

FALL 2022

093000 CONTRACTOR

TILE CONTRACTORS' ASSOCIATION OF AMERICA | THE VOICE OF SIGNATORY TILE/STONE CONTRACTORS



MINNESOTA MASONIC HERITAGE CENTER—WTG TERRAZZO & TILE, INC., BURNSVILLE, MINNESOTA

FEATURED INSIDE

Tile Over Tile Installations

2022 Scholarship Recipients

Bonded vs. Unbonded Mortar Beds



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“Our designers travel the world and stay connected to trends to bring leading edge designs to our American artisan created collections. To support our customers, our new tile factory in Tennessee will be fully functional by Q1, 2023.”

— **Holly Badertscher,**
Vice President Marketing,
Portobello America



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Ph: 800-655-TILE (8453) | Fax: 216-462-0808
Email: magazine@tcaainc.org



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Michael Kriss
Krisstone LLC
TCAA President

WHAT GOES UP MUST COME DOWN, BUT DOES IT?

Hello, my fellow TCAA members. The hot and unpredictable summer of 2022 is behind us, and I am really looking forward to beautiful autumn, at least in my part of the country. Fall is my favorite season in New York – colorful foliage, the weather is still warm, and we do not get many rainy days.

Preparing to write this article, I went to our very well-designed and easy-to-use TCAA website (www.tcaainc.org) to look back into our history and see what were topics back in the days. Since I mentioned our website, I would like to compliment our Executive Director, Lucinda Noel, for her tireless work in making our website a success. Thank you, Lucinda!

To my surprise, our current issues and problems are the same as in years past: qualified labor shortage, increasing material prices, and ever-growing competition from the non-union side. How do we compete and succeed in this environment? There are multiple keys to the success. First, we

can stay on top of the new products, both tile and setting materials, coming to the market, learning new installation technics, and implementing continuing education for all BAC members. Next, performing quality work on time and within budget will elevate our TCAA member companies above others. Finally, we can share with each other about our experiences in tile and stone, help one another to overcome any field or material issues, and be friendly competitors.

Going back to the title of this article, the other day we had territory managers of one of the prominent, well-known national companies in our industry visit our office to discuss one of the projects of which we are currently bidding. The work of our trade on this project was slated to start sometime by the end of 2024, and we were trying to figure out the material cost to put into our estimate. Being so naïve, I questioned if their surcharges, which are already 25% on top of three price increases in the last year and a half, might go away? The answer I was given you can guess from this article's title!

In conclusion, the surcharges and ever-increasing prices might stay with us forever; and to counter this cost, we must implement new installation technics, employ the latest setting products, and increase the field productivity through continuing education and better office field supports. For those reasons, I strongly suggest visiting the upcoming TSP convention in California; come to see your friends from around the country; and learn the latest from vendors. I hope in my next article, I will be celebrating the end of the Russian invasion to Ukraine, and Russian troops retreat to their territories.

Thank you, and I hope to see you in Indian Wells, California.

Michael Kriss – Krisstone, LLC. ■■

WE'RE IN GOOD HANDS!



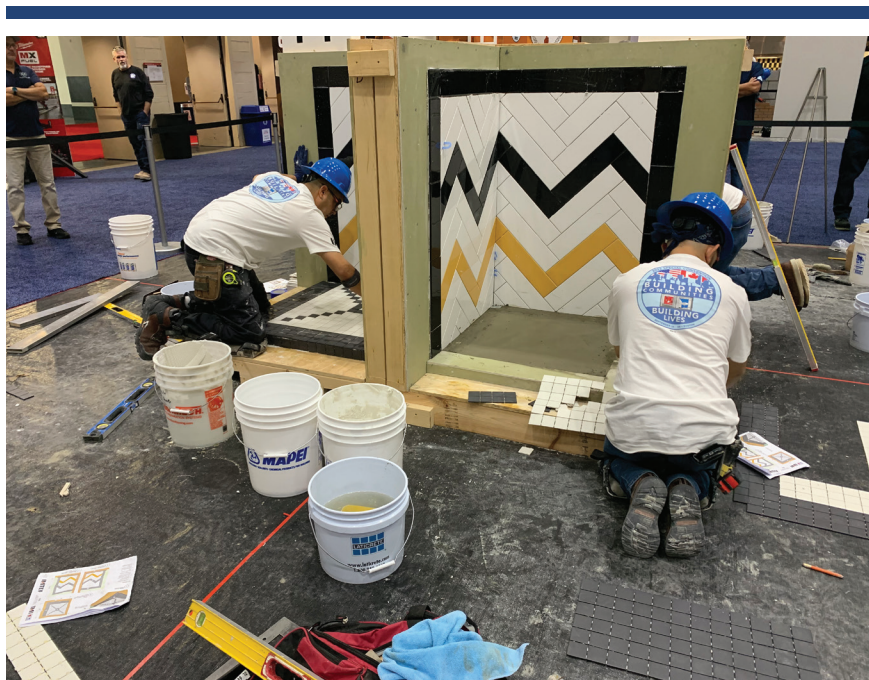
In today's world, BC has a new meaning: Before Covid. Everything regarding time and events is pretty much defined by what has happened before or after the pandemic. One of those events effected by Covid was the International Union of Bricklayers and Allied Craftworkers' (IUBAC) national convention, which would

have been held in 2020. And the best part of the event, the National Apprenticeship Contest, was also canceled. So, when I heard that a special IUBAC convention was going to be held in Boston this fall, including the apprenticeship contest, I was thrilled! On top of that, I was asked to be a judge.

While it is certainly an honor to be a judge, it is also an awesome responsibility. I was a judge a number of years ago, and it was an entire day of keeping track of the progress of the work, answering questions, and then inspecting and scoring the final installations. We are talking about judging the work of apprentices who are the very best of the best nationally! And this time it was no



Winning recipients of the local and regional apprenticeship contest compete for the IUBAC National Apprenticeship Contest, while local union representatives and IUBAC international officers look on. Credit: John Trendell



The first-place winner in the ceramic tile category at the IUBAC National Apprenticeship Contest was Zhen Yong Lin (at right) from California. Credit: John Trendell



The very best of the best nationally compete in the National Apprenticeship Contest in Boston. Credit: John Trendell



The proud and happy winner, Zhen Yong.
Credit: John Trendell

different. Thirteen accomplished ceramic tile apprentices across the USA and Canada were focused and ready to show the world their exceptional skills. They had already been battle-tested at local and regional contests, and now they were on the national stage for the ultimate test.

After seven hours of intense work, time was called, and everything stopped; except now, we four judges had to make tough calls regarding whose work would be considered the best. I'm talking about making distinctions in work items such as plumb, level, layout, grout width, and caulking to be within less than 1/16 of an inch! That's how good and that's how close the judging had to be to try and determine the best project installations.

Now came the very best part of the whole weekend, the awards dinner. All the contestants from all the trades were first recognized for their participation. Then came the awards for the top three in each trade.

Now, picture a banquet hall filled with family and friends of the apprentices, local union representatives and trainers who had worked with these young aspiring craftworkers, and contractors who employed them or certainly would in a second. Every time an awardee's name was announced, a huge cheer would roar out from a different part of the hall. It still gives me chills to relive it.

High-fives, pictures, family hugs, and proud smiles were the order of the night. The first-place winner in the ceramic tile category was Zhen Yong Lin from California. He told me how he had worked for three years thinking about this moment. Believe me, everyone in that room was a winner, and we, both contactors and journey craftworkers, can be assured that the future of the trowel trades is in good hands! 🇺🇸

John Trendell
*TCAA Labor Committee Chair
Trendell Consulting LLC*



All of the contestants were recognized for their participation at the National Apprenticeship Contest awards dinner. Credit: John Trendell



Leslie Baker
Crossville Director of
Segment Marketing

TILE OVER TILE INSTALLATIONS WITH PORCELAIN TILE PANELS

One of the biggest buzz phrases in the tile industry these days is porcelain tile panels. Why? Because designers and installers are learning more about the many benefits of porcelain tile panels, especially the ability for tile-over-tile installations.

Introduced to the US market about a decade ago, gauged porcelain tile panels have

experienced consistent growth in popularity. Thanks to ongoing education and training, architects, interior designers, and installers have come to understand the material and its many and varied applications available due to its large sizing in feet instead of inches. From installations with minimal grout lines to tile-over-tile installations, the benefits of porcelain tile panels are as expansive as the colors and styles offered.



Bank of America Plaza at Las Olas City Centre - Fort Lauderdale, FL. Searching for a product that would be large-scale and could be installed over the existing floor, the design team found that Crossville's gauged porcelain tile panels in Cava provided a stylish solution to an upscale office renovation. Credit: Crossville Inc.



Bouchard Insurance - Clearwater, FL. For the walls and floors in this busy headquarters, the team sought a material that would allow for efficient installation, ideally by eliminating the need for complete demolition of the existing tiled surfaces in the restrooms. Crossville's porcelain tile panels proved to be the ideal specification. Credit: Crossville Inc.

With downtime and maintenance as top concerns, especially in hospitality, healthcare, commercial, and multifamily projects, porcelain tile panels can quickly transform a tired space into something eye-catching and fresh that will stand the test of time. The larger size of the tile combined with the thinner profile results in the possibility of tile-over-tile installations.

Crossville's porcelain panels are huge. A single 1- x 3-meter (39" x 118") panel can cover more than 32 square feet, resulting in a seamless look, thanks to fewer grout lines. But it's the thickness, measured in mere millimeters, that gives these tile panels the unique ability to be laid over existing tile or brick surfaces. This trait offers a big advantage for renovation projects as it eliminates the need for demolition and removal of the old material, reduces the labor involved, keeps costs down, and

minimizes construction waste. Another plus is that it gives businesses the ability to stay in business with less downtime. For these reasons, it's no surprise that this trend has really taken hold in commercial and residential projects.

Offered in two sizes for different applications, Crossville's thicker panels are at 5.6 mm, about a quarter of an inch, and these can be installed on walls and floors, while the three-mm tile panels are intended for vertical use only. The advanced design and durability of the panels enable the aesthetic and functional use of porcelain tile in previously impossible applications, such as tile-over-tile installations.

Crossville's large format panels can be installed over existing tile with just a little preparation. Depending on the material already installed, installers should review the

floor height or wall thickness for limitations and ensure the existing tile is well-bonded. In some cases, the tile should be mechanically abraded or primed to ensure a good bond. For tile-over-tile installations with large format tiles, the most critical components are substrate preparation, including setting procedures, materials selection, and layout.

The tile-over-tile advantages with porcelain tile panels are numerous:

- For the business owner, being able to stay open with less downtime is critical.
- From a cost standpoint, job costs decrease without having to remove the old material, reducing the labor involved, and minimizing construction waste. With a 14% increase in construction costs in 2022, these labor and material savings could dramatically impact the project's bottom line.
- As an environmentally friendly option, tile-over-tile installations reduce the amount of

waste sent to landfills. Construction waste is a tremendous problem throughout the United States, at about 600 million tons in 2018.

- With various health benefits, tile over tile not only minimizes dirt and dust during installation, but it also eliminates sound contamination, especially important if a facility remains operational during the renovation. Downtime for a business not only includes lost production and lost revenue, but also loss of reputation and recovery costs to get those customers back. Tile-over-tile installations help keep the doors open during a renovation with as little disruption as possible.
- Designers continue to assess material specifications that ensure generally cleaner and safer physical environments. After installation, additional health benefits of porcelain tile panels include easy maintenance, as the panels do not require special cleaning products that can cause other health irritations. With fewer grout



Clearwater Beach Condominium Kitchen Remodel - Clearwater, FL. As new owners of a beautiful beachfront condominium on the 11th floor, the family wanted to update the kitchen, including the floor and countertop. To ease the demo timeline, the team chose Crossville's porcelain tile panels for the kitchen floor in an easy, tile-over-tile installation. Credit: Crossville Inc.



Holy Cross Hospital - Fort Lauderdale, FL. Rather than demolish the existing tile surfaces of the bathroom and shower walls, the project team opted to find a surfacing solution that would install over previous materials. Designers wanted a large, modern porcelain tile that would exude elegance and tranquility in the maternity unit, while offering optimal performance. Credit: Crossville Inc.

joints, the installation will use up to 95% less grout, which means less chance for mold and mildew.

Providing seamless installations on walls and floors, porcelain tile panels over existing materials are ideal for commercial and residential applications. From hospitality to healthcare and office to education, porcelain tile panels can be installed for skinning walls in large spaces, elevator areas, restaurants, restrooms, exterior cladding, and even tiling a radius with no seams. The residential applications are endless and create stunning installations from kitchen floor updates to

shower walls and backsplashes to fireplace surrounds.

For tile-over-tile installations, Crossville provides seamless solutions from design to installation to maintenance. Since the introduction of porcelain tile panels, Crossville has made it a priority to provide contractors with the knowledge and know-how to successfully install this increasingly popular material. In addition to the support from the Crossville, Tenn., headquarters, Crossville regularly supports and sponsors workshops around the country. ■



MN Masonic Heritage Center lobby.
Credit: WTG Terrazzo.

WTG Terrazzo & Tile, Inc.

• Burnsville, Minnesota

MN Masonic Heritage Center

10,000 Square Feet

When Minnesota Masonic Charities (MMC) announced the construction of a 50,000-square-foot Heritage Center, opportunity came knocking for the kind of elaborate project modern-day architects and contractors don't often see. From a brick façade with concrete-block backup to a completely tiled roof and high-level finishes, it was a one-of-a-kind opportunity for WTG Terrazzo & Tile, Inc. (WTG).

The Bloomington-based project included a remodel and addition to the existing Masonic homes facility. The added building replaced two obsolete buildings on the Masonic campus and included a large 425-seat auditorium, museum space, lodge, a library with rare Masonic books, conference and event spaces, and a full catering kitchen and dining facility. Inspiration for the design

of the building was drawn from concepts of Freemasonry and its significance in history, complementing the majestic campus in style.

“Masons, such as James J. Hill, the Mayo Brothers, and Hubert H. Humphrey, all made such significant and recognizable contributions to Minnesota’s history,” Eric J. Neetenbeek, president and CEO of Minnesota Masonic Charities, said to *Businesswire*. “Establishing a Masonic Heritage Center, which will be one of very few in the country, provides an opportunity to honor the work and values of Masons in Minnesota.”

WTG supplied and installed approximately 10,000 square feet of ceramic, porcelain, marble, and stone tile flooring in the main lobby, stairs, restrooms, and lodge areas. The company also advised the project team



WTG installed 12"x12" and 12"x24" Back Bay Limestone Allura Crema Polished floor tile, with a 12"x12" Daltile Marble Empress Green Polished tile border and base. Credit: WTG Terrazzo.



Hex Daltile Keystone daisy pattern on the main restroom floor. Credit: WTG Terrazzo



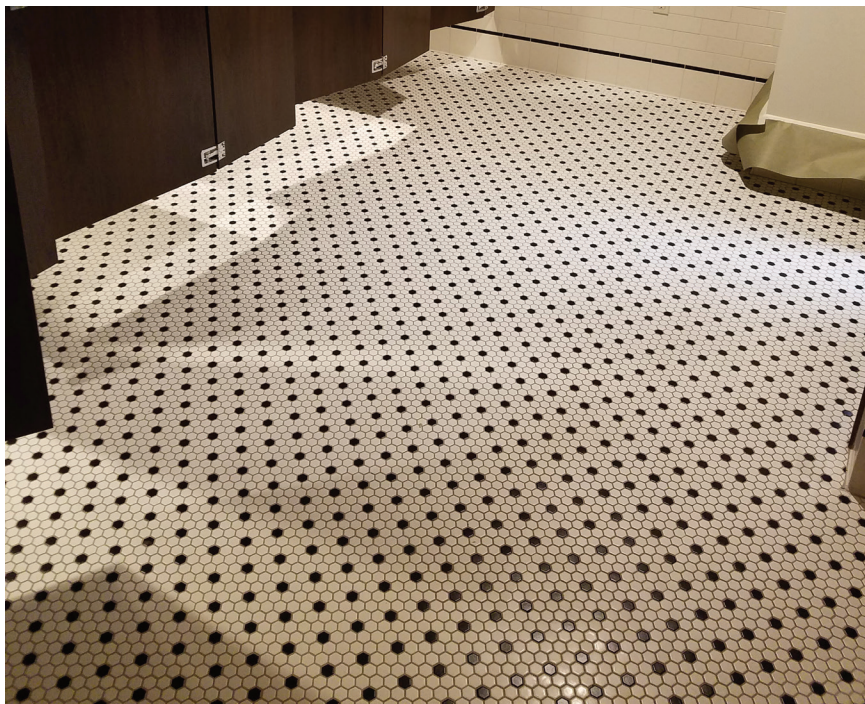
The walls were installed with US Ceramics U974 Biscuit field tile, with two ¾"x6" liner bar accents, using US Ceramics U759 Black and a 2-1/2"x6" Victorian Rail in US Ceramics U759 Black. Credit: WTG Terrazzo

on tile selections that were both symbolic and economically smart.

"Initially, the cost for our work was significantly over budget due to the original 'historic' selections," says Tony Grazzini, WTG president. "We helped to value-engineer the project with similar, more cost-effective products. It allowed the entire project to go forward and still create the beauty and historic features that the client was looking for." Another challenge to the project was time. "However, we were able to maintain a strong, talented crew throughout the project by early-and-often communication with the client," adds Grazzini.

Starting in the lobby, WTG installed 12"x12"

and 12"x24" Back Bay Limestone Allura Crema Polished floor tile, with a 12"x12" Daltile Marble Empress Green Polished tile border and base. To cap off and accent the beauty of the lobby, WTG installed a custom-made, waterjet cut star emblem, utilizing the same materials and surrounded the star with a brass circle. The lodge area was installed with a 12"x12" Petra Slate Polished Nero and a 12"x12" Back Bay Marble Polished Bianco Venatino in a checkerboard pattern. The design consisted of three borders of the same material in a 45-degree triangle border pattern and a solid black pattern with custom waterjet-cut marble and brass lettering. The final border utilized the Polished Bianco in a 2-in. cut. Finally, in the restrooms WTG used 1"x1"



In the restrooms, WTG used 1"x1" Daltile Keystones D311 Black and 1"x1" Daltile Keystones D317 Biscuit in a unique Greek key custom-made pattern border. Credit: WTG Terrazzo

Daltile Keystones D311 Black and 1"x1" Daltile Keystones D317 Biscuit in a unique Greek key, custom-made pattern border, plus a 1-in. hex Daltile in a daisy pattern with the same colors for the main restroom floor. The walls were installed with US Ceramics U974 Biscuit field tile, with two ¾"x6" liner bar accents, using US Ceramics U759 Black and a 2-1/2"x6" Victorian Rail in US Ceramics U759 Black. Custom Building Products setting and grouting materials were used throughout.

"It was a unique project for us, utilizing stone, porcelain, and ceramic tile, as well as some slab materials," says Grazzini. "Some of the details required waterjet cutting and other unique details our talented crew was

able to accomplish in the field. We are really proud of the work the WTG team accomplished."

About WTG Terrazzo & Tile Co.

In 2001, Wayne T. Grazzini started an organization focused on hard work, customer service, and building strong relationships within the industry. Twenty years later, WTG Terrazzo & Tile, Inc. continues with the leadership of Tony Grazzini and Angela Ferguson. WTG captures much of the same mindset that Wayne started the business with: hard work, dedication, service to clients, and family mentality at its foundation. Tony and Angela continue to work hard on building and maintaining strong working relationships with clients, vendors, and



Above and below: The lodge area was installed with a 12"x12" Petra Slate Polished Nero and a 12"x12" Back Bay Marble Polished Bianco Venatino in a checkerboard pattern. The design consisted of three borders of the same material in a 45-degree triangle border pattern and a solid black pattern with custom waterjet-cut marble and brass lettering. The final border utilized the Polished Bianco in a 2-in. cut. Credit: WTG Terrazzo



employees. At WTG, it is a partnership; if the team succeeds, everyone wins.

For WTG, the success of the organization, however, is really its people. "We are very blessed to have some extremely talented artists in the field and some amazingly talented, hardworking and service-oriented people as part of our office staff," says Grazzini. "It's truly a small family. We have all different kinds of personalities and even sometimes bicker with one another like brothers and sisters. It's a fun atmosphere that I truly have enjoyed being part of for my 18 years with the organization."

Education was another important item to Wayne, and that is why WTG's staff regularly attends educational seminars and training created by the industry. Whether it is an association educational program, a supplier's



Above and below: To cap off and accent the beauty of the lobby, WTG installed a custom-made waterjet cut star emblem, utilizing the same materials and surrounded the star with a brass-circle. Credit: WTG Terrazzo

training program, or the national industry association technical seminars, it is important to the WTG staff to stay current on the latest trends and changes in the industry.

Ultimately, WTG's focus on clients is at the heart of the organization. We work *with* our clients and not against them," adds Grazzini. This commitment to building strong and long-lasting relationships is the backbone of WTG's success. "We want to do everything in our power to help our client's projects be successful, profitable, and most of all, to give the owner a finished quality product that they can enjoy for many years to come."

WTG Terrazzo & Tile Co. is a BAC signatory contractor and a member of Tile Contractors' Association of America (TCAA). For questions about this project, please reach out to Tony Grazzini at (952) 746-9060, x154 or email tony@wtgtt.com. ■



TCAA ANNOUNCES



2022 Scholarship Recipients

TCAA's 21st year awarding scholarships to outstanding students!

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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 2022, TCAA has awarded a total of \$91,000 in architectural scholarships.

In addition, TCAA also offers a scholarship award to relatives of 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 \$55,000 in family scholarships.

Congratulations to TCAA's 2022 Architectural/Interior Design Scholarship Recipient

Gabriella Massó



Gabriella is in her fifth and final year as an architecture major, pursuing a Bachelor of Architecture at Florida Atlantic University, with an expected graduation date of May 2023. Maintaining a 3.53 GPA out of a 4.0 scale, Gabriella is in good academic standing and eager to make her mark in the architecture and construction industry.

In her own words:

“Growing up visiting building departments, job sites, product trainings, and factories with my father led me to discover where I would fit into the industry. Through all of these experiences, my passion for architecture was evident and led me to pursue a career in the industry. In addition to designing architectural structures for practical uses, I believe it is vitally important to leave an impact that will positively affect future generations. Pursuing a career in the construction industry, specifically in architecture, enables me to have an important influence to develop blueprints for a greener society. Designing the components of the building envelope for energy efficiency, longevity, and practicality will be crucial for maximizing Earth’s limited resources.”

Matthew Wilson, a project manager for Hensel Phelps Construction Co., wrote:

“Gabby recently joined the ACE Mentor team this year and has done an incredible job leading the students in their design project for the semester. Gabby really cares about giving back to others, and it shows as she has scheduled meetings with the students beyond class times to help improve their skill set. In addition, she is coordinating a presentation for the students on Sustainable Design and Construction, to be presented later this semester with one of her professors from FAU.”

John Sandell, an associate professor at Florida Atlantic University, wrote:

“Now finishing her fourth year of our five-year professional degree program, she shows great promise as an active and contributing member to the community. Because of her academic dedication, merit and her collaborative interaction and social maturity, I can highly recommend Gabriella Massó for the TCAA 2022 Architecture/Interior Design Scholarship.”

Congratulations to TCAA's 2022 Family Scholarship Recipient

Sarah Cardia



Sarah is the daughter of John M. Cardia, who has been employed by Trostrud Mosaic & Tile Co., Inc. since August 17, 1998. Sarah is attending Concordia University of Wisconsin with a major in Rehabilitation Science and an overall 3.98 GPA out of a 4.0 scale. She is pursuing a career in occupational therapy.

Dr. Jessica Grimm, DPT, an assistant professor of rehabilitation science at Concordia University Wisconsin, wrote:

“Sarah faces classes with determination and responsibility that she needs to succeed. She appears to be driven to succeed and is willing to go the extra mile to ensure competency. In both lecture and lab, Sarah contributed in group discussions and assisted to raise the level of thought in class with her insightful answers.”

Joseph B. Fisher PhD, an assistant professor of biology in the Department of Life and Earth Sciences at Concordia University Wisconsin, wrote:

“Sarah has been nothing short of spectacular in her training and education, and I am very confident that she will make it through the accelerated occupational therapy program. She is a very compassionate and positive person, and I think she will make a great occupational therapist in the near future. Sarah is a very articulate student and very eager to both learn, but also to teach. She learns things quickly and is an extremely hard worker.” ■■

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:

TCAA Scholarship Fund c/o Truman Heartland Community Foundation

4200 Little Blue Parkway, Suite #340
Independence, MO 64057-8319



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

BONDED VS. UNBONDED MORTAR BEDS FOR TILE FLOORS

Tile floors set in mortar beds are among the best performing floor methods, often used for areas where elevations are critical, such as elevator lobbies, in areas where floor flatness is critical, such as large format tile, and in areas with in-slab hydronic tubing for radiant heat. Within the category of mortar bed installation methods, there are two general sub-categories: bonded mortar beds and unbonded mortar beds. Both of these sub-categories have unique design and construction requirements. This article will

compare and contrast the characteristics of bonded and unbonded mortar bed assemblies, and it will look at the unique design and construction considerations for each type.

What is the difference between bonded and unbonded mortar beds for tile floors? As their names imply, a bonded mortar bed is adhered to the substrate with a cementitious bond coat of modified portland cement mortar or a slurry of neat portland cement. An unbonded mortar bed has a cleavage membrane, crack

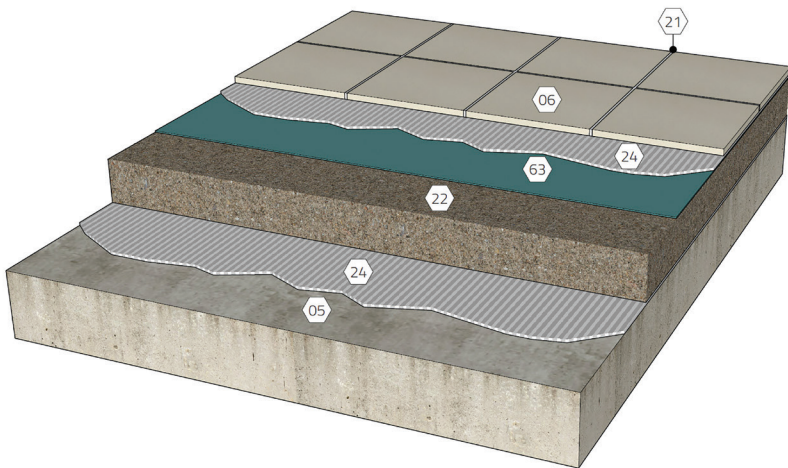


Fig. 1: TCNA Method F112, an example of a bonded mortar bed method.

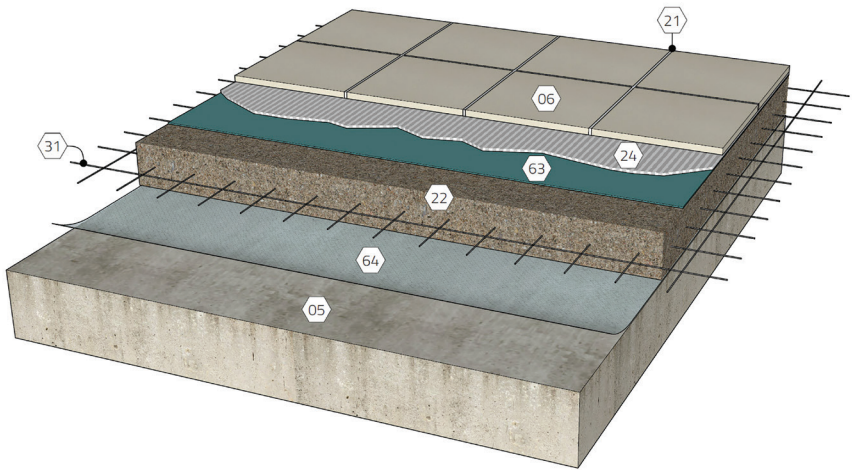


Fig. 2. TCNA Method F111, an example of an unbonded mortar bed method.

isolation membrane, or other mechanism to intentionally break the bond between the mortar bed and the substrate.

In bonded mortar bed installations, the entire tile assembly (mortar bed, topical waterproof membrane if present, bond coat, and tile) is bonded to the substrate, and it will move as the substrate moves. An example of a bonded mortar bed method is TCNA Method F112, “On-ground or above ground concrete, bonded mortar bed, ceramic tile, glass tile.” (See Fig. 1.)

Bonded mortar beds essentially become an extension of the substrate. They move with the substrate, and they do not receive cleavage membrane or reinforcement.

In unbonded mortar bed installations, the tile assembly is separated from the substrate by a bond-breaking membrane and allowed to move independently. An example of an unbonded mortar bed method is TCNA Method F111, “On-ground or above ground concrete, unbonded mortar bed, ceramic tile, glass tile.”

(See Fig. 2.)

Cleavage membranes in unbonded mortar bed systems are often paper-based, delicate, and easily damaged. A skilled BAC tile installer will take care not to tear, puncture, or damage the cleavage membrane during the installation process. Trained installers also provide the required 4-in. overlaps in the cleavage membrane.

Another requirement of unbonded mortar bed systems is wire reinforcement to impart flexural strength and to control shrinkage of the mortar and prevent cracking. This reinforcement is typically 2" x 2" galvanized wire mesh placed near the center of the setting bed.

When would you use one type of method over the other? A number of factors will help determine whether to use a bonded or unbonded mortar bed method, such as type of substrate, condition of the substrate, possible thickness limitations of the mortar bed, fresh set vs. cured mortar bed installation methods, and sometimes the finish material.

Substrates

Unbonded mortar bed systems are appropriate for concrete substrates that are severely cracked or for present bonding issues like concrete that has been treated with curing compounds. For unbonded mortar beds, a steel trowel finish is acceptable because the pores of the concrete don't need to be open.

Unbonded mortar bed systems are appropriate for elevated slabs prone to deflection, and they may also be used for concrete slabs on the ground. Wood substrates require unbonded mortar bed systems because they typically expand and contract more than the tile assembly.

Bonded mortar bed systems are appropriate for substrates of stable concrete slabs on the ground with no bending stresses or for elevated slabs receiving less than 100 square feet of tile. Concrete to receive a bonded mortar bed system should have a broom finish to facilitate bond with the tile assembly.

Height / thickness requirements

In some circumstances, bonded mortar bed methods may be preferred due to their thinner profiles. Because bonded mortar bed methods don't need to accommodate wire reinforcement, the mortar may be applied to a thinner minimum thickness than that required of unbonded mortar bed methods. For example, the bonded method TCNA F112 requires a minimum mortar bed thickness of 3/4 in. The unbonded method TCNA F111 requires a minimum mortar bed thickness of 1 1/4" to provide adequate mortar cover around the reinforcement.

KEY NOTES

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- 22 Mortar setting bed
- 24 Cementitious bond coat
- 31 Galvanized wire mesh reinforcement
- 63 Waterproof membrane if specified
- 64 Cleavage membrane

If minimum floor-to-ceiling height must be maintained, bonded mortar beds can shave up to 1/2 in. off the thickness of the tile assembly. Further, the ability to taper bonded mortar beds to a thinner profile can make them the preferred method for sloping to drains.

Fresh-set installations in wet areas

For fresh-set installations (i.e., tile or stone laid in an uncured mortar bed per ANSI A108.1A) in wet areas, the location of the waterproof membrane is directly over the substrate and not over the mortar bed. Therefore, a cleavage membrane with waterproof properties is typically selected. Marble slab and other dimension stone floors are typically fresh set, so they would use an unbonded method when waterproof membrane is required. Fresh-set ceramic and stone tile requiring a waterproof membrane would also take an unbonded mortar bed method.

Can topical waterproof membranes be used with bonded and unbonded mortar bed systems?

Topical waterproofing, i.e., sheet or liquid waterproofing, applied over a cured mortar bed, as in installation method ANSI A108.1B, can be used in both bonded and unbonded mortar bed methods.

Are service ratings different for bonded vs. unbonded systems?

Because they are an extension of the substrate and provide additional rigidity, all bonded mortar bed systems carry the performance rating of extra heavy as defined by the TCNA Handbook. Unbonded mortar bed systems may be rated extra heavy or heavy, depending on the presence of a topical waterproof membrane (i.e., TCNA method F121).

Do bonded and unbonded systems have different requirements for expansion joints?

Both bonded and unbonded mortar bed systems require expansion joints at the conditions and intervals

specified in the TCNA EJ171 methods. In all cases, expansion joints should continue through the tile, the bond coat, the topical waterproofing membrane if present, and the mortar bed. For unbonded mortar bed systems, the cleavage membrane is continuous below the expansion joint, allowing the tile assembly to move independently of the substrate.

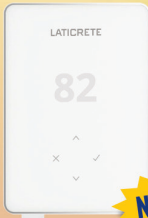
What design resources are available for bonded and unbonded mortar bed tile assemblies?

The TCNA Handbook for Ceramic, Glass, and Stone Tile Installation offers many options for both bonded and unbonded mortar bed systems. Additionally, IMI's Masonry Detailing Series presents some of the commonly used TCNA methods in 3D drawing format. ■

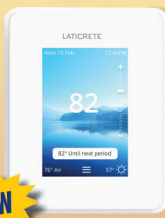
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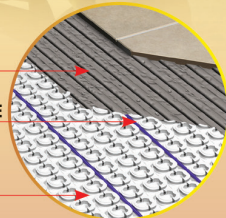


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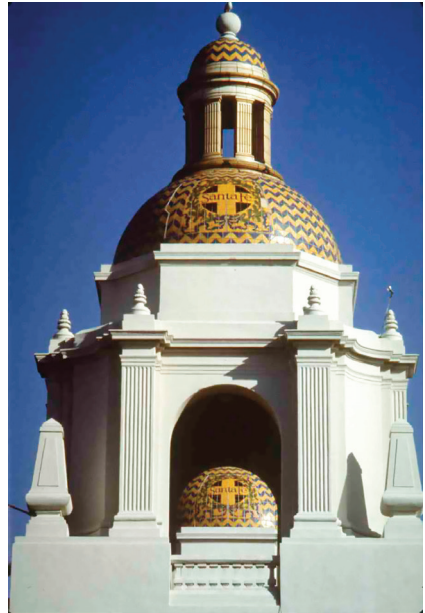


COLOR & DESIGN:

From the Subdued to the Sublime

PART TWO

Within the architectural community there can be little doubt that by 1911 considerable excitement had already been generated regarding the upcoming Panama-California exposition due to open at Balboa Park in San Diego four years hence. With **Bertram Goodhue**, the famed architect from New York, having been selected to oversee the development of the expo, partners John Bakewell and Arthur Brown in San Francisco traveled south to check out the progress firsthand.



The domes atop the Santa Fe Railway depot in San Diego, viewing one through the arch of the other. Credit: Tile Heritage Digital Library



Current entry façade of the Santa Fe Railway depot. Credit: Tile Heritage Digital Library



Santa Fe emblem, east wall of the depot lobby. Credit: Tile Heritage Digital Library

This team of architects from **Bakewell and Brown**, having established their reputation over the past five years, had good reason to make the trip: they had received the commission to design the Santa Fe Railway depot in San Diego, the terminus of the progressive railroad on the West Coast, which was expected to open in 1915 in time to service the thousands of visitors arriving for the expo.

The depot itself, measuring 116 by 435 feet, the most square-footage of any building in town, would later be deemed a masterpiece of Spanish Colonial Revival architecture. But at this early date, the task at hand was in locating artisans to supply the elaborately designed ceramics envisioned for their building's duel-dome exterior and the eight-foot wainscot surrounding the 200 by 55-foot main lobby, not to mention the floor tile throughout. Good fortune lay ahead.

As you may recall from Part One of this series, Bertram Goodhue had chosen

the newly established **California China Products Co. (CCPCo)** to produce the tiles he had designed for his California State Building at the park (now called the Museum of Us, not "Man" as previously stated). At this time, there was no need for the San Francisco architects to look elsewhere. No doubt they met with the two founders of the company, Walter Nordhoff and his son, Charles, their glaze "wizard," Walter de Steiguer, and their experienced tilewright, Fred Wilde. A "deal" was struck!

The larger portions of both domes display four, equally spaced, Santa Fe emblems, each nearly four feet in diameter, that stand out in a field of contrasting zigzag patterns. Inside the lobby, the Santa Fe symbols, 20 in number, highlight the brightly glazed wainscot measuring 20 inches across. Together with the serviceable, nonslip floors tiles, all of the ceramic surfaces, inside and out, were produced at California China Products

and installed by the San Diego Tile and Woodstone Company by May 1915.

Today, the astute observer would notice a distinct difference in the tile wainscot, one side of the lobby to the other. Looking closely, the difference is extreme. What's up with this? Around 1985, for "unknown" reasons, the tiles on the west side were replaced with over 3,000 reproductions at a reported cost of \$60 per square foot, a considerable price back then. The Simpson Tile Company of Lemon Grove, Calif., manufactured the tiles, and the Western Tile Company installed them.

The original CCPCo tiles on the east wall wainscot have glossy glazes with rich, deep, contrasting colors, each partitioned by raised ridges created when each tile was pressed from a plaster mold. The technique is referred to as "raised line" or *cuenca*. The replacement tiles on the west wall have semi-gloss, opaque glazes separated by thin, dark, resist lines called "dry-line" or *cuerda seca*.

By 1915, California China Products Company had revolutionized tile manufacturing in the state, ushering in Spanish Colonial Revival

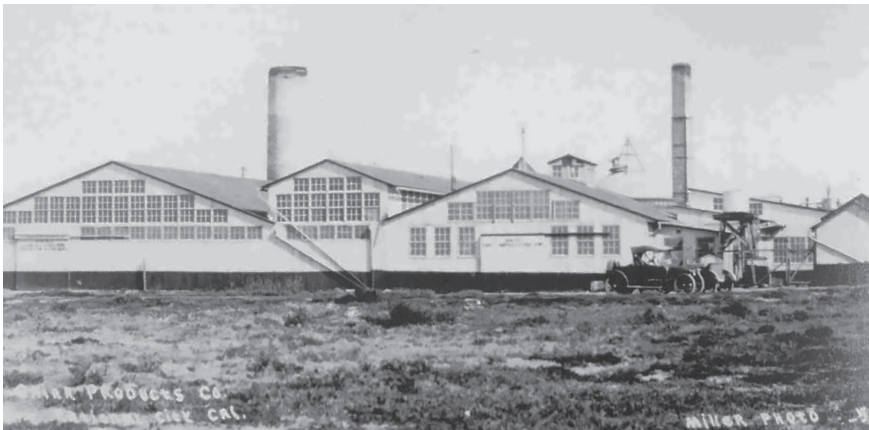


Recent reproductions, west wall of the depot lobby.
Credit: Tile Heritage Digital Library

architecture enhanced with bright colors and exotic designs.

Special thanks to Richard Pelouze, a Santa Fe Railway historian, for his series of articles for *Tile Heritage: A Review of American Tile History*; and to Alex Bevil, a San Diego historian, whose article on California China Products Co. was published by the San Diego Historical Society. 🇺🇸

Joseph A. Taylor
President, *Tile Heritage Foundation*
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www.tileheritage.org



California China Products factory, National City, Calif. Credit: San Diego Historical Society. Ticor Collection

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