FALL 2021

093000 CONTRACTOR

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Belfi Brothers & Co., Inc., The Hamilton Phase II, Logan Square Apartment Homes

Corcoran Tile & Marble, Inc., Canterbury Golf Club—Locker Room Upgrades and Patio Bar Addition

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John Trendell
Trendell Consulting LLC
TCAA President

THE TIMES THEY ARE A-CHANGIN'

—Bob Dylan, 1964

The first thing that struck me about this Bob Dylan song was that it was released much earlier than I would have thought. This song seemed to me to be a late '60s or early '70s song reflecting more on the protests that had increased in number and intensity during that time. Nonetheless, for me, the lyrics and the themes are timeless:

Generational misunderstandings, always moving ahead or you'll be left behind, standing in the way of change, and Bob's best verse, "As the present now will later be past."

In my time in this great industry, I have seen many changes: changes in products, changes in installation methods, changes in communications and engineering. All of these changes have improved our ability to provide services and materials that are an integral part of any high-quality building environment.

It is our responsibility and, quite frankly, our only way to survive as contractors to keep up with change. And one of the best ways of doing this is to work with all the stakeholders in our industry. That is why events such as Coverings and Total Solutions Plus are so vital to our success. Gatherings such as these inform and educate all of us on what is new and what has changed.

Probably one of the biggest changes, from my view and others "my age" I talk to, is the change in communications. Emails, texts, computer driven scheduling. All of these speed up and most often clear up questions and concerns regarding issues during bidding, contract negotiations, and construction. But for me, the personal part of the business has been lost. That is why attending trade shows and conferences is so important to me. I look forward to seeing old friends and making new friends. So, I hope to see as many of you as possible at Total Solutions Plus (TSP) in Jacksonville, FL this October 24–26. Make sure to bring along that next generation of management within your organizations. Goodness knows that we certainly want to understand them, want to move ahead with them, and not stand in their way. Because as certain as the present will be the past, the times will **always** be a-changin'!

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THE STATE OF THE INDUSTRY

TCAA met with representatives of the International Union of Bricklayers and Allied Craftworkers (IUBAC), the International Masonry Institute (IMI), and the International Masonry Training and Education Foundation (IMTEF) at the Coverings 2021 show in Orlando this past July. Since it was the first person-to-person meeting of our groups since before COVID, it was a great chance to catch up with everyone and to review future programming. Several initiatives are in the planning stage for implementation this Fall.

- First, the IMI/TCAA National Seminar Series will start up again late this Fall with a presentation in Kansas City at the Construction Specifications Institute (CSI) chapter on December 7, 2021.
- We were informed by Tony DiPerna, National Director of Apprenticeship and Training for IMTEF, that a new "Train the Trainer" class will be starting up this Fall with an emphasis on graduating more evaluators for Advanced Certifications for Tile Installers (ACT) testing. This will allow for more regional training centers to have better access to teaching and the testing of tile setters in seven areas of installation requiring advanced skills. More and more ceramic tile specifications are requiring these certifications for the men and women who work on the projects.
- Further points of discussion included recruitment and training of new apprentices and continuing education in the form of foreman and supervisor training. IMI and IMTEF are also teaching through the use of their standardized ceramic tile curriculum.
- We also wanted to make sure that labor and management talk with one voice and are heard in the development of TCNA and ANSI standards.

It was great just to see people in person again!

John Trendell
TCAA Labor Committee Chair
Trendell Consulting LLC

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By Scott Conwell, FAIA, FCSI
Director of Industry Development
International Masonry Institute

DURABILITY
OF TILE ASSEMBLIES

Ceramic tile is a durable material able to withstand heavy loads, high impact, and the wear that comes with decades of continual use. In recent years, competing materials like LVT have emerged, making bold claims of durability and longevity. This raises questions like: What does it mean to be durable, and can durability be quantified? This article will shed light on exactly what a durable assembly is, how durability is measured, and how the tile industry supports its claims of durability.

Factors affecting performance

Dozens of factors contribute to the performance and durability of a tile assembly. These factors can be categorized by the variability of materials, methods, and applications. To predict performance, we must understand *what* is being installed, *how* it is being installed, and *where* it will be used. *Who* the installers are is also an important consideration.

What is being installed?

The many choices of tiles and other materials in the assembly present the first set of variables that impact performance. Even within ANSI A137.1, there are different performance characteristics for different types of tile. The same is true for the variety of setting materials and grouts that may be used. Varying substrates have vastly different properties, which impact the performance of the tile assembly.

The initial measure of performance for a tile assembly is the durability of the tiles themselves. ANSI A137.1 and the various ASTM and ISO tests it references have clearly defined criteria for abrasion resistance, breaking strength, bond strength, thermal shock, freeze/thaw cycling, and impact resistance. All these factors contribute to the overall durability of the tile, which is the first line of defense for the assembly. A good quality tile in compliance with ANSI A137.1 won't guarantee a durable assembly, but it's a very good start!

How is it being installed?

Installation methods are the second set of variables that impact performance. As important as it is to have durable tiles, it is also imperative that the tile and everything behind it function together as a durable assembly. Let's look at how tile assemblies are described in the Tile Council of North America (TCNA) Handbook using a system of performance levels. Performance levels, also known as

Fig 1. Installations subjected to heavy loads like automobile dealerships should use a tile assembly with a performance service rating of at least Heavy, which means the tested assembly has passed at a minimum cycles 1 through 12 of the Robinson Floor Test. Photo courtesy of Crossville, Inc.

performance ratings or service ratings, are classifications of the assembly that indicate how well it will perform—in other words, how durable it will be. There are five service rating designations for tile floor assemblies in the TCNA Handbook, each correlating to a category of use based on the types of loads expected:

Extra Heavy is the service rating for extra heavy and high-impact use in food plants, dairies, breweries, and kitchens. It requires quarry tile, packing house tile, or tile designated by the tile manufacturer for the intended application.

Heavy is the service rating for shopping malls, stores, commercial kitchens, work areas, laboratories, auto showrooms, and service areas, shipping/receiving areas, and exterior decks.

Moderate is the service rating for normal commercial and light institutional use in public spaces of restaurants and hospitals.

Light is the service rating for light commercial use in office spaces, reception areas, kitchens, and bathrooms.

Residential is the service rating for residential kitchens, bathrooms, and foyers.

Every floor tile installation method appearing in the TCNA Handbook falls within one of these performance ratings. For example, method F122 *Interior floor thin-bed method over on-ground concrete with waterproof membrane* is classified as having a Moderate service rating. The service ratings are found in the TCNA Handbook's Floor Tiling Installation Guide section as well as in the methods themselves.

The service rating designated for each method does not exceed the performance of the weakest component in the respective method. For example, depending on its density and thickness, the presence of a membrane may adversely affect the service rating of an assembly.

Readers of the Handbook's Floor Tiling Installation Guide are instructed to first determine the required performance level of the assembly, and then choose the installation method that meets or exceeds the desired performance. For example, if the project is a retail store, the required service rating is Heavy, and therefore it should use method F103, F103B, F104, or F121. Additionally, any method classified as Extra Heavy would also be acceptable. Methods designated with Moderate, Light, or Residential service ratings would not be acceptable for a retail store.

Evaluation of Floor Systems

Now that we know that service ratings are key indicators of a tile assembly's performance, let's look at the science behind these designations. The five performance levels recognized in the TCNA Handbook are based on ASTM C627, commonly known as the Robinson Floor Test.

The Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester, ASTM C627, has been used by the tile industry since 1970, and is widely acknowledged as a reliable predictor of a floor's performance under several dynamic loading conditions.

According to ASTM C627, this test method provides a standardized procedure for evaluating performance of ceramic floor tile installations under conditions similar to specific real-world usages. It is intended to evaluate complete ceramic floor tile installation systems for failure under dynamic loads. The method can test a variety of substrates including concrete and wood, various underlayments and membranes, and various installation methods and setting materials.

The Robinson Floor Testing Machine uses a three-wheeled cart that rotates about its center on top of a section of a tile floor assembly to be tested. The cart's wheels are attached to swivel casters and are configured as an equilateral triangle. There is a vertical rod above each wheel that accommodates weights of up to 300 pounds per wheel, which are stacked in increasing increments during the test. A 3/4-horsepower motor drives the assembly, and the cart rotates at a rate of 15 revolutions per minute creating a wheel path 30 inches in diameter along the tile floor.

The Robinson Machine tests the assembly to failure over the course of up to fourteen cycles of cart travel, using heavier loads and/or harder wheels with each successive cycle. Damage is assessed after the completion of each cycle. Cycles 1 through 4 use soft rubber wheels and are 60 minutes in duration with weights of 100–300 pounds over each wheel. If the assembly has not yet failed, cycles 5 through 8 use hard rubber wheels and are also 60 minutes long with 100–300 pounds over each wheel. If the assembly has continued to survive, cycles 9 through

Fig 2. In the Robinson Floor Test, a weighted three-wheeled cart travels over a tile assembly in a 30-inch diameter circular path at a rate of 15 revolutions per minute for 30 to 60 minutes per cycle, for up to 14 cycles, with loads increasing from 300 to 900 pounds and wheel hardness increasing from soft rubber to hard rubber to steel from cycle to cycle. The assembly is assessed for damage after each cycle.

14 use steel wheels and are 30 minutes long with weights of 50–300 pounds over each wheel. Damage is quantified as chipped tile, broken tile, loose tile, spalled grout joint, cracked grout joint, or powdered grout joint. ASTM C627 includes clear guidelines on how to quantify the damage to the tile and grout joints in the wheel path, and how much damage constitutes failure of the test. However, the standard does not interpret the test results; that is done in the TCNA Handbook.

The Handbook's Floor Tiling Installation Guide establishes a correlation between a method's Robinson Floor Test result and its service rating. Assemblies passing cycles 1 through 3 are rated Residential. Assemblies passing cycles 1 through 6 are rated Light. Assemblies passing cycles 1 through 10 are rated Moderate. Assemblies passing cycles 1 through 12 are rated heavy. And assemblies passing cycles 1 through 14 are rated Extra Heavy. Every floor method in the Handbook has undergone the Robinson Floor Test and has been assigned a service rating based on the results.

Where is it being installed?

Where the tile assembly is installed in terms of exposure to environmental factors presents the third set of variables that impact performance. For example, tile assemblies in wet areas or exposed to direct sunlight will perform differently than interior dry assemblies and must be designed and installed for resistance to moisture, humidity, and heat. The exposure of a tile assembly impacts its durability.

The TCNA Handbook lists six categories of use for residential installations and seven categories for commercial installations, collectively known as Environmental Exposure Classifications. A shortened version of this list appears below. To distinguish between commercial and residential, commercial applications are generally more demanding of the assembly, and commercial cleaning and maintenance practices typically generate greater water exposure than residential practices. The environmental exposure classifications consider the assembly's proximity to moisture, humidity, and temperature:

Res1 (Residential Dry): Tile surfaces that will not be exposed to moisture or liquid except for cleaning purposes. Examples include living rooms and dining rooms with no direct access to the outdoors, bedrooms, dry area ceilings, accent walls, fireplaces, and some backsplashes and wainscots.

Res2 (Residential Limited Water Exposure): Tile surfaces that are subjected to moisture or liquids but do not become soaked or saturated. Examples include floors where water exposure is limited and/or water is removed, as in kitchens, bathrooms, mudrooms, laundry rooms, and foyers. Some backsplashes, wainscots, and countertops may also fall in this category.

Res3 (Residential Wet): Tile surfaces that are soaked, saturated, or regularly and frequently subjected to moisture or liquids. Examples include shower and tub floors and walls, enclosed pool area walls, and horizontal surfaces where water is not removed or drained, such as some countertops.

Res4 (Residential High Humidity, Heavy Moisture Exposure): Tile surfaces that are subject to continuous high humidity or heavy moisture exposure. Examples include intermittent-use steam shower walls, ceilings, and floors.

Res5 (Residential High Temperature ≥125°F): Tile surfaces frequently subjected to water or vapor greater than or equal to 125°F. Examples include furnace and boiler areas.

Res6 (Residential Exterior): Tile surfaces exposed to exterior conditions. Examples include exterior walls, balconies, and decks.

Com1 (Commercial Dry): Tile surfaces that will not be exposed to moisture or liquid except for cleaning purposes. Examples include floors in areas with no direct access to the outdoors and no wet utility function such as hallways, dry area ceilings, accent walls, and corridor walls.

Com2 (Commercial Limited Water Exposure): Tile surfaces that are subjected to moisture or liquids but do not become soaked or saturated. Examples include floors where water exposure is limited and/or water is removed, as in bathrooms and locker rooms. Some backsplashes, bathroom walls, other walls, and wainscots may also fall in this category.

Com3 (Commercial Wet): Tile surfaces that are soaked, saturated, or regularly and frequently subjected to moisture or liquids. Examples include shower and tub floors and walls, enclosed pool areas, natatoriums, public communal showers, and some commercial kitchen floors and walls.

Com4 (Commercial High Humidity, Heavy Moisture Exposure): Tile surfaces that are subject to continuous high humidity or heavy moisture exposure, especially in enclosed areas. Examples include continuous use steam showers and steam room walls and ceilings.

Com5 (Commercial High Temperature ≥125°F): Tile surfaces frequently subjected to water or vapor greater than or equal to 125°F. Examples include commercial saunas, furnace and boiler areas, and some commercial kitchen floors and walls.

Com6 (Commercial Exterior): Tile surfaces exposed to exterior conditions. Examples include exterior walls, balconies, and decks.

Com7 (Commercial Submerged): Tile surfaces exposed to continuous water submersion in interior or exterior conditions. Examples include swimming pools, water features, and fountains.

Every installation method appearing in the TCNA Handbook has been assigned one or more environmental exposure classification(s), indicating that the method is expected to perform well in those exposures. For example, method F122 *Interior floor thin-bed method over on-ground concrete with waterproof membrane* is rated as Res1/Com1, Res2/Com2, Res3/Com3, and Res4/Com5. The classifications are found in the TCNA Handbook's Environmental Exposure Classification section as well as in the methods themselves.

Unlike the service rating categories, which are connected to ASTM C627, the environmental exposure classifications are not tied to any test; rather they are based on the tile industry's assessments of different assemblies that have proven to be durable in harsh environments.

When selecting an installation method, design professionals are urged to consider the assembly's exposure to moisture, humidity, and extreme temperatures, and for

Fig 3. Tile in areas that are soaked, saturated, or regularly and frequently subjected to moisture, like residential showers, should use an installation method having environmental exposure classification of Res3 (Residential Wet) or Com3 (Commercial Wet).

exterior applications, to consider local climate and conditions including temperature, temperature fluctuations, humidity, humidity fluctuations, and freeze/thaw cycling. If waterproofing is desired, it must be specified.

Who is it being installed by?

So far, we have examined the contributions to durability made by good material selection, appropriate installation methods, and consideration of environmental exposure. Even if all these boxes are checked, if qualified labor is not used to install it, the assembly may still fail over time. Fortunately, the tile industry has well-established benchmarks to help identify tile contractors and installers with the qualifications necessary to provide durable and long-lasting installations. TCAA's Trowel of Excellence™ certification distinguishes best practice tile contractors who are signatory with the International Union of Bricklayers and Allied Craftworker (BAC). The International Masonry Industry Training and Education Foundation (IMTEF) delivers comprehensive tile training for pre-apprentice, apprentice, and journeyworker tile setters and finishers. Installers who hold an Advanced Certifications for Tile Installers (ACT) certification have demonstrated outstanding technical efficiency. Requirements for minimum levels of competence can be written into a project's specifications to ensure appropriate installation.

Durability validated

Because durable finishes are desirable, claims of durability are widespread among suppliers of building materials and systems. Terms like "durable" are relative, subjective, and difficult to define. However, the tile industry has developed and implemented sophisticated mechanisms to define and measure many of the criteria of durability. Material standards like ANSI A137.1 put forth requirements for strength, abrasion resistance, and other qualities of durability that can be measured. Tests like the Robinson Floor Test simulate real installations under real loads and provide accurate predictions of performance. Classifications such as performance ratings and environmental exposures consider the ability of tile assemblies to perform under loads and resist extreme exposures. Contractor and installer qualification designations like Trowel of Excellence™ and ACT certifications speak to the skills of the installers. With the support of these standards, tests, and programs, the durability of tile is undisputed.

TCAA ANNOUNCES

2021 Scholarship Recipients

OUR 20TH YEAR AWARDING SCHOLARSHIPS TO OUTSTANDING STUDENTS!

Since 2001, TCAA has had the honor of awarding annual merit-based scholarships to outstanding architectural students. TCAA is committed to rewarding high achieving students who will lead their industry, shape the language of design, and create new ways of utilizing tile and stone for public and private space as art for habitation. As of 2021, TCAA has awarded a total of $86,000 in architectural scholarships.

In addition, TCAA also offers a scholarship award to relatives of our TCAA contractor members. This program is designed to recognize the academic achievements of exceptional college or college-bound students. To date, TCAA has awarded a total of $50,000 in family scholarships.

Congratulations to TCAA's 2021 Architectural Scholarship Recipient

Natalie Pearl

Natalie Pearl is enrolled as a full-time student in the Master of Architecture program at the Massachusetts Institute of Technology. Natalie has a cumulative-grade-point average of 5.0 on a scale of 1.0 to 5.0, and her expected graduation date is February 2023.

- *Sheila Kennedy, FAIA, Professor of Architecture @ MIT wrote, ". . . I have followed her rising trajectory as one of our most skilled and thoughtful architecture students . . . it is very rare to see a graduate student with Natalie's skill and intuitive aptitude for making physical models and mock-ups. The intelligence and deep understanding of material behavior that Natalie brings to her work are significant and promising of an impactful career in practice, especially at a moment when architecture students are increasingly attracted to the relative 'convenience' of digital-only design. . . . As a person, Natalie is very bright, articulate, and intense, yet always grounded, approachable and engaging with a warm sense of humor. . . ."*

- *Caitlin Mueller, Associate Professor, echoed many of the reflections made by Sheila Kennedy and stated, "She brings a combination of creativity, technical excellence, and overall enthusiasm to the classroom that makes her a joy to teach, and she has produced extremely strong projects in all settings. . . . Given the multifaceted nature of the problems facing architects, designers, and professionals in the built environment, I know Natalie's skills and outlook give her excellent leadership potential in her career ahead."*

TCAA is honored to award this scholarship to such a fine young woman. It is evident that Natalie is destined for success!

Congratulations to TCAA's 2021 Family Scholarship Recipients

Chloe Bobal

Chloe Bobal is the granddaughter of Michael Bobal, the controller of Miller Druck Specialty Contracting, Inc. in New York, NY. Chloe graduated from General Douglas MacArthur High School in Levittown, NY with a GPA of 101.9809 and an impressive list of academic honors and awards. She is now in her first year of college pursuing a career as a sports physical therapist.

Isabella Leva

Isabella Leva is the daughter of Patrick Leva, the COO/CFO of the E.G. Sackett Co. in Rochester, NY. Isabella graduated from Our Lady of Mercy School for Young Women in Rochester, NY with a GPA of 4.33 and an impressive list of academic honors and awards. She is now in her first year of college pursuing biology/pre-med, physician's assistant (Dental School).

Based on both Chloe's and Isabella's achievements, outstanding abilities, academic enthusiasm, and accolades in the letters of recommendation from their teachers, they are both certain to reach and exceed their goals. It is a pleasure to award these fine young ladies a TCAA Family Scholarship.

PLEASE CONSIDER DONATING TO THE TCAA SCHOLARSHIP FUND!

TCAA Scholarships are 100% funded by donations. If you would like to help us support tomorrow's outstanding leaders, you may wish to consider making a tax-deductible donation to the scholarship fund.

Contributions can be made online via the donate link on our webpage www.tcaainc.org/scholarships or checks can be made payable to **Truman Heartland Community Foundation** and mailed to:

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PROJECT SPOTLIGHT

Rooftop Grill with slate and porcelain tile finishes.

Belfi Brothers & Co., Inc. • Philadelphia, PA

The Hamilton Phase II, Logan Square Apartment Homes—Philadelphia, PA

The Hamilton—Phase II is a 223,000-square-foot, $69.5M project designed by MY Architecture and developed by Community College of Philadelphia and Radnor Property Group. MY Architecture is an architecture, interiors, and planning firm in Philadelphia with deep expertise in urban mixed-use/multifamily/commercial/cultural projects. The Radnor Property Group is the developer, owner and asset manager of this mixed-use development, which is located on the Community College of Philadelphia's campus. The development is a public/private partnership with Community College of Philadelphia via a long-term ground lease arrangement

This 197-foot-tall, 16-story, 320-unit, phase-two building stands taller than the 10-story, 279-unit, phase-one building to its west. The two phases share ground floor amenities and parking but are otherwise constructed as separate buildings. There are 2,800 square feet of ground floor retail, community plaza and garden, secure underground parking, and residential amenities including a fitness center, TV rooms, game rooms, study area/conference room/business center, common kitchens, and an expansive rooftop deck with outstanding views of downtown.

Belfi Brothers & Co, Inc., a member of the Tile Contractors' Association of America (TCAA), and also certified as a TCAA Trowel of Excellence™ contractor, was selected by the McDonald Building Company of Norristown, PA to perform the ceramic tile installation on this project which involved over 60,000 square feet. The bathroom in each unit received

American Olean porcelain tile on the floor and shower walls, utilizing Mapei waterproofing, mortars, and grouts and totaling over 50,000 square feet. The scope of work in the public areas included over 6,000 square feet of 24"x 24" Trinity Tile porcelain flooring in the lobby areas, cement floor tiles in the public toilet rooms, 1"x6" mosaic tile at feature wall areas, and a fireplace surround of MYMOSAIC plastic printed tiles. Belfi also installed quartz countertops in the units and public areas. Belfi's crews worked on this project from the end of November 2020 through July 2021.

Belfi Brothers & Co. project manager, Stephen Belfi, noted that the most challenging portion of the tile installation on this project was the MYMOSAIC plastic tile train mural at the fireplace surround. (Per the MYMOSAIC website, "MYMOSAIC is a tile covering in a patented self-extinguishing nanopolymer that reproduces any digital image in a totally customized mosaic and, with tesserae in many shapes and sizes." MYMOSAIC's website also states that they can transform any digital image into a totally customizable 3D mosaic.) Belfi said, "The tile was flexible and incredibly thin. We did multiple mockups using epoxy mortars, setting with epoxy grout, trying to wrap the tiles as an outcorner and also using a Schluter trim at the outcorner. The best method found was actually to use a mastic with a grout color that matched the mesh behind the tiles. It was our first time trying to install these plastic tiles, and they are very different than any other tile we have worked with. Our installers ended up flexing the tiles to make them concave, then allowing them to bend back so they would be flat enough to adhere without trying to pull off the wall."

1x6 White Tile Framing Artistic Wall Art.

1x6 White Tile Feature Wall.

About Belfi Brothers & Co., Inc.

Doing union ceramic tile and stonework in the Philadelphia area since 1902.

Belfi Brothers was founded in 1902 by John and Constantine Belfi (brothers) and their friend John Zamichieli. The company was incorporated in 1928 and became

a member of TCAA that same year. From the beginning, a tradition of integrity and excellence has been passed down from father to son. Belfi takes great pride in the services and finished products that they supply. Today, in their fifth generation and 119th year in business, under the leadership of Stephen Belfi and James Ingram, the company continues to uphold their reputation with the same standards that they have practiced from day one.

Throughout the years Belfi Brothers has provided the industry with quality stone and tile craftsmanship. They specialize in the installation of all types of ceramic, porcelain, quarry, and stone tiles and also in custom fabrication of natural stone and manufactured quartz. Their work can be seen in many of the office buildings, retail stores, schools, malls, restaurants, churches, and hospitals throughout their region.

To learn more about Belfi Brothers & Company please visit www.belfibrothers.com or contact Stephen Belfi at 215-289-2766.

1x6 Black Tile Feature Wall.

Fireplace Surround: MYMOSAIC Train Mural.

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Corcoran Tile & Marble, Inc. • Cleveland, OH

Canterbury Golf Club—Locker Room Upgrades and Patio Bar Addition—Beachwood, OH

Canterbury Golf Club is a private golf and country club located in one of Cleveland's most scenic suburbs; nationally recognized as one of the top 100 golf courses in the U.S. and one of the finest in the state of Ohio. This facility consists of an 18-hole golf course of exceptional design originally created by Herbert Strong, acclaimed golf course architect and founding member of the PGA of America. Canterbury also has a clubhouse and restaurant, as well as a driving range facility, swimming pool, tennis courts, and paddle courts. For 100 years, Canterbury has aimed to create an excellent experience for members and their guests.

To enhance the members' experience, the golf club embarked on the renovation of their locker rooms and patio bar. Corcoran Tile & Marble, Inc., a member of the Tile Contractors' Association of America (TCAA) and certified as a TCAA Trowel of Excellence™ contractor, was chosen to perform the ceramic tile installation at this prestigious member-owned club. The upgrade of the locker rooms included the complete renovation of four toilet/shower areas and the addition of a steam room. The renovated spaces involved the Lower Level, Main Level, and 2nd Floor of the Clubhouse.

Drake Construction Co., the general contractor on this project, and Perspectus, the architectural firm, are both based out of Cleveland, OH. Drake has been servicing the Cleveland area for 67 years, commanding high quality and representing their clients with distinction. They are known for working with qualified subcontractors with whom they have long-term working relationships. Doug Taylor, the owner of Corcoran Tile & Marble, noted that he has worked with Steve Ciuni of Drake Construction and Jim Wallis of Perspectus Architecture on similar projects in the

past. Taylor said, “Jim Wallis has a true appreciation of tile and a keen ability to create finishes that enhance the spaces they occupy. His projects are works of art. These types of projects allow our highly skilled mechanics to exercise their craft to the best of their abilities due to the age of the buildings, the nature of the products, and the level of detail that is required. The result is a finished product that everyone can be extremely proud of and one that Canterbury Golf Club will enjoy for many years.” (Jim Wallis, of Perspectus, is known as a premier club architect, providing services to more than 25 golf, tennis, and yachting clubs across the Midwest and Florida and is a frequent speaker on country club and senior living design trends.)

Under the direction of this excellent project team, the project ensued with the ceramic tile work progressing during the months of February through June 2021. Essentially, the areas under renovation were “shelled.” The 100-year-old exterior structural foundation and support walls were all that remained. The floor joists between the 1st floor and lower-level men’s rooms were compromised and replaced. Although new wall substrate was provided, the prep work was extensive. Over 270 hours were

required to level/mud the floors and plumb the wall substrates to accept new tile.

This project involved over 7,000 square feet of new ceramic tile of varying sizes, colors, and patterns. Shower compartments were tiled in accordance with Tile Council of North America (TCNA) installation method B415, and the tile in the steam room per TCNA method SR614. All wet areas received waterproof membrane prior to the tile installation. Tiled areas outside of the showers utilized the thinset method of installation.

The Men’s Locker Room areas utilized 1” white matte hex mosaic floor tile with a black mosaic hex inlay along the perimeters to create a classic accent band. The toilet/shower area walls received 4”x 8” Sonoma Pure Glossy White wall tile to 32” above finished floor, followed by a single row of Daltile Precision H20 ½”x 6” Black Flat Liner, a 1½” x 8” Sonoma Pure White Glossy ceramic chair rail, and then 3”x 6” Sonoma Pure White Glossy wall tile to the ceiling. The walls inside the twelve shower compartments were tiled with the 4”x 8” Sonoma from floor to ceiling. There was an extensive amount of bulkhead work

involved, and each shower incorporated a tiled soap niche. The soap niches and vertical outside corners were framed with Schluter Rondec trim in a gloss black finish. The curbs and shower niche shelves in the shower compartments were clad with cut-to-size polished White Carrara marble. The Steam Room that was added in the men's locker area received 4"x 8" Sonoma tile on the walls, bench faces, and ceiling.

The 2nd floor Women's Locker Room area floor was tiled with a unique pattern of 1"x 2" Honed Calacatta Basketweave Marble Mosaic with a Pistachio accent, that was custom fabricated by Castelli Marble in Cleveland, OH. The women's area wall tile layout and sizes were patterned in the same fashion as the men's area (excluding the ½"x 6" flat liner accent row) using Sonoma Pure Natural Glossy wall tile with Schluter Rondec trim in a polished chrome finish at the soap niches and outside corners.

The entry into the lower-level men's area was tiled with Crossville 4"x 48" Woodlands porcelain plank tile, including the stair treads and risers which incorporated Schluter tread nosing profiles.

The exterior work at the Patio Bar involved Elysium Ostuni Tufo Tiles in a large format Versailles pattern in the public area and Daltile 4"x 8" Red Blaze Quarry Tile in the server areas.

About Corcoran Tile & Marble, Inc.

Founded in 1946, Corcoran Tile & Marble, Inc. is one of the oldest and most respected subcontractors in northern Ohio. Their specialties include ceramic tile, stone, and brick paver installation for commercial, institutional, and industrial facilities. They have a reputation for unparalleled service and craftsmanship which is the reason they have completed over 2,500 projects in the last decade alone, and 12,000+ to date!

Due to Corcoran Tile & Marble's capabilities and extensively experienced craftsmen, they have been the recipient of more than 30 craftsmanship awards including the prestigious Spectrum International grand prize winner for work completed at the Cleveland Public Library. Corcoran Tile & Marble is an exceptional contractor, and Tile Contractors' Association of America (TCAA) is proud not only to have them as a member but also certified as a TCAA Trowel of Excellence™ contractor.

For more information about Corcoran Tile & Marble, Inc. please visit www.corcorantile.com or contact Doug Taylor at 216-898-9920.

CERAMIC TILE INDUSTRY STANDARDS, CERTIFICATIONS, AND GUIDANCE MATERIALS FOR GREEN BUILDING SPECIFICATION

By Bill Griese, LEED AP, Director of Standards Development and Sustainability Initiatives, TCNA

Green building principles are rooted in environmental sustainability, and more recently in human wellness. Designers and specifiers are now increasingly focused on building product contents and their impact on human health. As a result, today's green building market not only requires environmental performance and transparency, but also transparency pertaining to product ingredients. To satisfy green and healthy building market demands and facilitate product conformance to rating programs, codes, regulations, and purchasing requirements, Tile Council of North America (TCNA) and its members have undertaken the following important initiatives over the past decade: Green Squared® standardization and certification, industry-wide Environmental Product Declarations (EPDs), and the Material Ingredient Guide.

Green Squared® was established nearly a decade ago as the world's first standard and certification program for sustainable ceramic tiles and tile installation materials. It continues to serve as an important specification tool for the sustainability performance of products. With life-cycle-based multi-attribute sustainability criteria for product characteristics, manufacturing, end of life, corporate governance, and innovation, the standard ANSI A138.1, on which Green Squared® is based, is regularly referenced by green building codes and rating programs and by sustainable procurement officials.

A ceramic tile or related installation product which bears the Green Squared Certified® mark on its packaging or literature has been independently verified by one of two approved certification bodies, UL Environment or SCS Global, to meet ANSI A138.1. A listing of products which have been Green Squared Certified® is available at GreenSquaredCertified.com, and this database of information is syndicated with other databases which list products eligible for green building contribution. These include purchasing portals developed by the GSA for federal purchasers, libraries of sustainable products developed for public universities' procurement departments, catalogs of green building products approved by several A&D firms, and the Sustainable Purchasing Leadership Council's product search engine. Furthermore, UL Environment and SCS Global each list Green Squared Certified® tiles and related installation materials in their product databases, which are syndicated with a host of additional databases throughout the design community.

Regarding environmental transparency, there is a growing need among green

building specifiers and designers for quantitative reporting of the impacts of products so that the environmental "footprint" of buildings can be calculated. An EPD is a vehicle for reporting product environmental data in a standardized manner. Just as nutrition labels inform the calorie conscious on food choices, an EPD reports the most important environmental considerations, based on an environmental life cycle assessment (LCA), in a common framework to end users.

TCNA and its members developed industry-wide EPDs for ceramic tile, mortar, and grout made in North America. These EPDs provide a comprehensive overview of how these products, on average per installed square meter, impact the environment over an estimated building service life of 75 years. To produce each of these EPDs, participating manufacturers provided extensive data on their materials and operations and participated in a cradle-to-grave evaluation of their products, from raw material sourcing/extraction, through manufacturing, delivery, installation, use, and end of life. When comparing EPDs for tile and related products alongside other flooring products' EPDs, generic EPDs, including LVT, LVP and several other plastic-based flooring materials, one thing is clear: Overall, ceramic tile has the lowest 75-year environmental impact per square meter. Each EPD has been independently verified by UL Environment, and participating manufacturers can reference the EPDs when such information is required by green building specifiers and procurement officials.

Regarding health and wellness transparency, building product suppliers are increasingly required to disclose the content of their products using standardized product material ingredient reporting formats.

A 12" x 24" porcelain tile from Crossville's Green Squared Certified Shades collection was selected for the exterior cladding of First Church of Christ, Scientist's new 6,500-square-foot facility in Winter Park, Florida. ACi Architects chose porcelain for its longevity, low maintenance, ingredient transparency, and in this case, a 20% recycled content composition.

According to the Healthy Building Network, consumers have the "right to know," and it is "the responsibility of the manufacturer" to provide "transparency" in product material ingredient reporting. There are many green and healthy-building, industry-recognized material ingredient reporting formats, each of which requires the disclosure of chemicals within a product above a specified threshold and associated toxicological screening, and assessment results.

To facilitate ceramic tile, mortar, and grout manufacturer conformance to product material ingredient reporting criteria, TCNA and its members worked with WAP Sustainability to develop an industry Material Ingredient Guide. This Guide, a first of its kind by any building product industry, provides strategic instructions for manufacturers to follow when providing the content and chemical makeup of their products using recommended Health Product Declaration (HPD) or Manufacturer Inventory (MI) material ingredient reporting

formats. Additionally, the Guide provides information about the material ingredients most commonly used by North American manufacturers, references in-depth chemical assessments of the materials, and provides insights into the industry's role in satisfying healthy building criteria. In developing this Guide, 17 manufacturers collaborated on the largest crowdfunded collection of GreenScreen Assessments® to obtain GreenScreen® Benchmark Scores for the vast majority of material ingredients used by ceramic tile, mortar, and grout manufacturers. TCNA members who participated in this effort have a unique opportunity to use the Guide's referenced GreenScreen Assessments® in their material ingredient reports, pursuant toward contribution to green and healthy building "optimization" credits. A copy of the Guide, in its entirety, can be downloaded for free from the WhyTile.com website (https://whytile.com/library/material-ingredient-guide/).

With Green Squared®, industry-wide EPDs, and the Material Ingredient Guide, the North American ceramic tile industry is provided with a complete kit of resources toward the specification and promotion of its products for green and healthy building initiatives. These resources help products contribute credits toward LEED, Green Globes, and NAHB National Green Building projects, facilitate compliance to International Green Construction Code, ASHRAE 189.1 and GSA P100 federal facility criteria, and engender confidence from private and public sector green and healthy building product purchasers.

With sustainability in mind, high-end Dallas apartment complex, Beckett Park surrounded their pool with 10,000 square feet of Green Squared Certified porcelain tile from Landmark Ceramics, creating a slip-resistant checkerboard sun deck.

For LEED building projects, Green Squared Certified® products contribute toward the "Certified Multi-attribute Products and Materials" credit. Products covered by the industry-wide EPDs contribute to the "Building Product Disclosure and Optimization—Environmental Product Declaration" credit. Products following steps toward material ingredient transparency per TCNA's Material Ingredient Guide contribute toward the "Material Ingredient Reporting" credit. In fact, products with HPDs or MIs which reference the Guide's GreenScreen® Benchmark scores for pertinent chemicals contribute toward LEED's "Material Ingredient Optimization" credit, a feat rarely achieved by other building products. With TCNA's Material Ingredient Guide, it is anticipated that the North American tile industry will become responsible for the largest number of "optimization" eligible product ingredient reports in the market.

Building projects seeking Green Globes and NAHB National Green Building certification are also afforded a unique opportunity to be awarded points using ceramic tiles and related installation materials. Green Globes Section 10.2.1 awards points for the use of products which are Green Squared Certified® and/or covered by the industry-wide EPD. NAHB's National Green Building Standard, section 612.2, awards points for the use of Green Squared Certified®

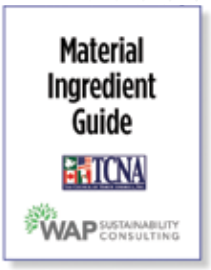
products. Section 611.4 awards points for the use of products covered by the industry-wide EPDs, and section 610 awards points if environmental impacts presented in the EPD are lower than those of competitive products over at least a 60-year period.

It is also important to consider green building code and regulatory compliance. The International Green Construction Code, section 901.4.1.4.3, and ASHRAE 189.1, section 9.4.1.4.3, each require that at least 10 products installed in a building have an EPD and/or a third-party multi-attribute sustainability certification. GSA P100 Facilities Standards tiling provisions also have similar criteria. Using Green Squared Certified® products and/or products covered by TCNA's industry-wide EPDs contribute toward thresholds for compliance.

Finally, the use of Green Squared Certified® tiles and installation materials, products covered by TCNA's industry-wide EPD, and products with ingredient reports following TCNA's Material Ingredient Guide engenders confidence throughout the supply chain. Private and public sector procurement specifications are increasingly including health and environmental performance and transparency criteria. In fact, specifically pertaining to the public sector, the U.S. Environmental Protection Agency (EPA) released Recommendations of Specifications, Standards, and Ecolabels for Federal Purchasing, citing many ceramic tile industry initiatives, including Green Squared®.

Certainly, today, the current administration's views on climate change and energy are clear, meaning a more intense spotlight on sustainability in general. It can be anticipated that increased EPA representation in standardization and the federal government's desire to leverage building and construction procurement to the "highest environmental standards possible" will have an impact on green and healthy building demands throughout the entire market. With Green Squared® certification for sustainability performance, industry-wide EPDs for environmental transparency, and the Material Ingredient Guide for health and wellness transparency, TCNA and the ceramic tile industry are well-positioned for green and healthy building for the remainder of 2021 and beyond.

Triple PLUS Transparency and Green Building Recognition



Environmental Transparency + Material Transparency

BATCHELDER:

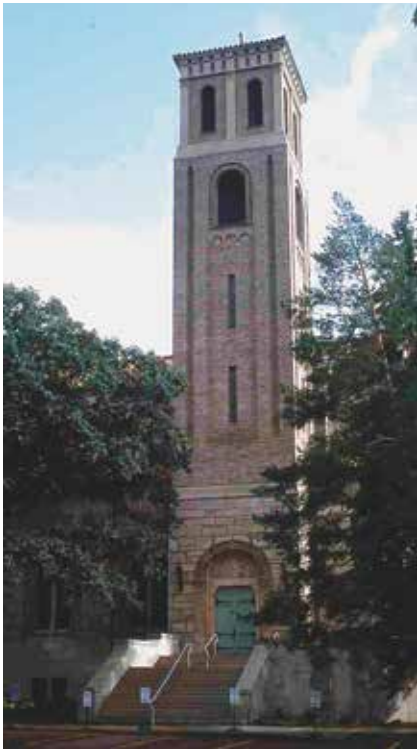
Grounded in Fine Arts

PART THREE

By 1920, the time had arrived for Ernest Batchelder to dramatically expand his tile manufacturing facility in Pasadena. A new site was chosen in the Lincoln Heights area of Los Angeles, where the factory would soon encompass seven acres. A new partner, Lucien Wilson, was brought into the firm, and the name of the company was changed to Batchelder-Wilson.

Batchelder's handcrafted
arch at the entry to the bell tower.

With what seemed like an insatiable demand for its products, Batchelder-Wilson Company was adding a new and larger kiln every year, including a massive tunnel kiln. With 175 employees, the plant could handle six tons of material per day by 1925, and with good reason.



Campanile bell tower.
Chapel of Our Lady of Victory. St. Paul, MN.

Inspired by St. Trophime at Arles in France, architect Herbert A. Sullwold designed the Chapel of Our Lady of Victory at the University of St. Catherine in St. Paul, Minnesota, constructed in 1923–24. The Romanesque Revival style allowed for the inclusion of the strikingly impressive 116-foot campanile bell tower where Batchelder tiles were chosen to frame the entry at its base. Inside the sanctuary itself, the walls, pillars and floor tiles are entirely Batchelder, an extraordinary array of sizes and shapes that closely resemble stone. The building at 2004 Randolph Avenue was listed in the National Register of Historic Places in 1985.

Fine Arts Building in 1933. Courtesy of the Regional History Collections, University of Southern California.

The Fine Arts Building, 811 West 7th Street in downtown Los Angeles, all twelve stories of it, provides an aesthetic extravagance like few, if any, others in the country. Designed by architects Walker and Eisen and completed in 1927, the building is clad in terracotta produced at the Los Angeles Pressed Brick Company, then owned by Gladding, McBean & Co., and embellished with numerous sculpted features, the most prominent being two massive stone torsos by Burt William Johnson clearly visible from the street.

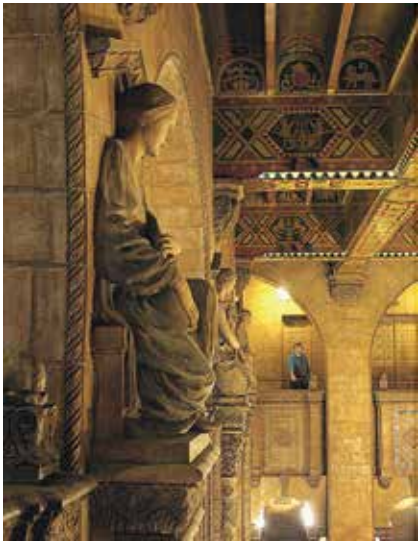
Romanesque entry arch of the Fine Arts Building. Crafted at Los Angeles Brick Company.

The building was intended to be a haven for artists and craftspeople with separate studio spaces and a communal gallery to display their work to the public. The lobby is stunning, with 17 glass display cases on the sides of the room and elevators at the far end for easy access to the upper floors. Batchelder tiles adorn the arches, columns and ceiling as well as the shallow pool in the center of the room that features Johnson's bronze children. Also designed by Johnson are the seated life-size women atop the columns, each symbolizing a different fine or decorative art, modeled in clay by Kathleen Ingels and fired at Batchelder-Wilson. The City of Los Angeles proclaimed the building a Historic Cultural Monument in 1974.

Lobby of the Fine Arts Building today.

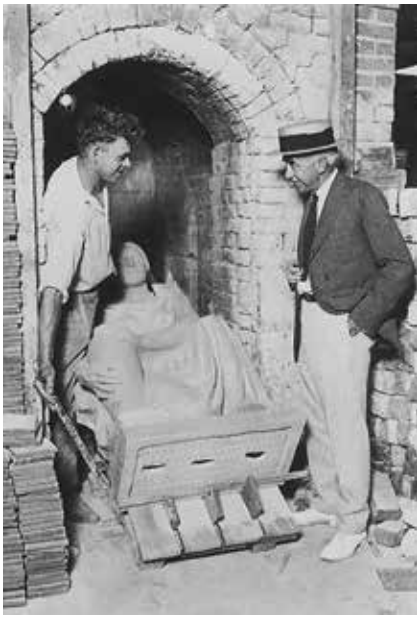
Detail of the Batchelder wall decoration.

For all of the laurels that have been heaped upon Ernest Batchelder as a master of design and craft, he was also a magnificent marketer, second to none in the tile industry at that time. In Part Four of this story, we will take a close look at why and how Ernest Batchelder achieved his national reputation, one that has survived to the present day.



Three of the seated women aloft.

Special thanks to Michael Several, whose detailed text on Burt Johnson and the Fine Arts Building (Los Angeles, November 1999) has proved most helpful. And a tribute always to the late Dr. Robert Winter, who served to keep the Batchelder legacy alive.



Ernest Batchelder supervising the firing of a seated woman. Courtesy of the Batchelder family.

Joseph A. Taylor
President, Tile Heritage Foundation
Cesery Award recipient in 2003
www.tileheritage.org

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