

SUMMER 2022

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PNC CENTER—LOBBY RENOVATION—THE T.H. WINSTON COMPANY, CINCINNATI, OHIO

FEATURED INSIDE

2023 and the Commercial Market

Product Use Classifications

Tile Balcony Retrofits



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— Patti Connelly, *Commercial Sales Manager*

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<https://portobelloamerica.com/product-category/sandwaves/>

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Michael Kriss
Krisstone LLC
TCAA President

HEADWINDS AND POSITIVE THINKING

Hello, again, my fellow TCAA members.

When I was writing my inaugural Spring **093000** article, I thought and hoped that by this summer issue, a good part of our challenges and problems would be gone; the war in Ukraine would end with the Russian retrieve; and the gas prices would come down. Oh, boy was I wrong! We still face shortages of materials and qualified labor, long lead times, high gas prices, and fluid price increases; it seems and feels like it has been this way for months. Yet, we are still here, adapting to the current climate and overcoming the challenges and changes we are all experiencing.

Bidding is still strong, but the large projects we are bidding now are at least one and a half or two years away, and some of them have not even broken ground. Owners, general contractors, and construction managers are trying to award those future projects now in order to lock the contract price and to avoid any possible inflationary increases. Bidding and negotiating those

distant projects leads to the educated guessing games of the labor escalation cost and material price increases. Some of the projects are coming back for a rebid from two to three years ago, but still, a lot of previously bid projects are on hold.

Enough of the “headwind;” let’s talk about “positive thinking!” Many new products are coming to the marketplace to help us be more productive and more efficient in the field, as well as to achieve better installation quality. Some of the new setting materials are designed to combine multiple steps into one single application, reducing labor cost and minimizing possibilities for errors.

This year I attended Coverings in Las Vegas and can tell you if you are interested in learning the latest and greatest in the tile industry, that is the place to be. There are great seminars and speakers, tile setting demonstrations, and tile manufacturers from around the world. I anticipate the same great educational experience as well as many new products to be introduced this fall at the Total Solutions Plus annual conference in Indian Wells, Calif.

Thank you and until next time, Michael Kriss – Krisstone, LLC. ■■

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ROAD TRIP!

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Yes, I know. Air travel is faster. Air travel gets you from point A to point B and can allow for more efficient use of a person's time, but as you look out of an airplane window, what about all those dots on the landscape below? Those are towns with real people whom you might know, and maybe you are "just too busy" to stop and say hello. That's why when I had the chance to attend a fantastic, in-person International Masonry Institute (IMI) event in Chicago, I wasn't going to pass it up. I was going to drive from my home in Western New York in order to stop by and see as many friends as I could.

So, since the IMI seminar was on a Tuesday, I left on a Monday morning. First up was Cleveland, Ohio, and morning coffee with Lucinda Noel and her husband, Rick. Lucinda, as you know, is TCAA's executive director. She is also my best friend in the tile business. For more than 40 years, we have worked together, been in business together, and now we promote our great industry together through TCAA, the world's greatest ceramic tile association.

Next up was Toledo, Ohio. My wife, Mary, and I spent most of our adult lives there, raising a family of three girls and building a ceramic tile installation company. We have many friends there, and I was able to say hello and chat with several of them.

But then it was on to Brighton, Mich., to have lunch with another friend and long-time member of TCAA, Jennifer Panning, owner of Artisan Tile, Inc. I wanted to see Jennifer and personally offer my heartfelt sympathies regarding the loss of her husband, Scott. Jennifer and her two girls are doing the best they can. Jennifer's oldest daughter has recently joined the family business, and I know that with Jennifer's expertise and guidance, the business will continue to flourish.

Finally, in Chicago I had dinner with Scott Conwell of IMI and his wonderful wife, Raquel. Scott and I were reviewing our schedules regarding this year's seminar events, their locations, and content.

On Tuesday, it was time to attend the IMI seminar, and, as only Scott can do, he put together a dynamite program! Over 100 attendees, including architects, designers, suppliers, contractors, and International Union of Bricklayers and Allied Craftworkers (IUBAC) members were on hand at the Addison, Ill., training center. The event included two instructional sessions and three installation demonstrations. As always, the actual installations capture the greatest interest. When any of us watch the skills of the women and men doing the real work of making ceramic tile "come alive" as an architect or designer has imagined, it is very



exciting! The showstopper was a 10' x 15' floor mural of a football with the Chicago Bears' emblem in the middle. Every single piece was a cut tile, and almost every piece was a curve.

It was just great to meet with people face to face again! I look forward to our future seminar events for the rest of

the year, including the IUBAC National Apprenticeship Contest in Boston, Mass., in September. And, yes, I will be driving to most of them and stopping to visit with friends and family along the way. ■

John Trendell
TCAA Labor Committee Chair
Trendell Consulting LLC

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Joe Lundgren
Joseph Lundgren Consulting

Tile, 2023 and the Commercial Market

While the title of this article may seem like a storyline, I think we would all agree that our experiences over the past two to three years could not have been scripted by the greatest of writers—specifically in the construction industry and, even more specifically, the ceramic tile industry. However, like the product we all love to manufacture, sell, and install, we have endured. We have endured the hardships of the pandemic, skyrocketing ocean freight rates, and a lack of product availability. To make matters even worse, labor shortage has significantly impacted the construction market, and while all suppliers to commercial industry have been impacted by the war in Ukraine, the tile industry has been affected immensely by the trouble in Eastern Europe. You will hear various amounts, but European manufacturers have relied upon the Donbass region of Ukraine for a large portion of its raw materials (approximately 30% of its clay and kaolin). In addition, Russia supplies approximately 40% of Europe's natural gas. You might say it's Putin's plan to take the tile industry down. Well, the cards may look like they're stacked

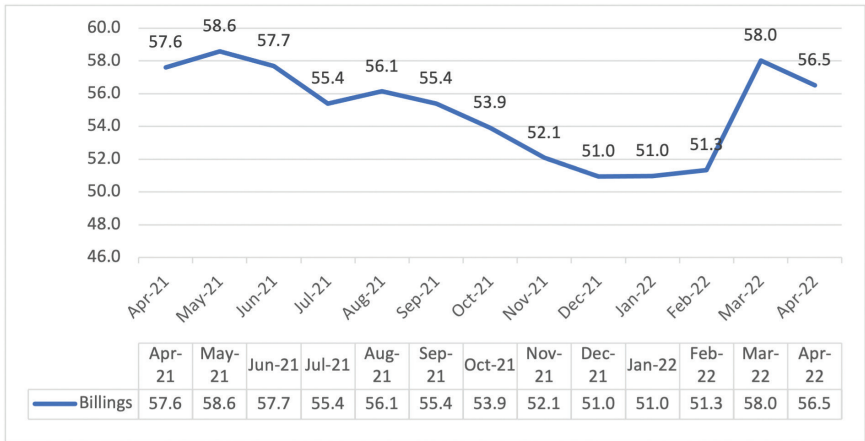
against us, but, once again, ceramic tile will endure.

Crisis drives innovation, which creates opportunities! Think about a few points:

A crisis creates a sense of urgency, which means “all hands on deck,” and all employees and resources are focused on it. Without it, we may not have seen tile factories.

- Create new bodies with raw materials from around the world.
- Develop natural gas and hydrogen-mixed kilns to fire tiles.
- Transitioning of some kilns to propane.

What does this mean to you, the tile contractor? We will continue to rely on imports for the US market (approximately 70% of consumption is imported), and manufacturers around the world have embraced the crisis and responded with innovative ideas that will allow supply to continue and, in some cases, control the inflationary pressure we have all experienced.



So, let's talk 2023 and the commercial market. Well, we all know there is a pent-up demand, but also the opportunities that have reemerged from the pandemic. For example, the bleisure traveler. Bleisure travel is simply a blending of business and leisure travel. This has become so popular that hoteliers and employers are developing ways to encourage longer stays that include both business and leisure amenities. Hence, this could lead to new and remodeled facilities.

In addition, the Architectural Billings Index continues to grow, which typically means the next nine to twelve months remain bullish; however, this has been positive since February 2021, and with the material and labor shortages I mentioned earlier, I believe we will see this extend the demand timeline up to 18 – 24 months. Consequently, the demand for commercial will be strong throughout the balance of 2022 and 2023.

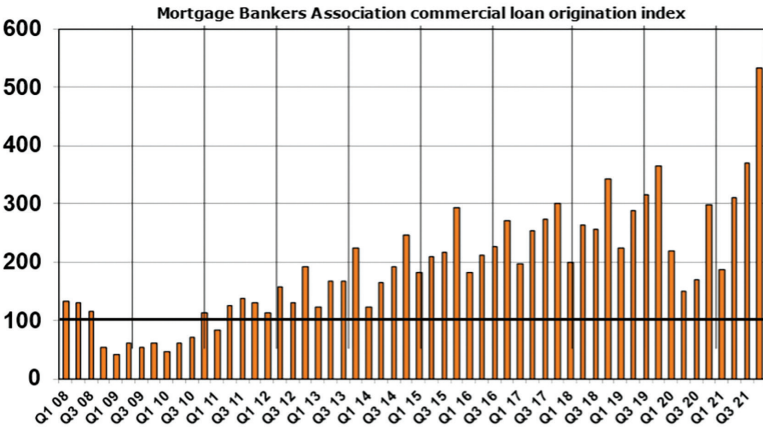
According to the Associated General Contractors of America, prices of materials and services used in new commercial construction increased over 20% from April 2021 to April 2022. This has led to

the association seeking relief from the Biden administration to end tariffs on key construction materials and reconsidering its recently proposed Buy America regulations that will make it harder for firms to find and pay for key construction materials. To sum it all up: according to the American Institute of Architects (AIA) Consensus Construction Forecast panel, by 2023, all the major commercial, industrial, and institutional categories are projected to see growth as shown below.

AIA Consensus	2023% Change
Nonresidential Total	6.1%
Commercial Total	5.3%
Office	3.6%
Retail & Other Commercial	4.9%
Hotel	13.5%
Industrial Total	8.4%
Institutional Total	6.0%
Health	6.0%
Education	6.1%
Religious	1.2%
Public Safety	5.6%
Amusement & Recreation	6.0%

Commercial Lending Market

Record volume in Q4 reflecting bounce-back from the pandemic



Source: Mortgage Bankers Assoc. (mba.org) Quarterly index: 2001 = 100

This consensus by AIA comprises leading economic forecasters, including Dodge Construction Network, IHS Markit, Moody's Analytics, FMI, ConstructConnect, Associated Builders and Contractors, Wells Fargo Securities, and Markstein Advisors. This is a welcomed forecast as we see each category increasing, specifically some higher ceramic tile users such as hotels/hospitality, healthcare, and education.

While utilizing indicators to forecast the demand within the commercial and residential market has always been an accurate tool to utilize in order to "right size" our businesses, one key element must also be considered: interest rates. As we all know, the Federal Reserve has slowly been increasing them; however, each quarter, I issue what I call the Joseph Lundgren Consulting Economic Indicators. For the commercial market, a large

portion is weighed upon the Architectural Billings Index, with one caveat that always seems to be overlooked: availability of funds. Thankfully, our banking system is strong and can fund projects, as you can see by the commercial loan originations index, which is shown above. I include the attached graph in my indicator report (which you can sign up for on my website at **JosephLundgrenConsulting.com**) that shows the rate of commercial loans origination.

In summary, we should have all hands on deck and invest in not only the next six to twelve months, but also look beyond to identify the opportunities for the back end of 2023 and in the coming years.

Joe Lundgren is a globally-recognized product and marketing expert in the ceramic and stone markets, specializing in business development, product management, and marketing. 🇺🇸

WHERE GROWING YOUR BUSINESS IS OUR PURPOSE.

Joe Lundgren is a globally recognized product and marketing expert in the ceramic and stone worldwide markets. His specialty is Business Development, Product Management, and Marketing.

Joe has developed his expertise in strategic planning, new product development, and marketing strategy for North America during his 27 year career at Dal-Tile, a subsidiary of Mohawk Industries.

Joe has extensive experience in multiple sales channels including distribution and Home Centers.

Additionally, Joe represents the Tile Council of North America (TCNA) for its testing laboratories, which has Joe at the epicenter of the industry for all new initiatives.

Please contact Joe Lundgren for a free consultation proposal!



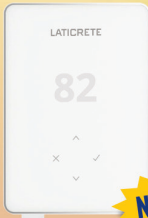
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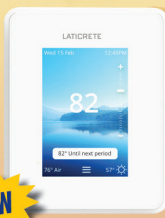
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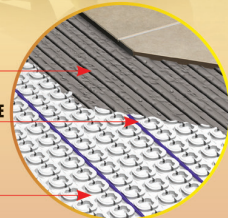


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PROJECT SPOTLIGHT



PNC Center lobby.

Credit: RVP Photography – Cincinnati.

The T.H. Winston Company • Cincinnati, Ohio

PNC Center—Lobby Renovation

10,100 Square Feet

PNC Center, a 27-story office tower in Cincinnati, Ohio, and one of the city's largest downtown buildings, recently completed a major renovation of its lobby and celebrated an impressive amenity upgrade for its tenants. Owner Group RMC Corp. announced plans to make upgrades to the property when it acquired the office tower at 201 E. Fifth St. The company invested more than \$50 million in the renovations, which began in 2020, adding another \$3 million to renovate the lobby.

Built in 1979 and designed by Skidmore, Owings & Merrill, the lobby overhaul included taking unused office space formerly used by PNC's wealth management team and making way for the upgraded amenities. Now the new tenant areas include a coffee bar and an informal meeting space complete with a cozy fireplace. A conference room

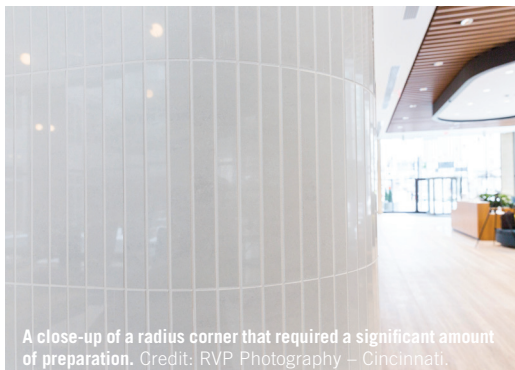
for up to 60 people can be converted into two rooms and with garage doors opening to the lobby, and a lively gaming area with table tennis and shuffleboard adds to the new lifestyle of the PNC Center tenant. However, it's the golf simulator, which can be seen from Fifth Street, that might be the building's most popular new feature.

BHDP Architecture was the architect for PNC Center's project, and Hunt Builders Corp. oversaw the construction. In addition to the completed lobby renovation, Group RMC is renovating a nearly 3,700-square-foot space on the seventh floor of the 27-story tower that will be a new fitness center.

For their part, the Cincinnati-based T.H. Winston Company installed 5,000 square feet of 63" x 126" honed Marmi Maximum



Coffee Bar featuring full-height 1" x 12" polished porcelain tile. Credit: RVP Photography – Cincinnati.



A close-up of a radius corner that required a significant amount of preparation. Credit: RVP Photography – Cincinnati.

Travertino gauged porcelain tile panels (GTP) manufactured by Fiandre. The tile choice complemented the existing travertine used throughout the building's interior and exterior.

The gauged porcelain tile panel floors were set in a thin-bed method using Laticrete 257 Titanium mortar and grouted with Laticrete Spectralock Pro Premium grout. Expansion joints were installed using color matched Laticrete Latisil 100% silicone.

4,000 square feet of polished Marte Thassos 1" x 12" porcelain tile manufactured by Casalgrande Padana was used on the walls.

CHALLENGES MET

While the GTP floor installation was difficult, the extensive experience and training of T.H. Winston installers allowed the installation to proceed with few issues. However, the 1" x 12" polished wall tile required constant coordination with the



PNC Center lobby. Credit: RVP Photography – Cincinnati.



PNC Center lobby.
Credit: RVP Photography – Cincinnati.

framers, drywall installers, and general contractor to ensure an acceptable substrate. Because the wall tile would reflect natural light from the building's floor-to-ceiling windows, and due to wall wash lighting installed at the ceiling, there was no room for error. Despite the best efforts by

previous trades, the T.H. Winston installers spent a considerable amount of time truing up the substrate prior to the tile installation. Yet, the final result speaks for itself and is one of Project Manager Nick Rusche's favorite installations the company has ever completed.



Fireplace close-up.
Credit: RVP Photography – Cincinnati.



Mike Denney and Don Taylor spread mortar on the floor and panel at the same time to ensure a successful installation. Credit: Nick Rusche.

UNIQUE CHARACTERISTICS

“The existing lobby floor showcased two-and-a-half-inch-thick granite pavers with a flamed finish, set in a 1” thick mortar bed. The original scope of work called for the complete removal of the pavers, followed by new infill to bring the lobby floor back to the required height. Upon inspection, however, we determined the floor was extremely sound and we could install the GTP directly over it,” explains Rusche. With the GTP being only 6 mm (1/4”) thick, the project was able to save considerable time and money by eliminating demolition of the existing floor, while meeting all existing flooring transitions without a drastic change in elevation.

PROJECT COMPLETION

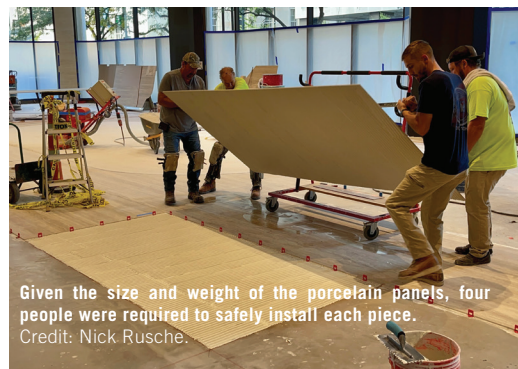
The project was completed in the fall of 2021. According to an interview that ran in the *Cincinnati Business Courier* with Travis Likes, first vice president with CBRE (the company that lists PNC Center), since the building completed its renovations, leases in the building have gone up about \$5 per square foot compared to pre-renovation. New leases and renewals for 70,000 square feet of space in the past two years have

been signed with rents at \$16 per square foot. Before the upgrade, the downtown office tower had an asking rate of \$11 per square foot.

About T.H. Winston Company

Established in 1894, the T.H. Winston Company is based in Cincinnati, Ohio, and specializes in commercial tile and stone installations. T.H. Winston Company is a TCAA Trowel of Excellence certified contractor.

For questions related to this project or the T.H. Winston Company, please contact Nick Rusche, 513.271.2123, nick.rusche@thwinston.com.



Given the size and weight of the porcelain panels, four people were required to safely install each piece. Credit: Nick Rusche.



Grant Davidson

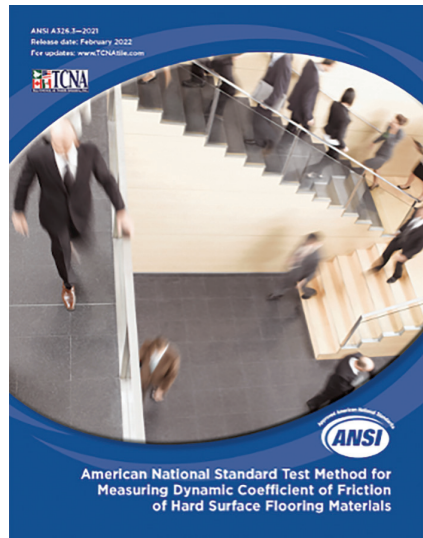
Standards Development Engineer
at Tile Council of North America

PRODUCT USE CLASSIFICATIONS

AIM TO REDUCE SLIP INCIDENTS ON HARD SURFACE FLOORING

For the first time ever, hard surface flooring manufacturers have standardized criteria to communicate product use based on slip resistance. Initially published in 2017, ANSI A326.3, *American National Standard Test Method for Measuring Dynamic Coefficient of Friction of Hard Surface Flooring Materials*, was updated in February 2022, to include a mandatory five-category “product use classification system.”

The five categories, developed by the ANSI Accredited Standards Committee responsible for the standard, allow manufacturers to directly communicate areas of use based on slip resistance characteristics of their products. The classifications, along with corresponding reference categories and criteria, are contained in Table 1 of ANSI A326.3, as seen below.



Cover of ANSI A326.3-2021.
Credit: TCNA.

Table 1: Product Use Classification

Classification	Reference Category	Criteria
Interior, Dry	ID	≥ 0.42 dry DCOF* (per Section 10.1)
Interior, Wet	IW	≥ 0.42 wet DCOF* (per Section 9.1) or Manufacturer-Declared
Interior, Wet Plus	IW+	Manufacturer-Declared
Exterior, Wet	EW	Manufacturer-Declared
Oils/Greases	O/G	Manufacturer-Declared



The “German Ramp” test, standardized in DIN EN 16165. Credit: TCNA.

To meet the standard, hard surface products shall be classified into one or more of the five categories.

Significance of “Manufacturer Declarations”

Reference categories ID and IW are based on dynamic coefficient of friction (DCOF) criteria, previously defined in the 2017 version of A326.3.¹ For reference categories IW+, EW, and O/G, and optionally for IW, manufacturers can classify products based on multiple traction-related parameters. Manufacturers are not restricted to a single measurement criterion, nor are they required to use a specific measurement device. Rather, they can consider a variety of different factors in determining their own internal product selection criteria² and use those criteria to determine product use classifications. Product selection criteria can be based on several slip resistance-related factors, including the manufacturer’s experience with similar surfaces, measured DCOF, results from other slip resistance-related test methods, and the extent of

surface roughness/texture.

Manufacturer declarations are particularly helpful for surfaces where DCOF measurements alone do not well-characterize the use of a surface. For example, on heavily profiled/textured surfaces, tribometers³ may measure along the “peaks” of surface profiling, evaluating certain high points instead of maintaining constant surface contact—which can potentially cause misleading test results. To provide a better overall assessment, manufacturers may consider results from other test methods in addition to DCOF, such as the “German Ramp,”⁴ to develop a better understanding of their product’s slip resistance properties.

Ceramic Tile Industry: “Stepping” Forward on Slip Resistance

In July 2022, tile product standards ANSI A137.1, A137.2, and A137.3⁵ were updated to require reporting ANSI A326.3 product use classifications. This assures specifiers,



A BOT 3000E device, commonly used to measure DCOF. Credit: TCNA.

builders, and consumers that product use information will be available for every project using ANSI A137.1, .2, or .3 compliant tiles.

In summary, all aspects of the tile industry are affected by these changes:

Manufacturing: Manufacturers must assign product use classifications to every flooring product and make that information available on the web, or through package labeling, product literature, or technical data sheets.

Distribution: Importers, distributors, and retailers should check for product use classifications and make that information available to their customers.

Design: Design professionals should be certain the products being specified are classified by the manufacturer for the intended applications and consider

product use criteria explained in the A326.3 standard.


End Users: Consumers (building owners, homeowners, etc.) should ask for products that meet the ANSI tile product standards, consider only products classified for the intended applications, and seek guidance from design professionals on product selection and maintenance.

With the already widespread use of A137.1, A137.2, and A137.3 product standards, the requirement for product use classification is expected to result in better specifications and a reduction in slip incidents.

About ANSI A326.3

The American National Standard A326.3 describes the test method for measuring dynamic coefficient of friction (DCOF)

of hard surface flooring materials in the laboratory and in the field. The standard also includes DCOF specifications, product use classifications, and guidance on specifying hard surface flooring materials. This standard is intended to serve as a guide to the general public, manufacturers, distributors, specifiers, architects, contractors, testing laboratories, building owners, and other businesses and professionals. The standard, originally published in 2017, is referenced by IAPMO's Uniform Swimming Pool, Spa, & Hot Tub Code and will be referenced in the International Code Council's International Swimming Pool & Spa Code beginning in 2024. Recognizing its importance as an

industry specification and a building code reference, ANSI A326.3 is available for free at [TCNAtile.com](https://www.tcna-tile.com). 

¹The previous version of ANSI A326.3 was published in 2017. It required a minimum wet DCOF value of 0.42 for interior, level spaces expected to be walked upon when wet with water.

²For additional information on "manufacturer-declared" product use classifications, refer to Section 3.4 of ANSI A326.3-2021.

³A device used to measure surface friction.

⁴The German Ramp test method, standardized in DIN EN 16165, involves a harnessed tester walking over an increasingly inclined, oil-slicked test specimen until a slip occurs.

⁵A137.1, A137.2, and A137.3 are the American National Standard Specifications for ceramic tile, glass tile, and gauged porcelain tiles and tile panels/slabs, respectively.



Credit: Angie Gao

TILE BALCONY RETROFITS

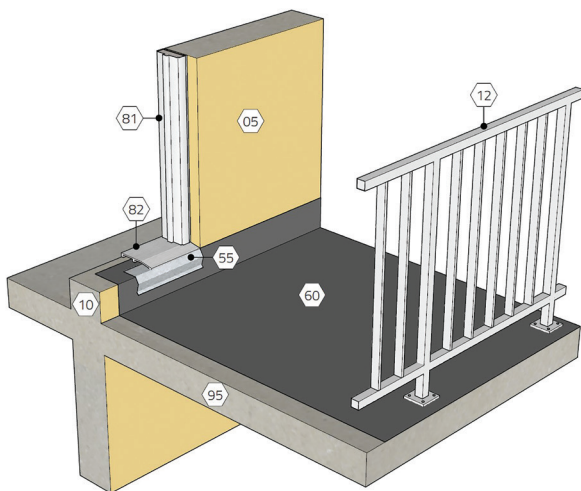


By Scott Conwell, FAIA, FCSI, CDT, LEED AP
Director of Industry Development
International Masonry Institute

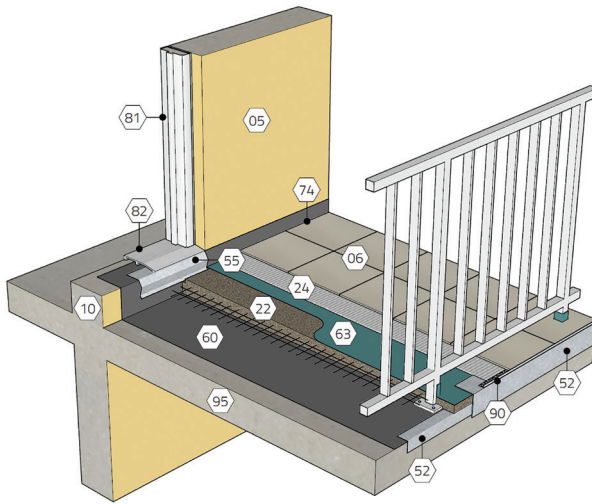
In multi-family housing, it is not uncommon for developers and builders to deliver units to the home buyer with very basic finishes, allowing the new owner to select and install their own materials after the sale is complete. Exterior balconies and decks are often finished with bare concrete or a roofing membrane. To further complicate matters, these outdoor areas are often designed as level, with no accommodation for drainage, and it becomes the problem of the owner, the design

professional, and the tile contractor to retrofit a finish that will be as functional as it is beautiful.

In the absence of a sloped balcony deck, an unbonded, reinforced mortar bed may be used to provide slope for a new tile finish, but only if the existing conditions can accommodate such a solution. Prior to installation, the critical first step is a thorough assessment of existing conditions. Several questions must be addressed to determine whether a sloped



Existing balcony before retrofit; refer to keynotes on page 20.



Balcony after tile retrofit; refer to keynotes on page 20.

mortar bed might be used successfully.

Where will the water drain? The existing size and configuration of the balcony or terrace will help to answer this question. If the size is small and the configuration has little depth relative to length, a simple solution may be to provide slope in one direction only, away from the building, and let water drain off the balcony edge, either onto the ground or into a fascia-mounted gutter. If the terrace has significant depth, it may be necessary to slope in more than one direction to keep the mortar bed's thickness manageable. In long and shallow configurations, the water may be directed through scuppers into downspouts. For vast areas of roof to be tiled, a system of roof drains will probably be used. In any case, if the tile contractor is providing slope, drainage is the first and most basic question.

Is there sufficient height between the door threshold and finish balcony? For standard slopes of 1/4 inch per foot, there must be an adequate difference in elevation between the high point of the door threshold and the low

point of the finished tile. Unbonded mortar beds should not taper to less than 1 1/2 inches at their low point due to embedment requirements for the wire reinforcement mesh. Working from the minimum thickness of the mortar bed at the low point and considering the thickness of the tile and adhesive mortar, it is possible to assess whether there is enough vertical space to provide sufficient slope.

What if we don't have the height? If there isn't enough vertical distance between the door threshold and the balcony edge or drain to maintain a 1/4 inch per foot slope, there might be a work-around. Perhaps the owner may accept less than a 1/4 inch per foot slope. Perhaps the mortar bed can be bonded instead of unbonded, and, therefore, taper to 3/4 inch instead of 1 1/2 inches at the low point. Maybe the slope is provided in two directions instead of one direction? Whatever the solution, the tile contractor should seek approval of the design professional if there is one, or the owner if there is no design professional on the project and, of course, comply with all building codes and

manufacturer requirements.

How does the tile assembly tie in with the roofing system?

Roofs are complex assemblies of the building enclosure, and the tile contractor should not remove roofing materials or make alterations to roofing components like flashing or membranes to accommodate the tile assembly. Roof terminations at adjoining walls, parapets, and perimeters are delicate details, and disturbing these conditions could void the owner's roof warranty. Where possible, install the tile assembly around the fixed elements of the roof system.

How will the tile assembly be waterproofed?

The primary waterproofing membrane should have been installed by the roofing contractor prior to any tile work, and it should remain protected at all times. Secondary waterproofing installed by the tile contractor on the sloped mortar bed will prevent water from penetrating into the assembly. This is especially important if there is occupied space below the roof or terrace.

How will the tile assembly move?

Tile on balconies and terraces has the potential for a great amount of movement, especially in an unbonded system. Exterior tile assemblies can have significant exposure to extreme temperatures as well as moisture; therefore, it is critical that movement not be restrained. Provide perimeter expansion joints all around the tile assembly, as well as in the field of the tile, per the architectural plans and The American National Standards Institute (ANSI) and The Tile Council of North America (TCNA) recommendations. Protect the sealant at the perimeter expansion joint with counterflashing where the balcony edge meets the wall.

How will the tile be terminated at the balcony

- | | | | |
|----|--|----|----------------------------------|
| 05 | Exterior wall, existing | 60 | Roof membrane, existing |
| 06 | Tile | 63 | Waterproof membrane if specified |
| 10 | Curb, existing | 74 | Sealant & backer rod |
| 12 | Guardrail, existing | 81 | Exterior door frame, existing |
| 22 | Reinforced mortar setting bed, slope 1/4" per foot | 82 | Threshold, existing |
| 24 | Cementitious bond coat | 90 | Profile strip |
| 52 | Sheet metal trim | 95 | Balcony deck, existing |
| 55 | Balcony flashing system, existing | | |

edge? Adding a mud-set tile assembly several inches thick will impact the appearance of the exposed balcony edge. Work with the design professional to develop an edge detail that protects the front face of the mortar bed and setting material, and that enhances the appearance of the balcony.

We are using outdoor spaces like balconies and roof terraces now more than ever, so it is natural to want to retrofit these spaces with finishes like tile that will enhance our enjoyment of them. Retrofitting tile on existing level balconies requires a solid understanding of fundamentals like drainage, minimum and maximum thicknesses of mortar beds, slope, and interface between tile and roofing materials. With thorough existing condition assessment, thoughtful design, and a qualified tile contractor, many level balconies can successfully benefit from tile retrofits.

Acknowledgement: Thanks to John Cox of Cox Tile for suggesting this topic and for sharing his experience and insights on retrofitting balconies with tile. ■■



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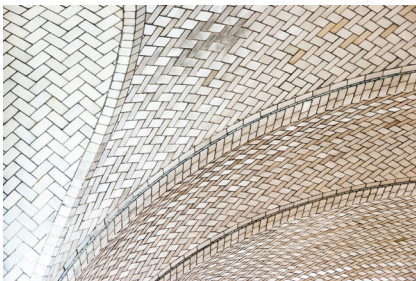
COLOR & DESIGN:

From the Subdued to the Sublime

PART ONE

As unique and appropriate for fireplace mantels in early 20th century bungalows, Batchelder tiles had their limitations; they were aesthetically unsuitable for many of the emerging architectural styles that grew in popularity during the 1910s and beyond. Increasing numbers of architects and designers sought alternatives to the subdued appearance, seeking both color and design for their tile specifications. But where were these tiles to be found?

In 1881, **Rafael Guastavino** (1842-1908), an accomplished architect in Spain, emigrated to the US, bringing his eight-year-old son, Rafael Jr., with him. Over



Detail of Guastavino terracotta tiles. Ellis Island Registry Hall vaulted ceiling, New York City. Credit: Rubens Alarcon / Alamy Stock Photo.

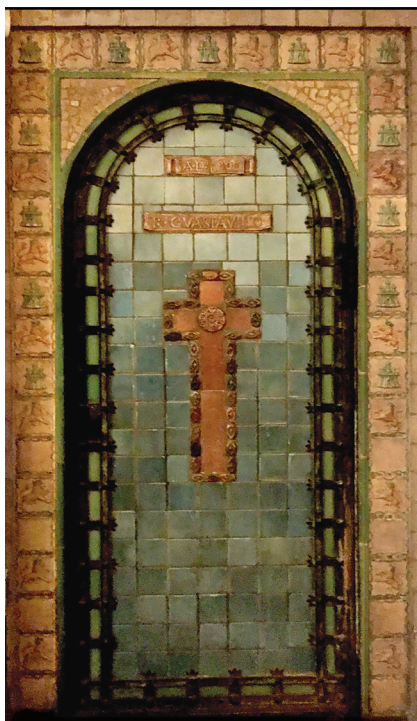


Guastavino dome. Elephant House, Bronx Zoo. C. H. Hughes. (1909). "Interesting Examples of the Use of Burnt Clay in Architecture", *The Brickbuilder*, Vol. 18, No. 8, pp. 158-159.

the next 27 years, Rafael established a reputation for his vaulted tiled ceilings, initially in New York City and later throughout the country. With his unique and patented procedures, there was little room for competitors. Guastavino had developed a productive relationship with architects desiring domes and vaulted ceilings in their buildings.

Surprisingly, until 1900 all of the tiles for Guastavino arches and vaults were put out to bid. It wasn't until the turn of the century that the company began producing its own tiles, initially in an old church in Woburn, Mass., north of Boston. The new factory, also in Woburn, opened in 1907.

By 1905, the company was incorporating its own individual decorative tiles in its vaults. For example, an incised Maltese cross highlighted bands of tiles across the vaulted ceiling in The First Church of Christ Scientist in Boston, as pictured in John Ochsendorf's book, *Guastavino Vaulting: The Art of Structural Tile*. Architect **Charles Brigham** may well have offered an illustration for the tile maker



Rafael, Sr.'s crypt door, surrounded by 4" x 4" "castle" and "rampant lion" luster tiles (at right). The cross is bordered with small 2" x 1" rectangular luster tiles. Credit: Richard Mohr.

to replicate. In 1908, Guastavino, while working with architect R.S. Smith on the construction of St. Lawrence Basilica in Asheville, N.C., unexpectedly died. His body remains there, surrounded by his tiles, in the Chapel of our Lady of the Assumption.

Rafael Jr. (1872-1950), then 35-years-old, took over the business, augmenting the company's aesthetic with a broad range of color and ornamentation. In 1909, **Heins and LaFarge**, a New York-based architectural firm, attracted attention to their Elephant House at the Bronx Zoo with a spectacular dome of colorful chevron designs along with rows of decorative tiles in between.

Architect **Bertram Goodhue** (1869-1924) specified both Guastavino and Moravian tiles for his office and his home in New York. Although steeped in the architectural heritage of the Northeast, he became intrigued with Spanish traditions from two trips to Mexico in 1891 and 1899. Designing a church in Havana in 1905 provided him a competitive advantage because in 1911, Goodhue received the title "Advisory and Consulting Architect" for the Panama-California Exposition, which was scheduled to open in San Diego in 1915. As a result, with Goodhue's design for the California State Building, the Spanish Colonial Revival in architecture took hold, introducing brightly colored,

elaborately designed tiles for the first time on the West Coast. As his favored Guastavino tiles would require shipping across the continent, Goodhue chose a recently established local company, **California China Products Co.**, to produce the tiles he designed for both the interior and exterior of the towering structure.

In each case, beginning in roughly 1900 through the first decade, much of the color and design innovation in the US came from the offices of architects, those who were open to using ceramic surfaces to draw attention and augment the lasting beauty of their work. ■

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



Tiled tower and dome of the California State Building (now the Museum of Man), Balboa Park, San Diego. Credit: Tile Heritage Digital Library.



Guastavino tile from a Bertram Goodhue drawing, installed at the railway station at the copper mining town of Tyrone, N. Mex. in 1917. Credit: Drawing courtesy Avery Architectural & Fine Arts Library, Columbia University.

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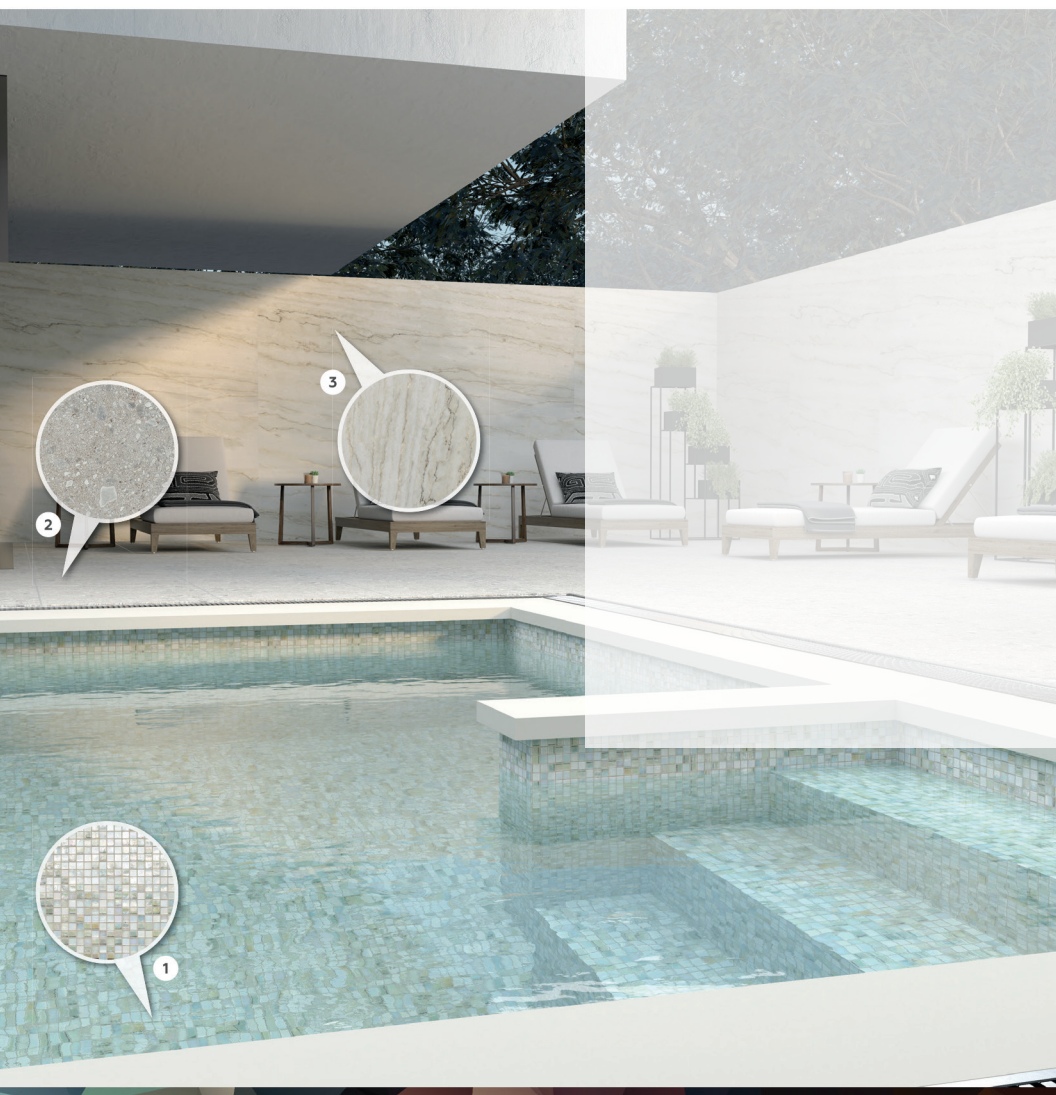
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