardee Works in Perth Amboy, New Jersey.

Special thanks to Maryellen Calemno, Executive Director of the Lackawanna

Historical Society, Scranton, Pennsylvania for supplying Tile Heritage with the information on this magnificent structure. ■

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## PROJECT SPOTLIGHT



SFIA Gucci Store - Marble Floor Tile in Basket Weave Pattern

## California Tile Installers (CTI) • SAN JOSE, CA

San Francisco International Airport -  
Terminal 1 Boarding Area B Redevelopment, Bun Mee & Gucci

**C**alifornia Tile Installers (CTI) out of San Jose, California was selected as the ceramic tile contractor on three recent projects at the San Francisco International Airport which were completed earlier this year. These projects encompassed 56,000 square feet of ceramic tile, spanned over a time period of October 2018 through February 2020, and were executed under three general contractors (Design-builder: Austin Commercial & Webcor Builders Joint Venture HKS/WoodsBagot/ED2

International/KYA for the Terminal 1 Boarding Area B restrooms & terracotta work, Western Construction for the Bun Mee Vietnamese Sandwich Eatery, and Altitude, Inc. for the Gucci store).

Boarding area B is one of the largest boarding areas on the SFO campus, totaling 617,700 square feet on three levels with 25 new gates, two airline lounges, one common-use lounge, 19 food and beverage spaces, 14 retail spaces, museum exhibits, a children's play area, a pet relief room and 10 site-specific art commissions.

Larry Bloom was CTI's project manager and was presented with unique challenges associated with working in an airport environment. These challenges included coordinating installation in a highly secured area, limited access for delivery and staging, and workers being required to walk ¼ mile to and from the project site on a daily basis. There was little to no ability to deliver tools to a convenient location requiring the workers to transport via the ¼ mile trek.

In addition, installers were challenged by the varying sizes and thicknesses of the tiles which necessitated floor tile installation by the thickset mortar bed method. Mortar beds were in excess of 4" and had to be installed in two different lifts, followed by the installation

of a waterproofing membrane which was required to be fully flood tested. After the membrane was flood tested, the water had to be removed via pumps and canisters, as plumbing was not yet installed to permit draining. (Tile Council of North America Handbook methods F111, F112, F121, W244 and W245 were all involved in the tile installation on this project).

In total there were over 38 different tile and stone types that were specified, most of which had long lead times. Single restrooms required in excess of 1,800 square feet of floor tile and 3,000 square feet of various wall tiles. Floor tiles were 12x24, 6x24 and 18x36 in size. Wall tiles included 2x8 handmade Fireclay tile, glass mosaic tile, 12x24s, and 24x48s



Terracotta Art Suspended from Ceiling



Terracotta Art



Terminal 1 B Restroom



Bun Mee Vietnamese Sandwich Eatery - Large Format Tile Graphic



Terminal Vestibule

with Schluter cove and trim being used throughout. Solid Surface Quartz counters and Solid Surface Corian counters were also included in CTI's scope of work. In addition, handmade Terra Cotta tiles were installed on seven stainless steel trays, approximately 10'x10' in size, that were eventually lifted and suspended from the ceiling as an art display and only visible from the upper mezzanine level. The terra cotta tile was designed to replicate a circuit board. Then there was the large format wall tile at Bun Mee with a custom graphic overlay that had to line up perfectly to illustrate the desired image.

### **About California Tile Installers (CTI)**

CTI is a member of the Tile Contractors' Association of America (TCAA) and certified as a Trowel of Excellence Contractor. (The TCAA Trowel of Excellence certification verifies that an installation contractor consistently performs the highest level of quality installations, demonstrates integrity and superior business practices, and is committed to the betterment of the ceramic tile industry).

CTI is known for high standards and impeccable work. As a BAC signatory union contractor for nearly 60 years, they participate in multiple training programs to offer the most qualified labor available. Jordon O'Brien is honored to be the third-generation owner of California Tile Installers, mentoring under his father Jack O'Brien. Jordon's grandfather, Donald O'Brien, built their foundation from a humble beginning. There was a time when his office desk consisted of nothing more than doors on boxes with a bucket for his seat. From there, CTI has refined their operations and tailored a unique approach to the commercial tile business. With deep roots in Silicon Valley, CTI has provided innovative installations for over 8,000 diverse developments and has continued to achieve national recognition as leading experts within the tile/stone trade. For additional information about California Tile Installers, you may contact Jordon O'Brien at (408) 436-0600. ■■



## BEST PRACTICES FOR

# Installing Ceramic Tile on Exterior Façades



Hilton Rainbow Tower

**E**xterior façades can provide unique visual impact and thermal and acoustic insulation. Often contributing to green building certification, these aesthetically versatile installations are both visually appealing and architecturally functional — when done right. To ensure the installation of ceramic tile on exterior façades is done correctly and efficiently, a complete evaluation of the entire installation assembly should be considered to ensure that all of the installation components including the finishes are appropriate for these demanding applications.

An exterior façade will face very harsh conditions, ranging from weather, thermal exposure, building movement, and potential seismic events, just to mention a few. In addition to selecting the appropriate finishes that will hold up under these conditions, the installation materials, including leveling mortars, membranes, air barriers, adhesive mortars and grouts must also be able to handle these conditions while being totally compatible with each other.

Weather protection during the installation and the initial cure of the materials is also good practice. This may include providing tenting, enclosures or shading to protect the installation from direct sunlight and wind. Also, climate control (heating the enclosure) may be necessary to ensure that the temperature of the substrate and the installation materials remain within the recommended guidelines of the installation materials manufacturer.

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### **Ensuring a successful and enduring installation**

It is important for all architects and contractors on the job to select an installation system that includes a comprehensive systems warranty that is backed by years of successful installations. They should involve the tile installation materials manufacturer early on in the process in order to select the appropriate installation system for the intended project. In addition, the installation should be designed in accordance with well-proven installation methodology that is governed by industry standards (e.g. International Standards Organization [ISO], American National Standards Institute [ANSI]).

For example, an installation specification could be written around ISO standards that have higher performance standards for adhesives that would be appropriate for these assemblies. They also include extended working time, sag resistance and flexibility characteristics. A product specification for an adhesive mortar for an exterior façade could potentially be C2TES2. Alternatively, similar specifications could be written around ANSI standards with an ANSI A118.15TE designation for high performance, sag resistance and extended working times.

Contractors should be selected on their knowledge and ability to perform these installations with a proven successful history of installation. Many TCAA member contractors have good solid experience with these demanding applications. After all, these types of

installations are very different from installing tile on a kitchen or bathroom floor. There are other exterior veneer building elements that might be required and will have to be incorporated into the assembly during the design process. These elements could include air and water barriers, continuous rigid insulation, drainage planes, vapor retarders, etc...and play a vital role in protecting the structure from moisture and weather intrusion, to help the structure be energy efficient and provide comfort for the building occupants. The project design professional and specifier should select and detail these materials on a per project basis for the unique characteristics of each project.



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That said, using a trusted brand with a broad product portfolio such as LATICRETE provides installers, and ultimately the end user, with the results that they have envisioned. For over 60 years, LATICRETE has been committed to research and development of innovative installation products, building a reputation for superior quality, performance, industry leading system warranties and technical services.

### **The right selection of products**

The selection and use of the appropriate installation materials are the key to a successful project. Not all installation materials are created equally and are appropriate for these demanding applications. Weather can certainly play a role during the installation of ceramic tile on exterior façades. The installation materials must be able to deal with a wide range of elements — and they can be extreme in some cases. Typically, the installation materials will meet higher performance industry standards in order to deal with many of the environmental and on-site conditions of the project. Therefore, all of the installation materials must be weather and shock resistant, be complementary and compatible with each installation component, be easy to use and have all of the required performance properties to handle the application.

For over 60 years, the LATICRETE System has provided the latest technology in construction materials and methods to deliver superior performance. The LATICRETE® Façade

System consists of a series of installation components which provide permanent, high-strength, freeze/thaw, thermal and earthquake shock resistant exterior tile, brick or stone façades.

Components of the LATICRETE system include high strength adhesives that provide a high-safety factor to resist gravity, wind and seismic movement loads coupled with the flexibility to accommodate movement from thermal shock, moisture expansion and shrinkage drying of substrates. A waterproofing membrane should also be employed that reduces transmission of cracks through the façade, eliminates water leakage and reduces efflorescence. Finally, grout jointing materials formulated for high bond strength and flexibility to prevent cracking are also needed — they are durable enough to resist deterioration from exposure to sun, freeze/thaw cycling, pollution, ozone and façade maintenance regimens.

Ceramic tile and stone on exterior façades can be a striking design option when done correctly. With proper care and expertise applied in these demanding applications, the results can be a breathtaking and enduring project completion. Selecting the right products for the job is just as important and is why it is essential for the installer to work closely with their installation materials manufacturer for recommended guidelines.

For more information, visit [laticrete.com](http://laticrete.com). ■



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**Trowel of Excellence** certification designates that a company consistently delivers outstanding skilled craftsmanship and superior management practices. Trowel of Excellence contractors employ only the best trained and most knowledgeable installation professionals and demonstrate their commitment to performing at the highest levels of industry standards, ethical business practices and financial responsibility on each and every job. That's why the Tile Council of North America and Atrivu both recognize Trowel of Excellence certification in contractor qualifications language which is included in the TCNA Handbook, MasterSpec, and BSD SpecLink.

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