

Realtà MAPEI

NORTH AMERICA

**The Summit of Sustainability:
MAPEI and Pikes Peak**

ISSUE 36

PRESIDENT'S LETTER



Luigi Di Geso
President and CEO,
MAPEI North
America

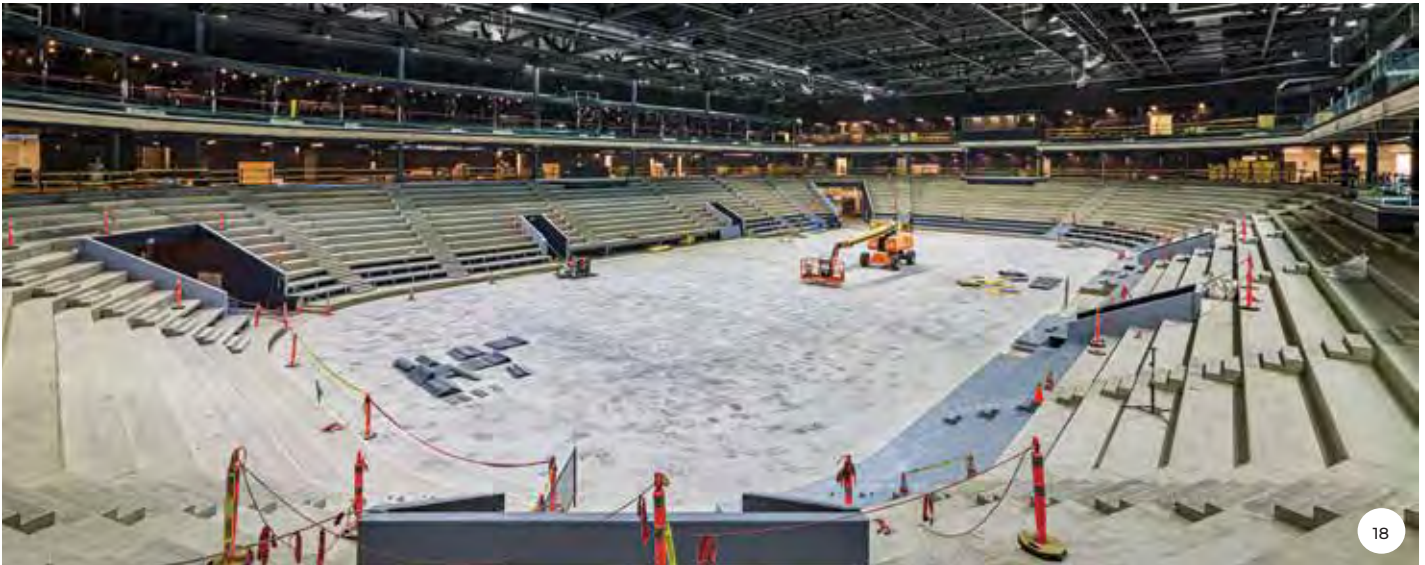
Leading the way on sustainability

This issue features a very important project on the cover – The Pikes Peak Summit Complex. Not only is this an iconic location, but the project itself also represents several important milestones for MAPEI Corporation. Located at an elevation of 14,115 feet (4 302 m) above sea level, this is certainly one of the highest North American jobsites to feature MAPEI products. And the Summit Complex features a wide variety of products across multiple product lines, with both interior and exterior installations. But I will let you read the details in the reference project.

For us at MAPEI Corporation, Pikes Peak holds a special place on the “summit” of our projects, because it is the perfect illustration of our ability to create sustainable system solutions that are tailored exactly to the shifting needs of our clients. That statement means more than just “swapping out” products when the project in question is being designed to achieve the most rigorous environmental certification available when all the products are scored and interrelated. The removal of one affects the entire project. The design team knew this fact before the project began and reached out to MAPEI, to our Technical Service Department, and specifically our Sustainability Manager, Brittany Storm. Because of this, we were involved from the very beginning, offering recommendations and documentation for this historic project.

From 1937 when MAPEI was founded, we have always been at the forefront of developing sustainable products that are also the most durable. Fast-forward to 2022 (and the North American continent) and MAPEI is still focused on those same goals. We are very proud to have reached such sustainable heights – 14,115 feet to be specific – with such an iconic project. However, we will continue to innovate, to push further and higher. Because as we say, at MAPEI sustainability is part of everything we do.

A handwritten signature in black ink, appearing to be 'Luigi Di Geso', written in a cursive style.



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— MAPEI USA • MAPEI Canada —



ON THE COVER
MAPEI's industry-leading sustainability program was well-equipped for the challenge posed by Pikes Peak's Summit Complex building project.

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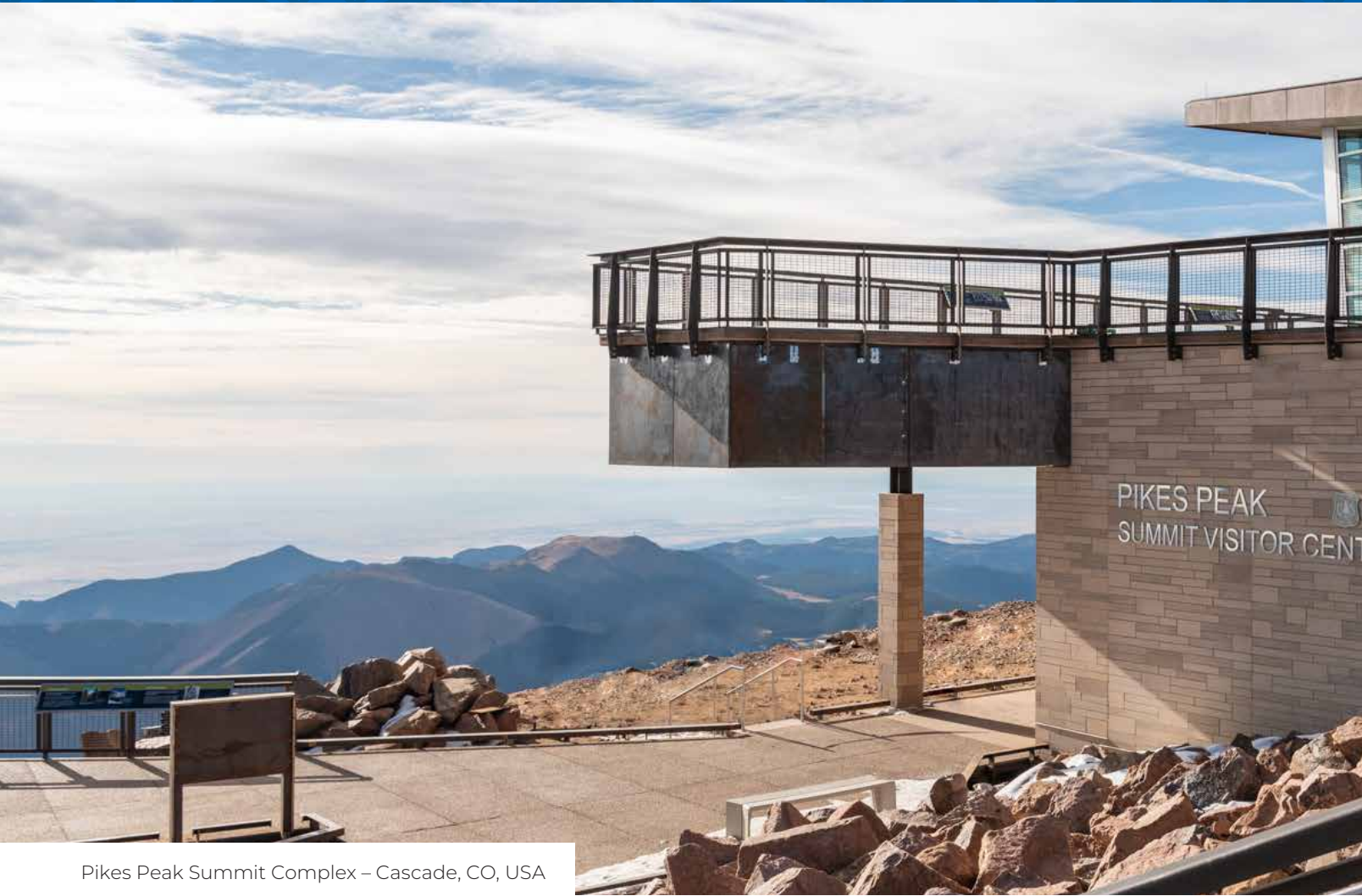
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Pikes Peak Summit Complex – Cascade, CO, USA

The Summit of Sustainability

From early involvement with product selection, to helping meet the challenge of the world's most rigorous environmental certification programs, MAPEI's experts meet the challenge of Pikes Peak's visitors complex.

Known for our system solution-approach to sustainable products, MAPEI was honored to play a role in the construction of the new Summit Complex high atop Pikes Peak. MAPEI's technical experts as well as MAPEI's products have been foundational in the work atop "America's Mountain."





Known as “America’s Mountain,” Pikes Peak is iconic. It is one of the most visited mountains in the world and is a top tourist destination for the state of Colorado. The summit is a National Historic Landmark (NHL), and the mountain itself in addition to the spectacular views it affords hold a special place in America’s heart.

Maintained by the City of Colorado Springs, which sits at the base of the mountain, the Visitor Center at the summit (also known as Summit House) is reached by an estimated 750,000 people per year. That ascent can be made via the Pikes Peak Highway, The Broadmoor Manitou and Pikes Peak Cog Railway, or the Barr or Craggs hiking trails, which is no small feat considering that the center sits 14,115 feet (4 302 m) above sea level. It is not easily reached: Even while riding in the comfort of a car, you notice the engine straining. In fact, driving up Pikes Peak Highway to the Visitor Center at the summit, you will cover 19 long miles (30.6 km), make 156 turns, and climb 6,715 feet (1 132 m) up a 7% grade from the entrance of the highway, according to dangerousroads.org.

Now, imagine making that trip with construction materials and heavy equipment. And, once you conquer the steep grade and winding turns to get to the jobsite at the summit, you can imagine that the real fun begins.

“Lack of oxygen, COVID-19 [note that the job began in 2019 and continued into 2021 during COVID], falling off the mountain, extreme cold weather,” said Jim Whitfield, MAPEI’s Director of Technical Services, who no stranger to the mountain

himself, having lived in nearby Colorado Springs. "These were all conditions that had to be taken into consideration and faced on this project. In fact, the general contractor bid this project based on a 65% efficiency for the construction due to conditions, altitude and weather," he continued, describing the job. It is a scenario straight out of an "adventure" movie.

For the crews who worked to build the new Visitor Center, that imagined scenario became reality and America's Mountain became a symbol of pride for more than patriotic reasons. For MAPEI Corporation, the Visitor Center became opportunity for involvement from the very beginning in a very special project – providing assistance on product selection for the most environmentally conscious construction project on one of North America's highest mountain peaks.

As if the jobsite itself wasn't enough of a challenge, the City of Colorado Springs wanted to ensure that the building program was environmentally sound. They decided to pursue multiple green building certifications, including the Living Building Challenge (LBC) – the world's most rigorous green building program.

Whitfield explained, "MAPEI Sustainability, led by our Sustainability Manager Brittany Storm, has been involved in this project since early 2019, consulting with the tile contractor,

architectural firm and the general contractor on the Summit Complex, to make recommendations and provide proof of sustainable products that meet the Living Building Challenge and LEED Platinum requirements."

"We advocate to be involved with the design team early in a project, especially when it comes to sustainability – as the design and construction teams are not expected to know every manufacturer's product line inside and out. And then add having to know each product's sustainable attributes and certifications on top of that," Storm explained. "We prided ourselves on helping the Pikes Peak team select products that made the most sense for the building project and for meeting LEED and Living Building Challenge requirements."

On top of the logistics of just getting materials up the mountain, the Pikes Peak design team considered factors including designing the building in such a way as to be Net-Zero water-ready. (This means the building will be able to, among other features, gather and reuse rainwater and snow.) The list of MAPEI products that Storm and MAPEI experts ultimately compiled (see below) is extensive and applies to both interior and exterior applications.

But what works for one green building system may not work for another. Storm explained the challenge: "We had to work with





contractors, design team, construction team, and MAPEI (arch reps and Tech Services) to strategically select products that not only met the performance, aesthetic and other traditional considerations but also the Living Building Challenge's and LEED's sustainability requirements. While there are synergies between the two green building standards, there are also green product requirements that would work for one standard but not the other. We had to juggle both standards and find products that took both traditional and sustainable (both LBC and LEED) considerations into account." Fortunately, MAPEI has a wide variety of products that qualify toward credits. Storm continued, "We've been innovating sustainability for a long time. Ultimately, more than 15 MAPEI products across three product lines were used on the Visitor Center."

The Pikes Peak Visitor Center was designed to meet the threshold for a minimum certification of LEED Silver. However, with all the sustainable design and construction strategies that the center has incorporated, it may achieve LEED Platinum

(as of this article, the final certification had yet to be awarded). And, as the Visitor Center's Website proudly proclaims, "Every aspect of the new Visitor Center was carefully and thoroughly reviewed with sustainability at the forefront of the entire project. It is the most sustainable high-altitude structure in the country, if not the world."

This is thanks in no small measure to the hard work and technical expertise of MAPEI. We like to say that "sustainability is part of everything that we do." On America's Mountain, it truly was a consideration of every aspect. "America the Beautiful' was inspired by Pikes Peak," Whitfield said. "Standing in the newly constructed, sustainable Summit House, you look out through the panoramic windows and see the view all the way across those 'purple mountains majesty.' It is breathtaking, and humbling." And now, future visitors will be able to stand in comfort and enjoy that same view – regardless of weather – for generations to come.

TECHNICAL DATA

Pikes Peak Summit Complex – Cascade, CO, USA

Years of construction: Early 2019 to end of 2021

Years of MAPEI involvement: Early 2019 to end of 2021

MAPEI coordinators: Brittany Storm and Jim Whitfield

Project owner: City of Colorado Springs

General contractor: GE Johnson

Installer contractor: Rampart Tile

Project manager: Steve Gray at Rampart Tile

Project size: Visitor Center of approx. 38,000 sq. ft. (3 530 m²)

Challenges: The Visitor Center is designed to meet the threshold for a minimum certification of LEED Silver. However, with all the sustainable design and construction strategies that the Center has incorporated, it may achieve LEED Platinum. It is also pursuing the status of Living Building Challenge (LBC), the world's most rigorous building challenge.

Reaching the jobsite proved to be a challenge for crews and for materials. Working at altitude as proved to be a challenge due to weather, danger of falling off mountain, and lack of oxygen.

MAPEI Products

Exterior – Pikes Peak summit marker

- *Mapelastic® Turbo*
- *Granirapid® System*
- *Ultracolor® Plus FA*
- *Mapesil® T*

Interior – Pikes Peak Summit Complex

- *Ultracolor Plus FA:* All Lobby and sales floors
- *Kerapoxy® CQ:* Restroom floor and wall tile
- *Kerapoxy IEG CQ:* Kitchen floor tile and base
- *Mapelastic AquaDefense:* At all floor tile and restroom wall base
- *Ultraflex® 3:* Staircase tile
- *Keracaulk® S:* Floor to wall junction and inside wall tile corners
- *Primer L™:* Used at all floor tiles
- *Novoplan® Easy Plus:* Used at all floor tiles
- *Mapecem® Quickpatch:* Used at all floor tiles

Wastewater treatment equipment baseplates

- *Planigrout® 755*
- *Planigrout 712*
- *Planigrout 728*

Evaluating and Selecting Sustainable Tile and Tile-Setting Materials

Gain insight into the growing demand and availability of sustainable products, resources and tools to assist project teams in making appropriate informed evaluations and selections for green building

For conventional construction projects, the selection of building materials requires evaluation and consideration of aesthetics, performance, schedule and cost. In sustainable construction, these conventional considerations are expanded to include products that reduce impacts on human health and the environment. Project teams are increasingly seeking sustainable attributes and certifications in building products. Sustainable products are widely recognized as having lower environmental and human health impacts than typical products in the same category.

The growing number of green building standards, such as U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) and the International Living Future Institute's Living Building Challenge, are creating an increased demand for sustainable building products and, as a result, the demand for sustainable attributes and certifications for these products. Evaluating environmental and human health impacts can be complex, further confused by varying product claims, ever-evolving green building standards requirements that relate to sustainable products, as well as a market saturated with third-party certifiers, testers and verifiers. Fortunately, as the green building industry expands, so does the availability of sustainable products as well as resources and tools to assist project teams in making appropriate informed evaluations and selections.

What makes a sustainable product?

This is a question that many government agencies, architects, designers, contractors and even DIYers are asking. There are a wide range of certifications and attributes that manufacturers can use to promote their products as sustainable. Some products are promoted based on their reduced environmental impacts when compared to a baseline environmental performance in a life cycle assessment (LCA). Other manufacturers transparently communicate their products' ingredients' impacts on human health. Some identify their social impacts and commitment to all their stakeholders, including employees, individuals throughout the supply chain, communities, installers and consumers. Some claim that their products are developed with careful attention to research and development, the manufacturing processes and packaging choices. Most focus on single attributes, such as recycled content, carbon footprint, and VOC content and emissions, while others evaluate impacts on both human health and the environment (multi-attribute).

The sustainable attributes of a product alert project teams that a product has met a standard and offer either environmental or health benefits; they also eliminate greenwashing – misleading or unsubstantiated claims about the environmental and health benefits of a product. Sustainable products with third-party certification are considered the most valuable among green building standards and certification systems. Third-party certification means a product has been independently verified as meeting environmental and/or health standards. They offer assurance to architects, designers, specifiers and consumers that a product's claims reflect its sustainable attributes. As a result, as the demand for products with sustainable attributes in the building market continues to increase, so do the number of sustainable product certifications.

Consequently, there are an overwhelming number of sustainable product certifications and attributes. Even for an informed person, it can be difficult to absorb all the information provided. Consumers should not be expected to analyze each of these certifications and attributes. This has not hindered the growth of these sustainable attributes, as there is an increasing number of single- or multi-attribute human health and environmental criteria. In addition, the certifications and attributes of sustainable products can vary significantly depending on the product type.

All sustainable attributes are important, however, based on the product type, some are more important than others. For instance, the sustainable attributes of concrete mix are different than the sustainable attributes of wood doors, both of which are different from the sustainable attributes of tile and tile-setting materials. It is more important for a concrete mix to have recycled content or inject CO₂ into the mix to reduce its carbon footprint than it is to have VOC emissions certification. In comparison, tile-setting materials should have third-party tested and certified VOC emissions; however, both should have an Environmental Product Declaration based on their product types.

Due to these variabilities, assessing sustainable product certifications and attributes requires a deeper understanding of every product's potential impact on human health and the environment, third-party standards and certifications for both green buildings and green products, and the availability of products in the building market, including aesthetics, performance, cost and sustainable attributes.





Tile and tile-setting materials' sustainable certifications and attributes

As suggested above, there is a wide range of sustainable terminology that has been developed for building products. Tile and tile-setting materials may have the following sustainable certifications or attributes.

Embodied Carbon – Embodied carbon refers to greenhouse gas emissions arising from the extraction, manufacturing and installation process, which is different than operational carbon (post-installation/post-occupancy greenhouse gas emissions). While there are practices to reduce operating impacts, many are still learning how to reduce carbon impacts during the manufacturing process. Project teams can take steps to make significant upfront impacts in the design and construction process, such as evaluating flooring options and choosing lower carbon options. Research shows that tile is among the lowest embodied carbon energy producers when compared to other flooring types.

Environmental Product Declaration (EPD) – An EPD is a document that describes the lifecycle environmental impacts of a building product. To create an EPD, a Life Cycle Assessment (LCA) is first used to calculate a product's environmental impacts such as global warming potential and ozone depletion throughout the product's lifecycle, including raw material extraction, transportation, manufacturing, packaging, use and disposal at end of life. There are several types of EPDs available based on various stages of EPD development.

Extended Producer Responsibility (EPR) – EPR reclamation programs allow consumers to return tiles at the end of their useful life. Some tile manufacturers practice EPR through take-back programs: Tile considered damaged, scrap or otherwise waste is returned to participating manufacturers for recycling and reuse. These programs reduce burdens on landfills while minimizing the demand for raw materials.

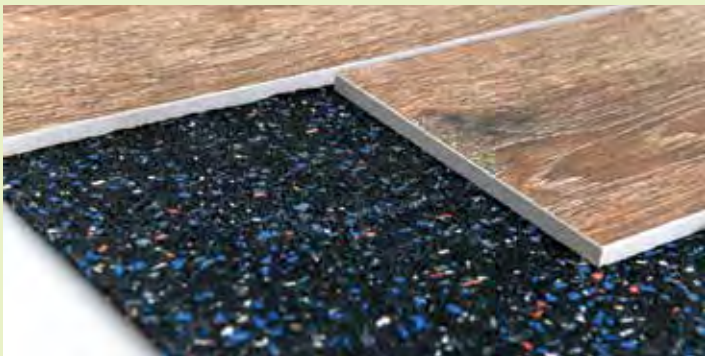
Green Squared – The Green Squared certification is the tile industry's first multi-attribute sustainability certification. This certification was developed by the Tile Council of North America (TCNA) to recognize tile and tile-setting materials that are in conformance with ANSI A138.1 (a sustainability product standard) and third-party certified to that standard. Green Squared certification provides authenticity that manufacturers have met the criteria in all categories, including environmental product characteristics, environmental product manufacturing and raw material extractions, end-of-product-life management, progressive corporate governance and innovation.

Inherently Non-Emitting – LEED defines products that are inherently non-emitting sources of VOCs (stone, ceramic, powder-coated metals, plated or anodized metal, glass, concrete, clay brick, and unfinished or untreated solid wood flooring) as fully compliant without VOC emissions testing if they do not include integral organic-based surface coatings, binders or sealants. Ceramic and porcelain tile products have zero VOCs and meet the requirements of inherently non-emitting. (Source: <https://www.usgbc.org/credits/new-construction-core-and-shell-schools-new-construction-retail-new-construction-data-38>)

Material Ingredient Report – Material ingredient disclosures focus on the negative effects that building materials have on human health and wellness. Currently, regulations do not require manufacturers or their suppliers to disclose product information beyond their Safety Data Sheets (SDSs). However, manufacturers may offer disclosures of their products' ingredients. There are several reports or declarations that provide chemical ingredient disclosure information, including Manufacturer's Inventory (MI), Health Product Declarations (HPDs), Cradle to Cradle Material Health Certificate, Declare Label, UL Product Lens and more.

Recycled Content – Recycled content refers to the percentage of materials in a product diverted from waste streams. Products with recycled content can potentially reduce the environmental impacts resulting from the extraction and processing of virgin materials. Tile and tile-setting materials typically incorporate pre- and post-consumer recycled content.

- **Pre-consumer recycled content** is a material that was removed during the manufacturing process and reused in an alternative process before consumer use. An example of pre-consumer recycling: A tile manufacturer that purchases rejected porcelain from a plumbing fixture manufacturer and incorporates the material into their tile manufacturing process.
- **Post-consumer recycled content** is reclaimed product that has already been used by a consumer and would have been otherwise discarded as waste if the material was not recycled. For example, for every 100,000 square feet (9 290 m²) of MAPEI's *Mapesonic™ RM* membrane that is installed, approximately 1,400 tires are diverted from a landfill.



Regional Materials – Many products travel significant distances before arriving at the project site. The impacts associated with transportation can be significant, including increased gas emissions. Selecting locally sourced products supports the use of indigenous resources and the local economy. Tile and tile-setting material manufacturers can provide manufacturing locations; this attribute does not require third-party certification.

Volatile Organic Compound (VOC) Content – Tile-setting materials can contribute to green building standards and certification systems by carefully selecting adhesives and sealants that meet established indoor air quality standards. The South Coast Air Quality Management District (SCAQMD) Rule #1168 dictates VOC content for tile adhesives and sealants, and manufacturers typically provide this information on technical data sheets.

VOC Emissions – While tile is exempt from VOC emissions testing, tile-setting materials are not. Third-party VOC emissions testing is required for most green building standards and certification systems, including LEED, Living Building Challenge and the WELL Building Standard. Tile-setting materials must be tested and determined to be compliant in accordance with California Department of Public Health (CDPH) Standard Method version 1.2-2017. The array of

VOC emissions certifications available can be daunting: Third-party certifying programs include FloorScore, SCS Indoor Advantage Gold, CRI Green Label Plus, Declare Label, UL GreenGuard Gold and more.

Tools and resources

A wealth of sustainability information is available (and continues to be developed) pertaining to tile and tile-setting materials. Project teams must familiarize themselves with a variety of tools and resources to effectively evaluate and select sustainable products. The key is to start with the green building certification system being pursued, after which the project team members should educate themselves on the sustainable attributes that are needed to meet that certification system's goals, and then find and evaluate products that meet those requirements.

Green building standards and certification systems

Green building standards establish overall environmental performance criteria for entire buildings. Sustainability products have a vital role to play in meeting these standards requirements. In the U.S., there are several green building standards that set requirements for tile and tile-setting materials.

LEED, developed by U.S. Green Building Council (USGBC), includes the following criteria for sustainable tile and tile-setting materials: materials with low embodied carbon, materials with verified environmental life-cycle impacts, materials that contribute to an extended product responsibility program, reused materials, recycled content materials, materials that disclose ingredients, low-emitting materials, certified multi-attribute products and materials (including Green Squared certified products) and local/regional materials.

The **WELL Building Standard**, developed by the International WELL Building Institute (IWBI), includes the following criteria for sustainable tile and tile-setting materials: Materials that disclose ingredients and low-emitting materials.

Living Building Challenge (LBC), developed by the International Living Future Institute (ILFI), includes the following criteria for sustainable tile and tile-setting materials: Materials that disclose ingredients, regional/local materials, materials free of toxins and harmful chemicals, and low-emitting materials.



**INDOOR ADVANTAGE GOLD
BUILDING MATERIALS**

Green product standards

To reliably guarantee the health and environmental claims of sustainable products, including tile and tile-setting materials, several public and private organizations create voluntary consensus standards for sustainable goods and services. These standards have a specific criterion for numerous product types. Green product standards can range from regulatory agencies responsible for improving air quality and reducing VOCs (i.e., South Coast Air Quality Management District, SCAQMD) to industry guidelines (i.e., Tile Council of North America's Green Squared certification) to third-party certification standards (i.e., SCS Global Services' Indoor Advantage Gold program for VOC emissions) or third-party verified standards (i.e., GreenCircle Certified's verification of material ingredients to promote transparency and eliminate greenwashing). Many of these standards can also help in the development of project specifications.

Green product libraries and other online tools

Typically, required documentation – including certifications, labels, resources, a list of sustainable products, and applicable green building standards and certification systems that their products contribute to – can be found on a manufacturer's Website. Finding the right person to understand the sustainability attributes of green building standards and information for each product can be challenging. However, as more and more project teams advocate for and communicate this information, manufacturers can better address what's being asked of them. Ultimately, communication and collaboration are key. At MAPEI, we advocate for including manufacturers on sustainability projects, as the design and construction team cannot be expected to know every manufacturer's products' sustainable attributes or certifications. We pride ourselves on helping project teams to select products that make the most sense for each project.

There are also free online product databases such as mindful MATERIALS – a library for project teams to select products that meet their project's sustainability goals. Individual third-party certifications, including CRI Green Label Plus, SCS Indoor Advantage Gold and UL Spot, also have databases for the sustainable attributes they certify. Advanced search options to filter by certification, environmental characteristics, product criteria, etc., can help project teams to quickly find and compare products that will help them achieve their sustainability goals. There are additional tools available for calculating Embodied Carbon and Life Cycle Assessments. While there are no single standards for these, several organizations have developed online calculators that include average life cycle data on materials to compare product-specific information from manufacturers.



Evaluating and selecting sustainable tile and tile-setting materials

Selecting products with sustainable attributes requires research and critical evaluation. Fortunately, as previously stated, sustainable information is continually being developed. The key is to start with the green building certification system being pursued, after which the project team should educate themselves on the sustainable attributes that are needed to meet that certification system's goals, and then find products that meet those requirements.

Project teams should collect as many as of the Tile and Tile-Setting Materials' Sustainable Certifications and Attributes as possible to evaluate products. The most sustainable products are those that have multiple health and environmental benefits from the products selected. Unfortunately, not every product will have every sustainable certification or attribute mentioned above.

The process of selecting, specifying and collecting documentation for products pursuing various green building standards and certification systems can be time- and budget-consuming. However, industry-leading manufacturers understand that third-party certification is becoming increasingly important, as sustainable construction becomes the norm rather than the exception. As new and more stringent requirements continue to be introduced in sustainable construction, project teams can expect continued progress in advancing sustainable products.



About the author

Brittany Storm is the Sustainability Manager for MAPEI Corporation. Her background as a sustainable building consultant and background in construction allow her to speak to audiences about both the big picture and technical aspects of a project. Brittany is a LEED Fellow with BD+C and ID+C specialties as well as a WELL AP and Fitwel Ambassador. In addition, she is active on many sustainability committees.

Living in a Chemical World

Reading symbols correctly cannot only help you install products, it can also keep you and your team safe. Learn how to properly interpret chemical warnings in this helpful article.



No matter how you look at it, we live in a chemical world. From salt to Super Glue, we work with all types of chemicals in our everyday life. This is especially true in the industry in which we operate. The challenge we face as a manufacturer of those materials is to provide required performance attributes for specific functions using chemical compounds in a safe manner. MAPEI understands the importance of knowing, explaining and informing about the relative hazards of the materials we make. MAPEI's dedication to this aspect of our business includes an extensive staff of trained professionals that fully understands all the requirements for product labeling, whether the end user is a DIY consumer or a highly skilled professional.

The products we use today for the installation of floor coverings are considerably safer to use compared with products used in the past. For example, the use of solvent-based adhesives, which were a nightmare regarding flammability and inhalation toxicology, has been virtually regulated out of existence. Even nonflammable, solvent-based products based on trichloroethylene or trichloroethane cannot be sold due to toxicity issues as well as being major factors in destroying our much-needed ozone layer.

Today's installation products, for the most part, no longer pose problems in terms of flammability nor do they pose severe health or environmental hazards, but they still are based on chemical compounds that need to be properly handled. The goal of every manufacturer of flooring-installation products is to develop the safest materials available and to inform you how best to use them.

So how can you protect yourself from the chemical compounds used to install flooring? Your two most important sources of this information can be found on product labels and Safety Data Sheets (SDSs).



Warnings and hazard information found on packaging labels are controlled by two governing bodies. The first is documented in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The second set of rules used is provided by the U.S. Consumer Product Safety Commission (CPSC), which is defined by the Federal Hazardous Substances Act (FHSA). In Canada this type of information is controlled by the Hazardous Products Act (HPA) as well as the Consumer Packaging and Labelling Regulations (C.R.C., c. 417). The main difference between these two sets of regulations is that GHS deals with long-term, chronic exposure to chemicals, whereas the FHSA (USA) and the HPA (Canada) deal with acute or one-time exposure. Based on this distinction, you can see consumer-based warnings on products that reach the DIY or retail customer, whereas GHS information on packaging is more suited for commercial work.

GHS changed the rules on hazardous substances communication in the following ways:

- Hazard classification: This provides specific criteria for classification of health and physical hazards, as well as classification of mixtures.
- Labels: Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram and hazard statement for each hazard class and category. Precautionary statements must also be provided.
- SDSs: These will now have a specified 16-section format.
- Information and training: Employers were required to train workers by December 1, 2013, on the new labels' elements and Safety Data Sheets' format to facilitate recognition and understanding.

Regarding hazard classification and packaging labeling requirements, GHS starts with a signal word that is usually either "Danger" or "Warning" combined with a pictogram of the type of hazard. These symbols and words can be placed anywhere on the package and do not have size requirements. A common set of GHS signal words and pictograms used in flooring adhesive formulations is the following, which indicates that the material may cause skin and eye irritation:



If you happen to be working with two-part epoxy adhesives on a project, the number of pictograms increases and the signal word can become more severe. With these types of adhesives, you may typically see the following:



These series of pictograms will tell you that the product is a health hazard, has a negative environmental aspect, and may cause serious health effects and ozone depletion.

Consumer Product Safety Commission requirements deal with hazard warnings that are a little more "in your face" and are always found on the front of the label or package. They are scaled to predetermined sizes based on label space. Here's a summary of CPSC labeling requirements:

1. The name and place of business of the manufacturer, packer, distributor or seller.
2. The common or usual name of each hazardous component that substantially contributes to the product's hazardous nature. If the component does not have a common or usual name, the chemical name may be used.
3. The signal word "DANGER" on all substances that are extremely flammable or corrosive.
4. The signal word "DANGER" and the word "poison" for all substances defined as highly toxic. Highly toxic includes substances that are acute and chronic toxins, carcinogens, neurotoxicological toxins, and reproductive toxins.
5. The signal word "WARNING" or "CAUTION" on all other hazardous substances.
6. An affirmative statement of the principal hazards, such as "Flammable," "Combustible," "Vapor Harmful," "Causes Burns" or "Absorbed Through Skin."
7. Precautionary measures describing the action to be followed or avoided.
8. Instruction, where necessary, for first aid treatment.
9. Instructions for the handling and storage of packaging that requires special care in handling and storage.
10. The statement "Keep out of the reach of children" or its practical equivalent and, if the product is intended for use by children, directions for the protection of children from the hazard.




Figure 1

An example of a CPSC warning structure for a moisture-cured, urethane adhesive would be as shown above in **Figure 1**.

Here you will see the signal word “CAUTION” in very large print right on the front of the label and highly visible. And in this particular case you will see the influence of Canadian labeling requirements where all the words whether they be English or French, are the exact same size. Next to the signal word you will find language relative to the type of hazard, in this case indicating that the product is an irritant to the eyes and respiratory system and that you should avoid contact with the skin.

The next logical question in finding, reading and understanding either a GHS or CPSC warning is what to do once you learn about it. That’s when the SDS comes into play. It is a federal mandate that every chemical compound be provided with a GHS-compliant Safety Data Sheet, which must contain 16 separate parts of information about the product. For our discussion on safe product use, we will focus on Section 8, which deals with Exposure Controls and Personal Protection. This SDS section contains information relative to Control Parameters (if any) and Individual Protection Measures that refer you to the required Personal Protection Equipment (PPE) when using the material. Common PPE for the floor-covering installer includes (but is not limited to) nitrile gloves, protective eyewear and respirators. You will also find this information on the product label in the product warning text, but it is important to remember that OSHA requirements regulate that the SDS be available and on site wherever these products are used and are the last word on any PPE requirements needed for safe use.

Having said all of this, it is extremely important to note that it is your responsibility to read, understand and act on this information. Manufacturers of chemical compounds used for construction purposes have teams of smart and informed people working on making this information accurate, readily available and pretty much “in your face.” But it is still your responsibility to read the product label, read the SDS, pay attention to Section 8 and follow what is recommended. Acting on this information is not really optional. It is provided for your safety and well-being. So please take those few short minutes to read and be informed, and then follow the directions and use the appropriate PPE.



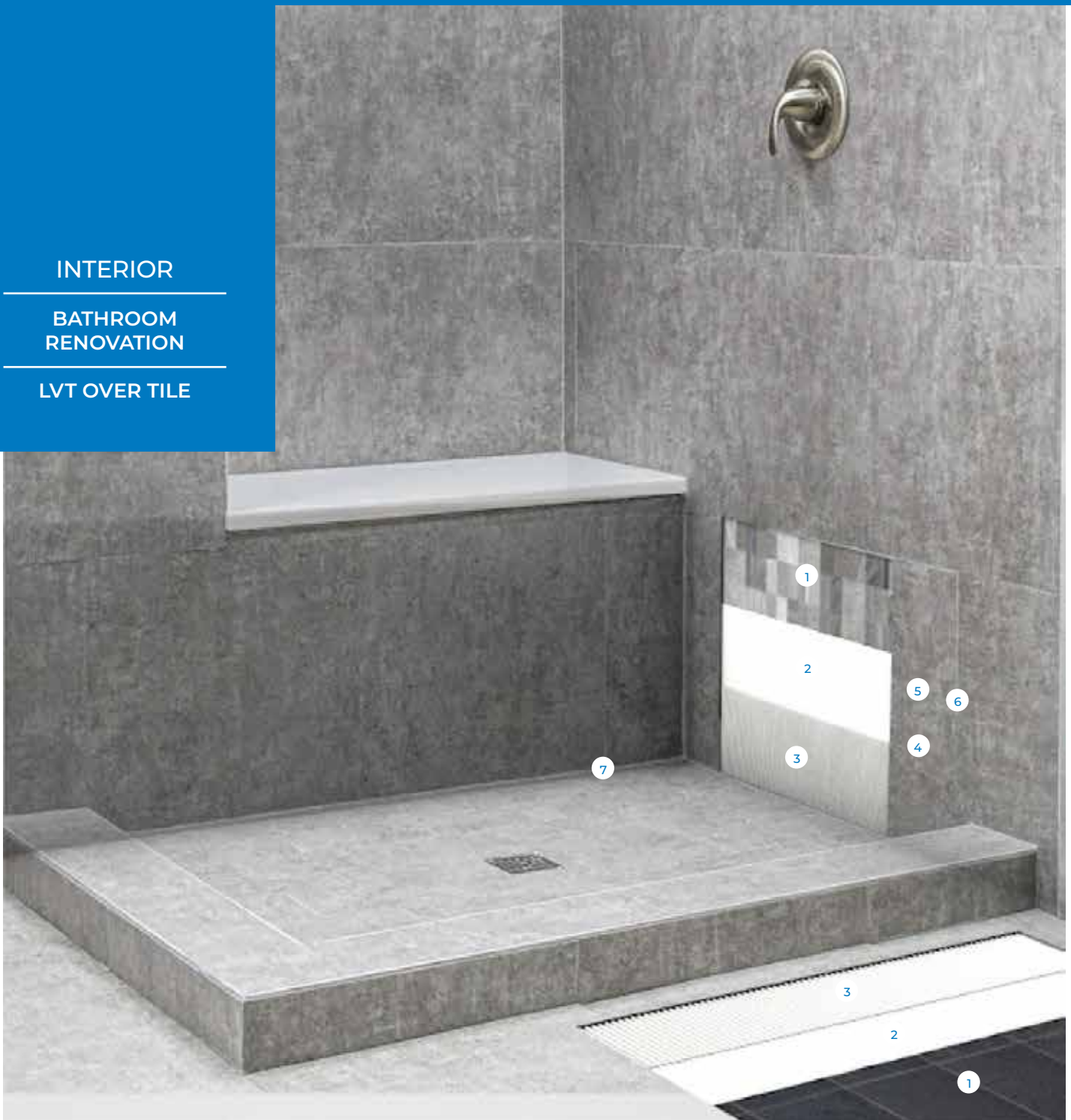
About the author

Jeff Johnson is the Business Manager for MAPEI’s Floor Covering Installation Systems line. Jeff brings to the industry more than 35 years’ experience in the development and marketing of floor-covering installation products. Practical experience in the construction industry and as a bench chemist gives Jeff an insightful perspective on surface preparation, moisture mitigation and floor-covering installation.

INTERIOR

BATHROOM
RENOVATION

LVT OVER TILE



Updating existing ceramic tile- or stone-clad showers and tub surrounds found in the hospitality environment with new tile or stone is costly, time-consuming, expensive and messy. When MAPEI's **Shower System 4 LVT** products are used to install luxury vinyl tile (LVT) with its myriad visuals, the process of updating these tired installations becomes much easier and cleaner with a lot less downtime.

Challenges: The high cost and extensive labor involved with removing and replacing tired tile- or stone-clad showers and tub surrounds to keep up with contemporary style

Solutions: Simple LVT installation over existing tile or stone surfaces, using premixed materials that add no dust or debris to the surrounding environment and that add minimal build thickness on walls and floors

- 1 Existing ceramic tile
- 2 *Planiprep*® 4 LVT
- 3 *Ultrabond ECO*® MS 4 LVT Wall
- 4 *Mapecoat*™ 4 LVT
- 5 LVT
- 6 *MAPEI Flexcolor*® CQ
- 7 *Mapesil*® T Plus

Helping to Flip a 'Zombie' House

MAPEI's expert advice and system solutions helped turn dilapidated property into beautiful showplace on "Zombie House Flipping" show



MAPEI Corporation recently teamed up with the crew on A&E's popular home-remodeling television show "Zombie House Flipping" to turn a derelict property in Orlando, FL, into a showplace.

The crew had used MAPEI's products unofficially throughout the course of the show to great effect. Season 4 would see them tackling their most ambitious renovation, a home so run-down that they referred to it among themselves as "3,000 square feet of hell." The home featured multiple types of flooring, including terrazzo, sloped concrete, mud bed, and an old brick patio that had been remodeled into the home's kitchen – but the patio's brick floor remained.

Even though "Zombie House Flipping" is a TV show, the investments made on the properties are very real. The show's crew needed to see a return and were worried that the floors alone on this house would eat up the profits and spell their doom.

"It was 3,000 square feet [279 m²] of wildly different substrates – in different stages of disrepair," said Logan Reavis, Technical

Services Manager for MAPEI Corporation. Knowing that despite the deterioration, the home was situated in a desirable location and had "good bones," the Zombie House Flippers reached out to MAPEI and our Technical Services.

Specs and products: To "hell" and back

"The show notes called this house '3,000 square feet of hell,'" Reavis said. He toured the home and spent time with the show's crew members Ashlee Casserly and Keith Ori, discussing what they wanted to achieve. Reavis then made product recommendations based upon his findings, providing technical assistance off- and on-camera.

Reavis described the "hellish" project: "There were 10 rooms. Some floors had uneven or cracked concrete slabs, new concrete slabs, old concrete slabs. One room featured an old mud bed. A couple rooms were the original terrazzo. The only thing they all had in common was the fact that it was a mess."

A mess, yes. But it was no match for MAPEI. See the sidebar for the products that Reavis specified for the repair of the floor.



Above. MAPEI Technical Services Manager Logan Reavis toured the home in order to make the best product recommendations that were tailored for each room.
Below. Don and Diane Moore, two of the “Flippers” and the owners of Main Street Group Orlando, were on hand to meet with Reavis and learn about MAPEI.



Not only were the products easy to install, they also turned “3,000 square feet of hell” into “San Juan House.” In fact, the Zombie House Flippers were correct about the home’s “good bones”: Once repaired and renovated, the home easily flipped and was the largest sale to date in all four seasons of the show.

For the full story of how MAPEI’s concrete restoration and floor installation system solutions – as well as Reavis’ specifications – helped turn a “zombie” house into a showplace, tune in to “Zombie House Flipping” on A&E’s HOME.MADE.NATION segment at www.aetv.com/homemade. The MAPEI episode, titled “San Juan,” (Season 4, Episode #18), originally aired on July 30, 2022. Check your local listings for airdates and times. Episodes also stream online at www.aetv.com/shows/zombie-house-flipping.



4 to 1 Mud Bed Mix was used to raise and slope shower beds.

Lights, camera, MAPEI!

After his onsite visit with the Zombie House Flippers and his tour of a “hell” house, Reavis specified the following products:

- **Mapecem® Quickpatch:** High-performance concrete patch
- **Ultraplan® Extreme 2:** Weather-resistant, high-compressive-strength, self-leveling underlayment
- **Primer X™:** Fast-drying, textured primer for nonporous substrates
- **4 to 1™ Mud Bed Mix:** Sand and cement mortar mix
- **ECO Prim Grip™:** Multipurpose, bond-promoting primer
- **Planicrete® AC:** Acrylic latex admixture for mortar and stucco
- **Novoplan® 2 Plus:** Professional, self-leveling underlayment
- **Reinforcing Fabric:** Strong, absorbent, flexible, alkali-resistant, polyester reinforcing fabric
- **Mapelastic® AquaDefense:** Premium waterproofing and crack-isolation membrane
- **Keraflex™ Plus:** Professional, extra smooth, large-and-heavy-tile mortar with polymer
- **Ultracolor® Plus FA:** Rapid-setting, “all-in-one” grout replacement for sanded and unsanded grouts



THE WORLD IS OUR JOBSITE WHEREVER YOU GO, MAPEI IS THERE

As the leading global manufacturer of mortars, grouts and adhesives, MAPEI also offers the full spectrum of chemical products for construction projects – everything from dams, bridges and tunnels to malls, hospitals and condominium towers. We partner with the architectural community by providing a single source for system specifications, technical expertise/consultation and practical online architectural tools.

See our resources at www.mapei.com.



— MAPEI USA • MAPEI Canada —



Fast Flooring for a Fast-Food Restaurant

MAPEI's fast-track cementitious flooring and concrete repair solutions help a popular franchise to open in Brickell Miami



Bolay Brickell – Brickell Miami, FL, USA





MAPEI's cementitious polished toppings and concrete repairs solutions provide a variety of robust and colorful options to protect the floor at a buffet-style fast-food restaurant from aggressive foot traffic and difficult spills.



Bolay – the restaurant chain's unique name combines the signature “bol” dish with the exclamation of excitement “olé!” to create the word “Bolay” – has gained in popularity since it was founded by a father-and-son duo in 2016. Chris Gannon, CEO and cofounder of Bolay (along with his father, Tim Gannon, who co-founded the popular Outback Steakhouse chain), wanted to do more than simply create a fast-food restaurant. Located in Florida, Georgia and Virginia, Bolay restaurants offer fresh and bold ingredients with eight custom spice blends that have been created by noted chefs.

Bolay is expanding: At the time of this publication, they had a chain of 25 restaurants in Florida, two in Virginia and one in Georgia, all of which are known for “promoting fresh ingredients, with amazing guest service.” The 1,500-square-foot (139-m²) restaurant located at 801 Brickell Avenue in Miami is one of the new locations and features the high-performance, ultra-modern-look floor that is a key component of their “immaculate environment.” For that reason, they called MAPEI and wanted to install our **Ultratop Polished System**.



This installation is an example of great multidisciplinary teamwork to achieve a common goal through the highest industry standards. The project lead was provided by MAPEI's architectural team working with Bolay. Specifications were developed by working with MAPEI Architectural Rep Luis Roman, Business Development Leader Maurizio Luccarelli and local Concrete Restoration Specialist Carlos Hernandez.

The architectural plans called for a floor with a total thickness of 1-3/8" (3.5 cm). In conjunction with general contractor iConstructors, specifications were developed according to those conditions using MAPEI's *Ultratop Polished System*.

The architects approved MAPEI's self-leveling *Planitop EL* at 1" (2.5 cm) in thickness as an underlayment to raise the floor. *Ultratop SP* polishable cementitious topping, which provides a fine-aggregate exposed finish, was approved and used for



the final 3/8" (10 mm) of the floor. Epoxy primer **Primer SN** and the stain-resisting, high-gloss **Mapecrete Protector FF** were also specified.

After surface preparation was started on the old concrete slab, significant damages were found. The topping installer CPC Concrete used MAPEI's epoxy-injection crack-repair resin **Epojet** to properly repair all cracks. Then the slab was blasted to a concrete surface profile (CSP) of #3. The concrete slab was now ready for **Primer SN**, a two-component, filled, epoxy primer specifically designed to enhance adhesion of cementitious multilayer flooring. After the primer was installed, sand was hand-broadcast on top to the point of refusal.

After 24 hours, **Planitop EL** was poured onto the floor as an underlayment to raise the floor. **Planitop EL** is self-leveling, Portland-cement-based product used as an underlayment to raise the floor in cementitious topping systems. Then, 24 hours after the **Planitop EL** installation, the crew blasted the self-leveling underlayment to a CSP of #3. The prepared surface was properly primed with **Primer SN**, and sand was broadcast to refusal.

Once the crew had waited 24 hours, the cementitious topping **Ultratop SP** was poured for the final 3/8" (10 mm) thickness of the floor. **Ultratop SP** is engineered for fast-track resurfacing of horizontal wear surfaces. This, according to Luccarelli,

"was used as a topping to provide a fine-aggregate exposed finish." After another 24 hours, the crew began the process of dry-polishing the **Ultratop SP** using the proper equipment and tools. **Mapecrete Hard LI** lithium silicate densifier was used finishing the final steps of the polishing process with **Mapecrete Protector FF** as a final polish guard that is designed to increase the stain resistance of interior, polished or hard-troweled cementitious toppings.

It was a fast installation. The restaurant was able to install furniture within days and open on schedule. Plus, the beautiful polished floor can withstand the foot traffic, the scraping chairs, and the sticky, acidic food spills that come with hungry diners. The next time you find yourself in Miami, stop by Bolay Brickell. And while you are looking up at the menu, be sure to look down at the floor. MAPEI and Bolay – both are cause to say "olé!"

TECHNICAL DATA

Bolay Brickell – Brickell Miami, FL, USA
Project category: Commercial
Year of construction: 2021
Year of MAPEI involvement: 2021
MAPEI coordinator: Carlos Hernandez
Project owner: Bolay
General contractor: iConstructors, LLC
 – Fort Lauderdale, FL
Installer contractor: CPC Concrete, LLC
 – Tampa, FL
Project size: 1,500 sq. ft. (139 m²)

Challenges: After starting the project, it was discovered that the floor was more corroded than previously thought.

To address this, the crew used epoxy injection resin **Epojet** to repair the cracks. **Primer SN** two-component, filled, epoxy primer was installed to enhance adhesion of the cementitious and multilayer flooring. Self-leveling underlayment **Planitop EL** was installed to raise the floor. **Ultratop SP** polishable, self-leveling cementitious topping provided a fine-aggregate exposed finish for the final 3/8" (10 mm) of the floor. **Mapecrete Hard LI** was then added to the dry polishing process as a lithium densifier, and **Mapecrete Protector FF** was installed as a final polished guard to increase the stain

resistance of MAPEI's interior, polished concrete **Ultratop Polished System**.

MAPEI Products

- **Epojet**[™]
- **Mapecrete**[™] **Hard LI**
- **Mapecrete Protector FF**
- **Planitop**[®] **EL**
- **Primer SN**[™]
- **Ultratop**[®] **SP**

Remodeling a Mega Store with MAPEI

Concrete repair and adhesive solutions create installation ease

MAPEI's products allow installers to install commercial floors quickly and efficiently with a tight deadline looming and the thermometer soaring.

IKEA Bayamón is a representation of so much more than convenience. In Puerto Rico and in the greater Caribbean, which were ravaged by tropical storms and hurricanes in 2017, this IKEA store is a representation of normalcy. And it was literally constructed in the aftermath of hurricanes Irma and Maria, as Puerto Rico was recovering from the devastation wrought by these hurricanes.

Building materials were tough to obtain, power had to be reestablished and, at one point, even food and clean water were difficult to find. Therefore, to see an IKEA store open was to see a return to normal life. MAPEI is proud to have played a role in this project.

The IKEA store was built in the Puerto Rican city of Bayamón, which is situated in the northeastern part of the island; it is Puerto Rico's second-largest city.

The owners of the store rented an existing 150,000-square-foot (13 935-m²) building and began the remodeling process to turn it into the familiar two-story IKEA layout. The two-story building featured concrete floors, and although the building had been constructed in 1964, the floors were in good condition.

The contractor Flooring Consultants & Contractors Inc. had a crew rotating in shifts because there was no air conditioning or ventilation inside the building and the weather was humid and hot. Temperatures outside ranged from 86°F to 91°F (30°C to 33°C), and the humidity averaged 70.3%.

The Swedish IKEA felt more like a Finnish sauna as the crews worked to install the floors. "It was working in extreme weather



IKEA Bayamón – Bayamón, Puerto Rico



conditions, in a very hot building with no air conditioner and no ventilation,” said Pablo Cortes, MAPEI sales representative and coordinator on the project.

MAPEI on the job

Because there was a deadline to meet and products to install, the crew from Flooring Consultants continued to work, staying hydrated and taking necessary breaks. And what did the project entail?

“They applied MAPEI products to 134,700 square feet [12 514 m²] of flooring on both floors,” Cortes said. And, although the jobsite conditions were steamy, the application process was a breeze for the experienced crew.

Given that the concrete substrate was in good condition, surface preparation consisted of shotblasting and grinding. Then, the crew primed the substrate with MAPEI’s **Primer T** low-VOC, water-based acrylic primer that is designed for use with self-leveling underlayments.

Primer T’s single-coat application allowed a faster turnaround and let the crew begin applying **Novoplan 2 Plus** high-strength

self-leveling underlayment (SLU). The SLU was followed by an application of rapid-set, high-performance, fiber-reinforced skimcoating compound **Planiprep SC**. The skimcoat was used to repair and level any remaining surface defects.

Once the floors were smooth and level, they were topped by a trowel-applied layer of **Ultrabond ECO 373** super aggressive, pressure-sensitive adhesive that is designed for the installation of a wide variety of resilient flooring types. For this project, the Sustech crew adhered homogeneous, hot-welded vinyl sheet goods on top of the **Ultrabond ECO 373**.

From the primer to the adhesive, this is a heavy-duty system that is designed to withstand the feet, rolling loads, and spills that come with shoppers. It is without doubt that many feet will step on this floor, as the people who live in the city of Bayamón will certainly pour into this IKEA store for years to come.

In the aftermath of the hurricanes, IKEA represents a return to life; it represents domesticity and home. MAPEI’s system solution will help maintain that for IKEA throughout the calm and the storms of the future.

TECHNICAL DATA

IKEA Bayamón – Bayamón, Puerto Rico

Project category: Commercial Facilities

Years of construction: 2020-2021

Years of MAPEI involvement: 2020-2021

MAPEI coordinator: Pablo Cortes

Project owner: Starton PR (IKEA Puerto Rico)

Contractor: Flooring Consultants & Contractors, Inc.

General contractor: Sustech LLC

Project manager: Agustin Malpica

Photographer: Jose Perez Cabrera

Project size: 134,700 sq. ft. (12 514 m²)

Challenges: The crew had to install flooring in a two-story building with no electricity and no ventilation. Although the job began during the winter, the heat and humidity soon rose in balmy Puerto Rico and the crew finished the project working in extreme weather conditions.

MAPEI Products

- **Novoplan® 2 Plus**
- **Planiprep® SC**
- **Primer T™**
- **Ultrabond ECO® 373**

The 2020-21 season was a rollercoaster of setbacks for the Gatineau Olympiques major junior hockey team – except for the construction of the team’s new state-of-the-art hockey arena (featuring four full-sized hockey rinks). [Note: In North America, this product line is primarily Canadian-based and, as of publication, many of the products mentioned in this article are available in Canada only.]

Project contractors Beaudoin Canada and Construction JPL, and the city of Gatineau, all knew MAPEI well from previous successful projects using MAPEI’s Cementitious & Resin Flooring Systems and Tile & Stone Installation Systems products.

“We had the answer for every need,” said Justin Lafontaine, MAPEI’s Business Development Manager for Eastern Canada. “In recent years, the city of Gatineau and MAPEI have developed a fantastic working relationship built on a number of successful construction and restoration projects, from Maison de la Culture to Fire Station #3. And so, for the Slush Puppie Centre, they had us on the spec from the start.”

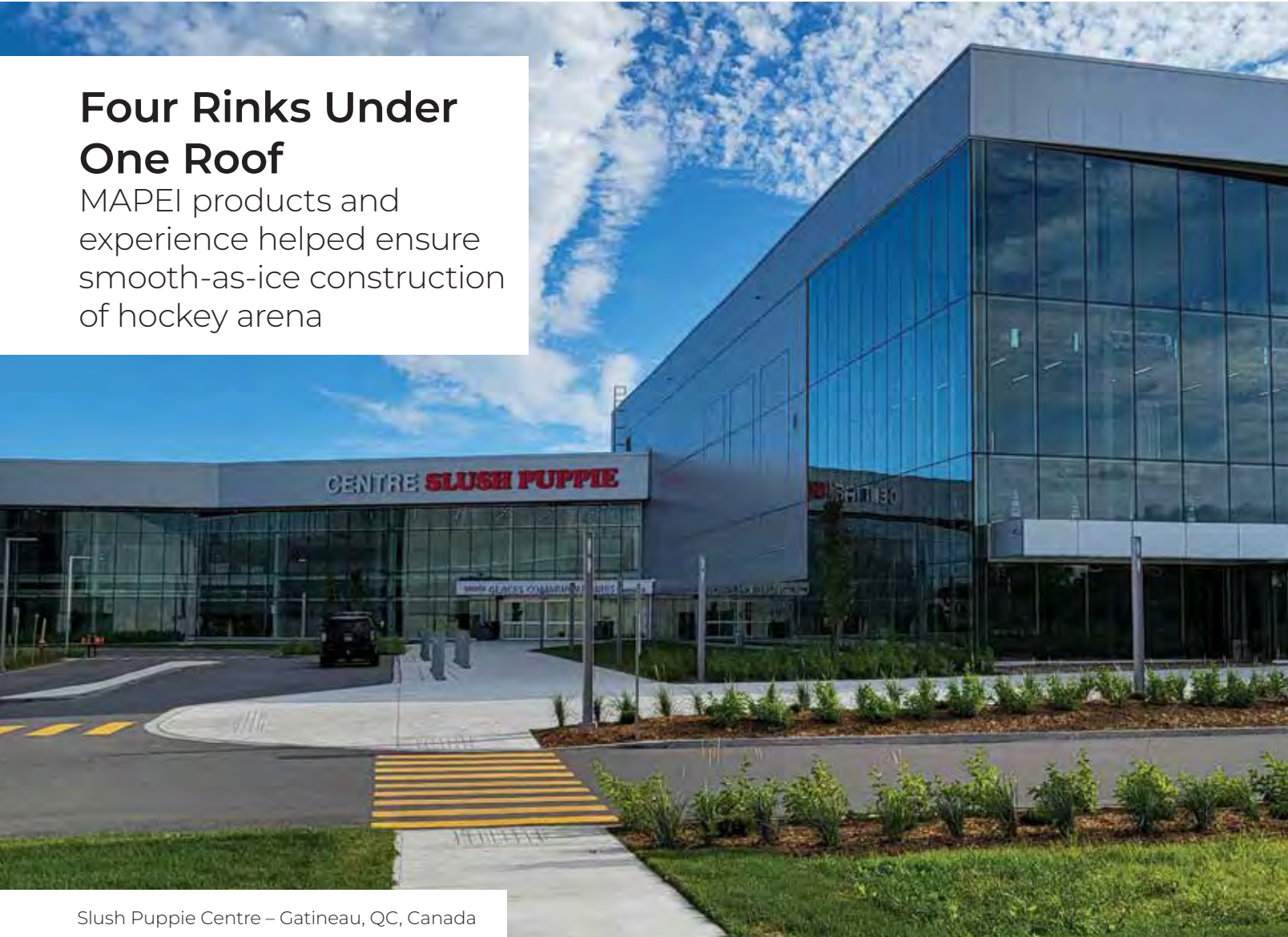
When the project was completed in September 2021, Lafontaine noted that it was “by far our largest industrial-flooring systems deployment yet in Canada.” It features **Mapefloor I 302 SL** epoxy resin with **Primer SN** and **Mapefloor CPU/RT** polyurethane/cement-based screed for 5,000 square feet (465 m²) of maintenance areas.

The 2020-21 hockey season saw the Quebec Major Junior Hockey League’s Gatineau Olympiques playing almost no games on home ice and experiencing one hiccup after another. Thankfully, the team was able to start the 2021-22 season fresh with Slush Puppie Centre, a brand-spanking-new arena with state-of-the-art amenities and training facilities – all under one roof.

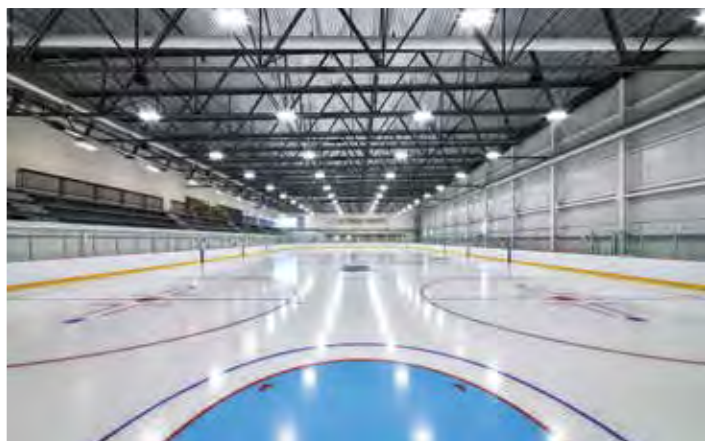
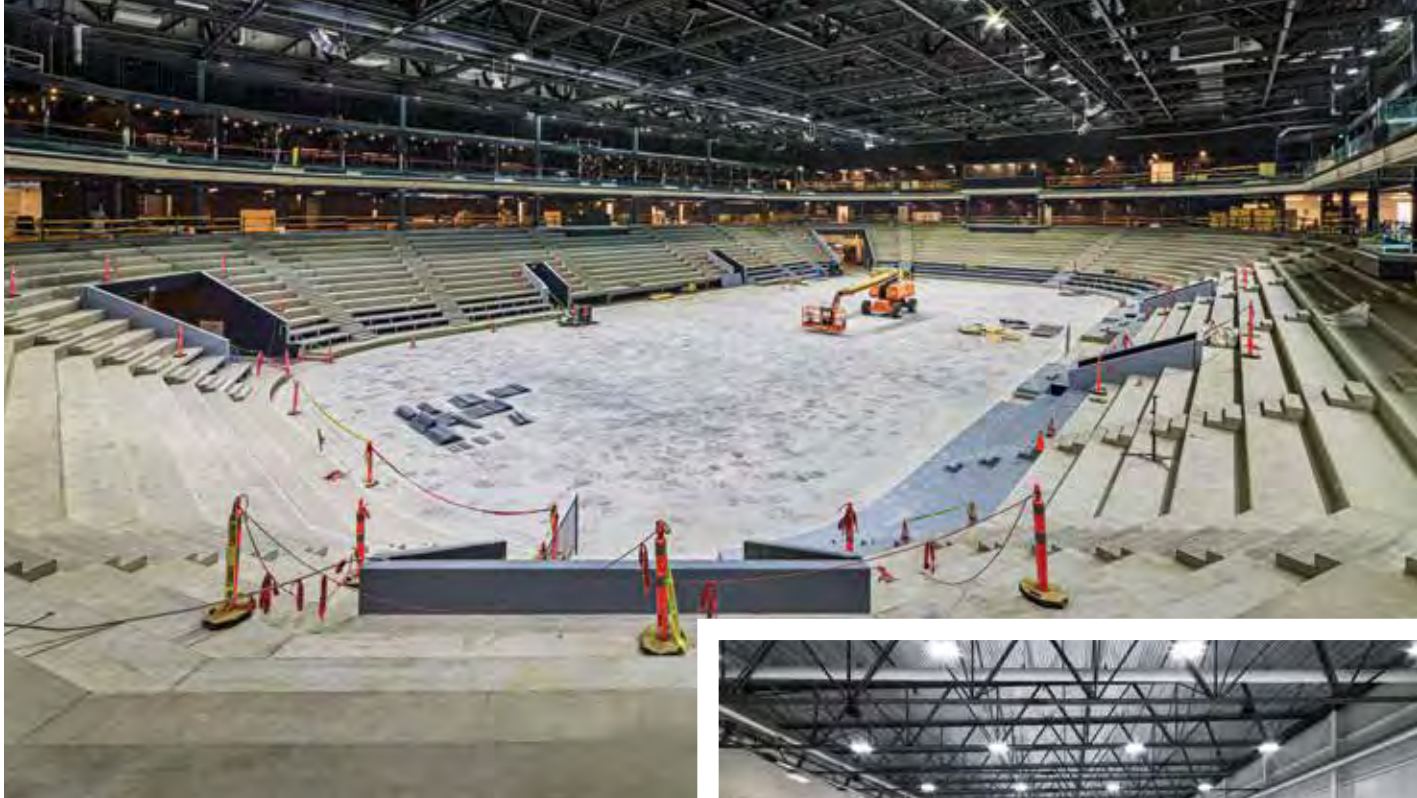
The 220,000-square-foot (20 439-m²) Slush Puppie Centre has a sizable footprint. It features four full-sized ice surfaces (three for community use, figure skating and pickup leagues; the fourth, an amphitheater with VIP booths and a 4,000-seating capacity for the Olympiques).

Four Rinks Under One Roof

MAPEI products and experience helped ensure smooth-as-ice construction of hockey arena



Slush Puppie Centre – Gatineau, QC, Canada



MAPEI on the job

MAPEI's industrial-flooring systems provide durability and a host of possibilities for decorative finishes. Visitors at the new Slush Puppie Centre's community entrance and amphitheater entrance (for the main arena) are greeted with a stylish broadcast of *Mapecoat Universal* decorative vinyl flakes. These flakes are clearly visible through the high-gloss *Mapecoat Universal* epoxy-resin seal coat and binder.

Common areas here and throughout the interior were first coated in *Primer SN* and *Mapecoat Universal* as an epoxy-resin basecoat. This basecoat boasts easy cleanability and good resistance against the abrasives and salts that are commonly tracked in by pedestrian boots in cold Canadian winters. It also provides a highly attractive, slip-resistant finish that is flat and seamless.

Surface preparation

To prepare the concrete slab beforehand, installers from Idéal Epoxy started with *Mapecem Quickpatch* concrete patch to correct imperfections. They also used *Planitop 18 ES* high-early-strength, cementitious repair mortar with a corrosion inhibitor for sloping of the floor around the foot grills in the entrances.

In addition, installers used *Planigrout 712* nonshrinking, nonmetallic, cement-based grout with a corrosion inhibitor as a protective coat for the steel-column baseplates.

Main arena and stands

The 4,000-capacity seating area for the amphitheater was built a little differently from the rest of the project, using precast concrete that was cured to a very high density compared with the concrete slabs elsewhere. This required a low-viscosity primer to promote a better bond, so installers went with *Mapecolor I 900* epoxy resin instead of the usual *Primer SN*.

Shane Edwards, MAPEI Canada's Product Line Manager for Industrial Flooring, noted a great benefit of using *Mapecolor I 302 SL*: "Our *Mapecolor I 302 SL* is high-viscosity, but it can still be easily spray-applied with no concern about clogging up the equipment. Some contractors want to dilute the product with solvents for spray application, but we don't recommend it because it can cause issues with the resiliency and color quality of the finished product."

And as the crew from *Idéal Epoxy* found out, such dilution was completely unnecessary. In this case, the crew was able to spray-apply 65,000 square feet (6 039 m²) of *Mapecolor I 302 SL* in a single day, covering the entire vertical and horizontal surfaces for the stands of the main rink.





Maintenance areas

Taking care of four arenas means that the facility sees a lot of traffic from Zambonis – the heavy machines that are used for ice-rink resurfacing, with each weighing up to 7,720 lbs. (3 502 kg) when fully loaded with water. Therefore, an even more rugged solution was needed: Enter *Mapefloor CPU/RT*, which features a high level of chemical resistance.

Together with its complementary topcoat *Mapefloor CPU/TC*, *Mapefloor CPU/RT* is formulated to cover industrial floors that are subject to heavy vehicular traffic, aggressive chemicals and thermal shock. It was a natural choice for the flooring in the facility's maintenance areas and service corridors.

One other special consideration was the amount of direct sunlight that many areas of epoxy-resin flooring would be subject to, given the floor-to-ceiling, pane-glass front walls spanning the length of the structure's main facade. Specifiers determined that an extra finishing coat would be necessary in these and other areas where heavy foot traffic was expected.

Once again, MAPEI had the answer: *Mapefloor Finish 53 W/L*, where a high-gloss finish was desired, and *Mapefloor Finish 54 W/S* for a semi-gloss finish. These transparent, protective, aliphatic, polyurethane finishing coats are formulated to help maintain the epoxy-resin flooring's high aesthetic for years to come.



Tile work, shower rooms and carpet

Installers from Jacques Lamont Ltd. worked with the Green Squared-certified **MAPEI Ultralite Mortar** – a premium, lightweight, thin-set mortar with BioBlock® technology for mold and mildew resistance – for the wall tiling in shower rooms and other wet areas. The floors in these areas were done using **Mapecoat Universal** with **Mapecolor DQ** decorative quartz and **Mapecolor Finish 53 W/L**.

Installers also used **Ultrabond ECO 811** high-performance, acrylic latex adhesive for installation of the 1,300 square yards (1 087 m²) of carpet tile in the private loges and other lounge areas. As with the majority of other MAPEI products that were used, **MAPEI Ultralite Mortar** and **Ultrabond ECO 811** are Indoor Air Quality Certified as “Indoor Advantage Gold” by SCS Global Services for their low volatile organic compound (VOC) emissions.

Meanwhile, for the Olympiques, 2021 marked 48 years since the team was inaugurated in the Quebec Major Junior Hockey League. In this league, young men ages 16 to 21 vie for the chance to get noticed by pro scouts and reach the National Hockey League someday (such as current NHLers Jean-Gabriel Pageau, Claude Giroux and Paul Byron).

As an official team sponsor, MAPEI Inc. wishes the Olympiques players much success in their new rink, which hosted their first play-off games in the spring of 2022. May the professionalism that went into the Slush Puppie Centre construction inspire the players to reach even greater heights in the future – including a second Memorial Cup banner to accompany the one that the team captured in 1997.



TECHNICAL DATA

Slush Puppie Centre – Gatineau, QC, Canada

Years of construction: 2020-2021

Years of MAPEI involvement: 2020-2021

MAPEI coordinator: Justin Lafontaine

Project owner: City of Gatineau and Vision Multisports Outaouais (VMSO)

Architect: Architecture49 Inc.

General contractor: Construction JPL

Installer companies: Idéal Epoxy (cementitious and resinous flooring); Jacques Lamont, Ltd. (tile and carpet)

MAPEI distributor: Prosol Inc.

Photographers: Christian Lalonde (Photolux) and Justin Lafontaine

Project size: 220,000 sq. ft. (20 439 m²)

Challenges: Work was carried out amidst the COVID-19 pandemic, with occasional lulls in activity during province-wide restrictions. Installation teams had to adapt to strict social distancing and masking requirements. It stood as MAPEI's largest industrial-flooring installation project in Canada at the time of its completion in 2021.

MAPEI Products

- *Mapecem® Quickpatch*
- *Mapecoat™ Universal*
- *Mapecolor™*

- *Mapecolor™ CPU/RT*
- *Mapecolor CPU/TC*
- *Mapecolor DQ*
- *Mapecolor Finish 53 W/L*
- *Mapecolor Finish 54 W/S*
- *Mapecolor I 302 SL*
- *Mapecolor I 900*
- *MAPEI Ultralite® Mortar*
- *Planigrout® 712*
- *Planitop® 18 ES*
- *Primer SN™*
- *Ultrabond ECO® 811*

85
years
1937-2022

FOR 85 YEARS
WE HAVE BEEN BUILDING A PRESENT,
DESIGNED TO HAVE A FUTURE

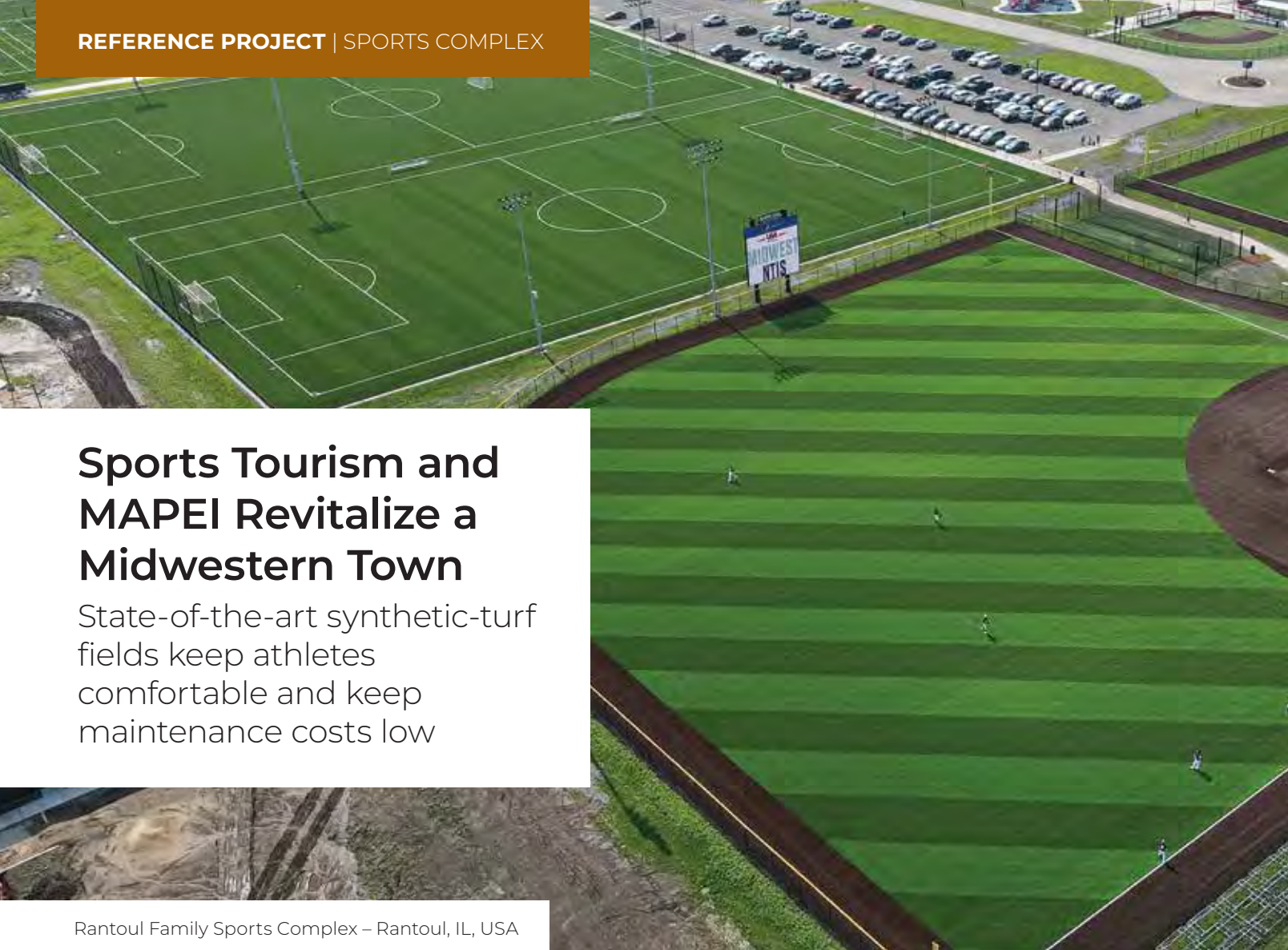
We're celebrating 85 years of teamwork, together with clients and collaborators with whom we have shared challenges, innovation, passion and respect for people and the environment. We still have so much more to build. Let's carry on doing it together.

www.mapei.com



— MAPEI USA • MAPEI Canada —





Sports Tourism and MAPEI Revitalize a Midwestern Town

State-of-the-art synthetic-turf fields keep athletes comfortable and keep maintenance costs low

Rantoul Family Sports Complex – Rantoul, IL, USA

The Village of Rantoul, Illinois, decided upon a creative means of gaining extra revenue by boosting their restaurant, retail and hospitality services while improving their city's standard of living – and having a little fun. In a bid to capitalize on “sports tourism,” city officials used a bond measure – as well as private contributions, donations, sponsorships and grants – to construct the largest multi-sports complex in the Midwest.

The Rantoul Family Sports Complex is a 1,552,267-square-foot (144 210-m²) multi-sport, synthetic-turf sports park featuring eight ballfields, one softball field, two Little League/Challenger fields, eight soccer/multipurpose fields, a splashpad and a playground. This park proudly features products from MAPEI's Products for Sports Flooring line throughout the complex.

Located at the intersection of three major interstates, the Rantoul Family Sports Complex is designed to draw people from Chicago, Indianapolis and St. Louis. None of these cities has sports fields that are equal to the caliber of those that are found at the new complex. A field is a field, right? No. Because these fields at the Rantoul complex were created using superior-quality MAPEI products.

MAPEI on the job

An official at the facility described MAPEI's products by saying, “The synthetic turf is brand-new, state-of-the-art. We use a rubber-sand combination that keeps the turf cool and comfortable to play on. It's like playing on real grass.” And the lack of maintenance costs (mowing, water, etc.) combined with comfort and safety made the use of MAPEI turf products a win/win.

MAPEI's Lee Hefner was the sales representative in charge of this project. He worked closely with the installing contractor to ensure that the MAPEI products **Ultrabond Turf PU 2K** two-component, fast-set, urethane turf seam adhesive and **Ultrabond Turf Tape** were correctly applied using **Ultrabond Turf Glue Box**.

The main challenge was the sheer size of the project – 19 fields encompassing 1,552,267 square feet (144 210 m²) of turf. And those fields were not always accessible. The job was also challenged by the fact that the jobsite itself had to close for the winter months when the fields were blanketed by snow.

The sports complex is now open – and so are surrounding restaurants, hotels and shops. The Village of Rantoul has been revitalized thanks to the concept of sports tourism and the Rantoul Family Sports Complex, which features synthetic turf that was installed courtesy of MAPEI products.



TECHNICAL DATA

Rantoul Family Sports Complex – Rantoul, IL, USA

Project category: Sports Facilities

Years of construction: 2020-2021

Years of MAPEI involvement: 2020-2021

MAPEI coordinator: Lee Hefner

Project owner: Village of Rantoul

General contractor: Byrne & Jones Construction

Installer contractor: Midwest Sport and Turf Systems (MWSTS), LLC

Project manager: Kevin Reynolds (MWSTS)

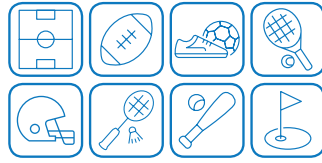
Project size: 1,552,267 square feet (144 210 m²) of turf installed

Challenges: The size of the project itself posed the main challenge – 19 fields encompassing 1,552,267 square feet (144 210 m²) of turf. Access was another challenge due to construction schedules and other trades, as well as the calendar schedule. The jobsite had

to close for the winter months when the fields were blanketed by snow.

MAPEI Products

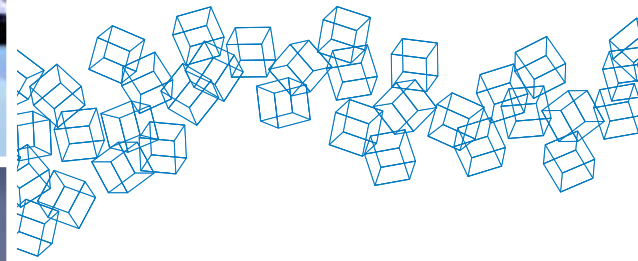
- *Ultrabond® Turf Glue Box*
- *Ultrabond Turf PU 2K*
- *Ultrabond Turf Tape*



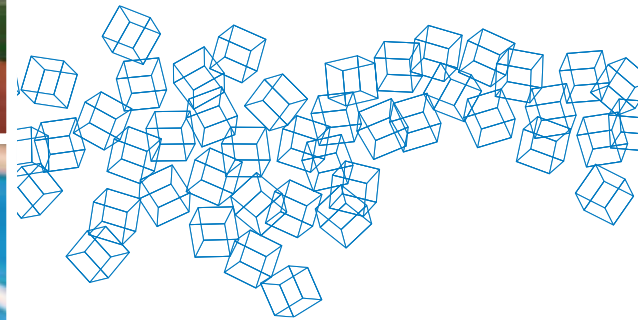
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Mapecoat™ TNS:
The quick and easy way to refresh hardcourts



1

Mapecoat TNS Base Coat Binder



Fast-set, acrylic, basecoat binder

Mapecoat TNS Base Coat Binder is a flexible, fast-set, 100%-acrylic latex compound for indoor and outdoor surfaces, used as a basecoat to prepare asphalt and pre-treated concrete surfaces before applying additional *Mapecoat TNS* products. *Mapecoat TNS Base Coat Binder* is ideal for covering small imperfections on the substrate and for promoting a strong bond. *Mapecoat TNS Base Coat Binder* is used with *Mapecoat TNS* system products to form durable and comfortable playing surfaces.

2

Mapenet™ Reinforced



Fiberglass mesh for reinforcing and strengthening Mapecoat TNS systems

Mapenet Reinforced is a thin, highly durable, flexible, fiberglass mesh used to enhance the performance of *Mapecoat TNS* systems. Embedded in the system, *Mapenet Reinforced* allows renewal of cracked, acrylic-coated, asphalt or concrete playing surfaces to be renewed without having to demolish and rebuild the substrate.

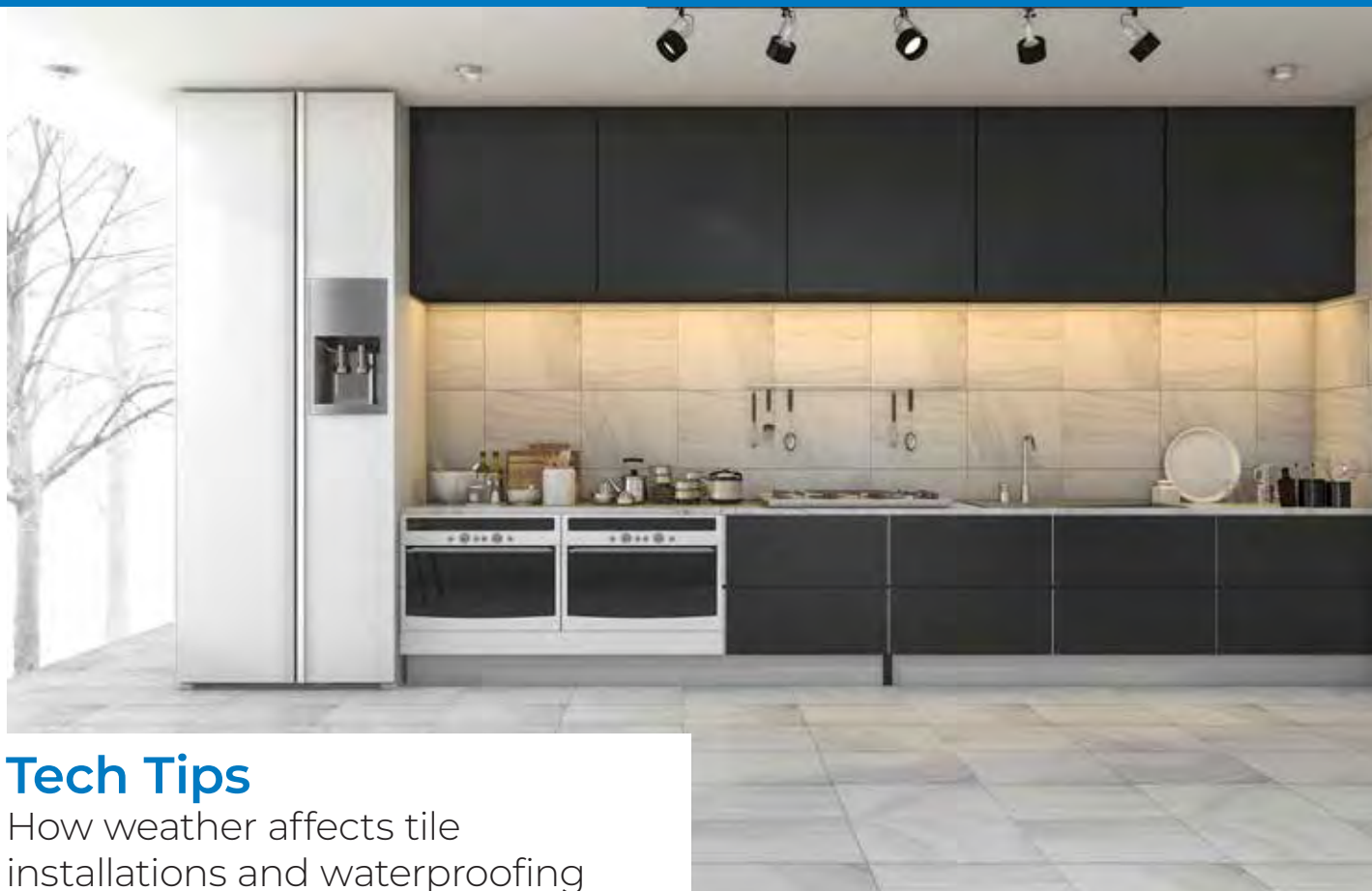
3

Mapecoat TNS Finish 3



Premium, acrylic, textured top coating certified as ITF 3

Mapecoat TNS Finish 3 is a flexible, acrylic topcoat certified by the International Tennis Federation (ITF). It is used on indoor and outdoor surfaces for tennis, pickleball and basketball courts as well as for multipurpose areas. *Mapecoat TNS Finish 3* is combined with *Mapecoat TNS* system products to form durable and comfortable playing surfaces.



Tech Tips

How weather affects tile installations and waterproofing drying time

Work on an unventilated jobsite in the middle of summer in the Caribbean, or on an equally unheated one in Detroit in mid-January, and you will soon realize that the setting materials are affected by climate. How do temperature and humidity affect setting materials, grouts, and membranes? Maybe more than you think. Read on and find out.

Cold weather and tile installation

When the weather turns cold and you have a tile project that needs to be completed, what should you be aware of? Tile installations are incredibly durable and can stand up to some of the most extreme climates and conditions, but during the installation process, you have to pay attention to the weather.

When temperatures are falling, you need to consider multiple factors. On a cooler-weather jobsite, you must consider not only the ambient temperature, but also the temperature of the substrate. Once temperatures drop below 50°F (10°C), the curing process of setting materials and grouts starts to slow down, and this slowing process becomes more dramatic as the temperature drops closer to freezing. This is true for both cementitious and reactive materials, and it is why 50°F (10°C) is the minimum recommended installation temperature, unless otherwise stated on the product's Technical Data Sheet (TDS).

If there is a possibility that the installation will be exposed to freezing temperatures after completion, make sure you check the TDS for every component of the installation system regarding the timeframe in which it can be exposed to freezing

conditions. This is very important because cementitious products contain water immediately after installation and, if that water freezes, it will expand and can weaken the strength of the installation while also preventing proper curing.

Always take extra precautions to ensure a successful installation. Be aware of the forecasted temperatures and make plans to create suitable, consistent conditions for the installation and curing of the project. This may require temporary shelter and temporary heating. Also, be certain to vent the exhaust if the heating element burns fossil fuels. So, while it is possible to install tile once temperatures begin to drop, you will need to plan to ensure success.

Drying time of Mapelastic® AquaDefense

A common question that accompanies temperature considerations is one that MAPEI Technical Services often hears concerning our waterproofing membrane *Mapelastic AquaDefense*... specifically "How long does it take to dry?"

This seems like a simple question, but the answer is not quite as straightforward as you may think. There are a couple of factors to consider with this question. Are you asking when it is dry enough to set tile over? Or are you asking when it is dry enough for a flood test? Flood-testing always requires a minimum of 12 hours' drying time prior to beginning the test.

If the membrane needs to be dry to move forward with a tile installation, that window is typically 30 to 50 minutes after applying the final coat. If that answer sounds like I am

Dry enough:

- To set tile?
- To flood-test?

This screen capture is from one of the many "Tech Tips" videos on MAPEI's YouTube channel at www.youtube.com/mapeiusa.



hedging, I suppose I am. When it is first applied, *Mapelastic AquaDefense* is essentially liquid rubber. The water that makes it liquid and, therefore, easy to apply needs to evacuate either into the substrate or into the atmosphere. This leaves behind a cohesive, continuous rubber – waterproof – sheet.

The substrate conditions and the environment around the membrane will greatly affect the drying time. Imagine a damp towel hanging on a rack with warm, dry air moving around it. This towel will dry much faster than if we took the same towel, laid it on top of another damp towel, and tossed them both into a dark, cool room.

If you are applying *AquaDefense* over dry, porous concrete or cement backer board, that first coat will typically dry fast because the substrate is pulling moisture out of the membrane, while moisture is also evaporating into the air. Our instructions call for a second coat, which will dry much differently than the first. Think about it: You have a dry, first coat of a waterproofing membrane, so now the substrate will not be able to pull moisture out of the second coat. This second coat will have to dry almost exclusively by evaporation into the air, which takes additional time.

Another common scenario is applying *AquaDefense* over green or fresh mud beds. We see this in fast-track shower installations, where a mud bed was installed the day before the crew tried to install the waterproofing. This scenario is much like the towel example. Moisture from the mud bed is still trying to evaporate and is keeping the *AquaDefense* from drying correctly.

Ambient temperature, substrate temperature, ambient humidity, substrate moisture – all these conditions are large factors in the success of your installations and should play a part in the selection of the right products for the project. Understanding how the different conditions will affect your drying time is a start. Remember, you can always call us at 1-800-992-6273 in the U.S. and Puerto Rico or 1-800-361-9309 in Canada, or visit our Website at www.mapei.com, regarding any questions.



About the author

Logan Reavis is the Manager of Technical Services at MAPEI. He is responsible for the Product Support Department, Architectural Support Department and regional field representatives. Logan grew up around floor-covering businesses and, shortly after completing his B.B.A. from the University of Texas at Arlington, began his career in the industry. He brings over 15 years of experience in floor covering after spending time in distribution and on the flooring contractor side of the business.

MAPEI's new Houston facility

MAPEI Corporation has acquired a new 200,000-square-foot (18 581-m²) facility in Houston, TX, designed for the manufacturing of powders and liquid admixtures. "When it opens in 2023, this new facility will be an immense strategic asset for us in Houston's expanding market," said Carlo Mandelli, Director of Operations for MAPEI Corporation. In addition to the powders and admixtures lines currently being installed, the facility holds the possibility for expansion in the future.

Located along the Beltway 8 corridor, this facility will create jobs for some of the fastest-growing suburbs in the Houston area – Kingwood, Humble and Atascocita. "By the year 2023, the plant will be up and running, not only producing MAPEI products but also creating approximately 80 new jobs between direct and indirect labor," said Luigi Di Geso, President and CEO of MAPEI Corporation.

"This Houston facility joins our Garland facility, expanding our Texas footprint and allowing us to serve our customers across the South, West and Central United States even more efficiently," Di Geso continued.

The facility in Houston also joins construction that is nearing the final stages at MAPEI facilities in Dalton, GA, and in Fredericksburg, VA – both of which will also be full-production facilities. Announcements regarding their openings will be forthcoming.



MAPEI honors Starnet's 30th anniversary

For 2022, Starnet Worldwide Commercial Flooring Partnership is celebrating its 30th anniversary in business. In honor of that event, and of our truly successful partnership, MAPEI Corporation commissioned from artist Cheryl Smith a unique art piece – Starnet's logo recreated as a mosaic using iridescent glass and MAPEI grouts.

Todd McDougal, MAPEI Corporation's Business Development Manager – National Accounts, and Luigi Di Geso, MAPEI's President and CEO, presented Mark Bischoff, Starnet Worldwide's President and CEO, and Eric Boender, Starnet's Vice President – Business Development, with the finished piece.

"Our partnership with Starnet has been very successful from the beginning. We wish them nothing but continued success and growth for the future," Di Geso said.



MAPEI's President and CEO, Luigi Di Geso, presents Starnet Worldwide's President and CEO, Mark Bischoff, with the specially commissioned anniversary mosaic.

MAPEI's TNS technology pays tribute to the world of cycling



A rainbow created by MAPEI now guides all visitors to the UCI World Cycling Centre (WCC), headquarters of the Union Cycliste Internationale (UCI), in Aigle, Switzerland. It also greeted the 2022 Tour de France as it passed through the city on July 10.

The new pathway that's exhibiting the rainbow stripes, the symbol of all UCI World Championships and UCI World Champions, has been built using *Mapecoat™ TNS* technology. This new stretch of rainbow is safe and comfortable to ride on thanks to its nonslip properties, and it provides a colorful and symbolic welcome to cyclists and pedestrians.

It is a fitting addition to the UCI WCC which, for the past 20 years, has been nurturing and training talented young athletes from all over the world. Its professional coaching staff and facilities focus on the five Olympic disciplines – road, track, mountain bike, BMX racing and BMX freestyle.

The project marks a new stage in MAPEI's long-standing partnership with UCI, which began nearly 15 years ago. That partnership will continue in 2023 at the inaugural UCI Cycling World Championships, to be held in Glasgow and throughout Scotland (Great Britain). This reasserts MAPEI's close ties with the world of cycling and its activities.



MTI Webinars and Online Education

Live and pre-recorded options for furthering your industry knowledge



The MAPEI Online Webinar program provides a convenient way to learn the latest industry standards and trends right from the comfort of your desktop.

These Webinars and sessions are a mix of live and recorded events, including partner events with leading industry publications and organizations. Containing the latest trade information distilled into short informative sessions, these educational seminars and discussions are ultimately designed to reduce jobsite downtime and increase productivity.

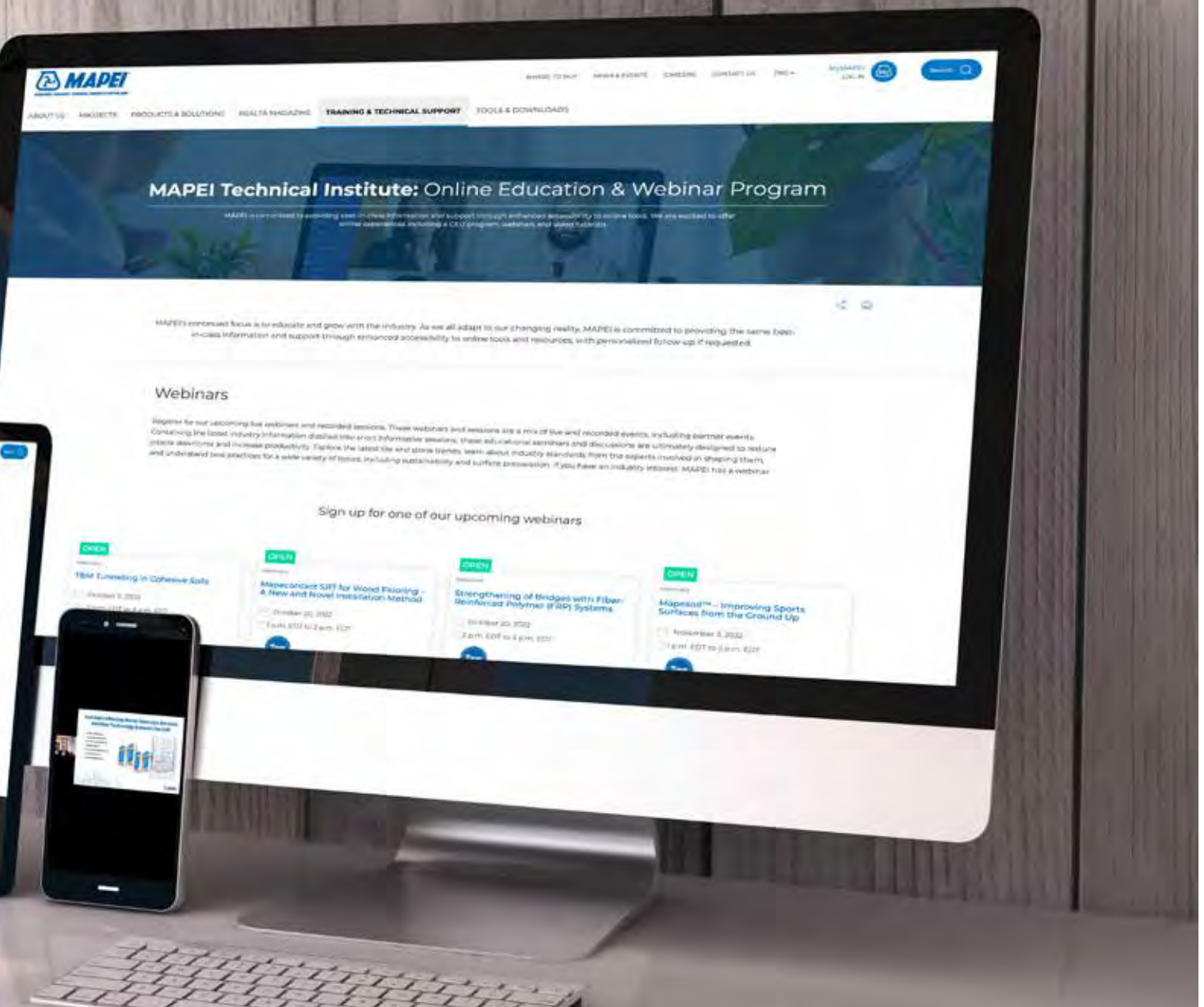
These resources allow you to explore the latest tile and stone trends, learn about industry standards from the experts involved in shaping them, and understand best practices for a wide variety of topics, including sustainability and surface preparation.

To sign up to attend a live MAPEI Online Webinar, please visit online at <https://www.mapei.com/us/en-us/training-and-technical-service/webinars> or scan here:



To watch a recorded Webinar, please visit online at <https://www.mapei.com/us/en-us/training-and-technical-service/video-library?category=webinars&searchType=2> or scan here:





CEU Program Webinars

Our Webinars dovetail with our continuing education program, with some offering continuing education units (CEUs). MAPEI's CEU program covers a variety of topics designed to support product knowledge, as well as industry standards and guidelines. We have more than 30 AIA and IDCEC courses available. These presentations have been vetted and approved by the leading industry organizations. Approved attendees will qualify for and receive CEUs. Please note: To obtain the units, attendees must listen to the live presentation.

CEU topics include:

- Tile and Stone – gauged porcelain, exteriors, surface prep, etc.
- Vinyl Flooring
- Waterproofing
- Decorative Toppings
- Corrosion Protection
- Paints and Coatings
- Moisture Management
- Sustainability

For more information on MAPEI's CEU program, please visit us online or scan here:

Register for and attend a live Webinar, and you can ask questions directly of the experts involved in the topics being discussed. Or listen to the recorded session and submit a questions via email. Either way, our experts are ready to help you increase your productivity and your bottom line.

If you have an industry interest, MAPEI has a Webinar on it.



Canada Trainings

To find out more about attending an MTI training event in Canada, scan here:



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The MAPEI Technical Institute (MTI) provides the highest-quality, basic product knowledge with online trainings (including weekly Webinars and MTI-TV Tech Tips) as well as demonstrations and socially distanced hands-on education to architects, contractors, installers and distributors in 10 locations: Deerfield Beach (FL), Fredericksburg (VA), San Bernardino (CA), Garland (TX), Dalton (GA), West Chicago (IL) and Swedesboro (NJ), all in the USA; and Laval (Quebec), Brampton (Ontario) and Delta (British Columbia), all in Canada.



Types of training events



Product Knowledge



Customer Locations



Lunch & Learn



Conferences



Deerfield Beach, FL



San Bernardino, CA



Deerfield Beach, FL

MTI training options – in person or online

MAPEI’s Technical Institute offers a variety of educational options for in-person and online learning. Don’t have time to join us at an in-person class? Learn online with one of our informative Webinars. Addressing topics from across all our product lines, these Webinars are presented by our industry-leading experts.

Want to get more hands-on? Join us at one of our in-person classroom training events. Whether held at one of our training facilities in the United States or Canada, or onsite at the location of one of our distribution partners, the classes offer a mix of practical classroom and hands-on education taught by MAPEI Technical Institute’s trainers.



U.S. Trainings

To find out more about attending an MTI training event in the USA, scan here.



Online Trainings (U.S. only)

Can't make it in person? No problem. To find out how to register for an online Webinar, scan here.



Canada Trainings

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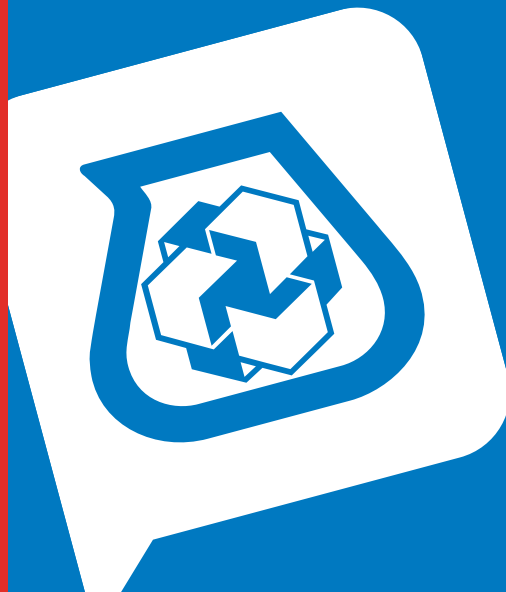
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Building a SUSTAINABLE future together



Sustainability is part of **everything** we do. **MAPEI** has always been **fundamentally committed** to sustaining the **environment** for today and tomorrow. We invest in R&D to ensure that our products are **safe, reliable, durable** and have the **lowest impact possible on human health and the environment**.

For more details, visit www.mapei.com.

