What’s Inside

Green blueprints • TCNA supports ISO 13007 • Revitalizing Le Westin Hotel • VOC compliance
Sustainability… what’s it good for?

Remember the old popular song that was sung first by Edwin Starr and then by Bruce Springsteen? “WAR! What is it good for? Absolutely nothing!” If we sang that song about sustainability, the answer would be, “Absolutely everything!”

MAPEI’s Sustainability Mission Statement says: “At MAPEI we are committed to protecting the earth, using energy and resources sustainably, minimizing waste, and developing and supplying products with user safety in mind, while being good corporate citizens. MAPEI is committed not only to manufacturing the best products for the building industry, but also to providing leadership in sustainability improvements that will be documented and reported periodically. This commitment will be good for our business, our environment and the community at large.”

That’s it in a nutshell. These words say who we are, what we do and why we do it in a sustainable manner. But why should we focus on sustainability? The rate at which the world’s natural resources are being depleted threatens the supplies of raw materials and increases costs. Sustainability calls for supporting and improving our environment while maintaining a healthy economy.

MAPEI products play an important role in many phases of the construction industry – infrastructure building, concrete repair, construction grouting, leveling, waterproofing and surface preparation, as well as adhesives, grouts and sealants for installation systems in the floor-covering market. We’re proud to say that our products are sustainable. They will last a long time, and we back their performance with warranties. Plus, they are innovatively formulated and updated continuously to reduce environmental impact in ways that can help us optimize costs for our company and our customers.

We value sustainability’s economic and environmental aspects. We also recognize that social responsibility plays an important role, and we constantly support the members of the MAPEI family, who help us build and maintain a winning team.

I hope that each and every one of you is considering the importance of sustainability in your business. I would just like to leave you with these words from Native American leader Chief Seattle that have greatly influenced me personally:

“We do not inherit the earth from our parents; we borrow it from our children.”

Sincerely,

Luigi Di Geso,
President and CEO,
MAPEI Americas
features

2 INSIDE SCOOP
TCNA 2011 Handbook contains ISO 13007 standards
Performance-based standards enhance installations

8 TOP STORY
Walking the talk
MAPEI keeps taking huge strides toward sustainability

16 SPECIAL FEATURE
Green blueprints: the new norm
MAPEI’s ongoing commitment toward sustainable solutions

technical departments

22 ANSWERS FROM THE EXPERTS
Reporting “actual VOCs” vs. “zero calculated VOCs”

26 PROJECT CHALLENGE
Revitalizing Montreal’s luxurious Le Westin Hotel
Multiple MAPEI products help renovate centuries-old buildings

PRODUCT SPOTLIGHT
29 Ultraplan® M20 Plus
33 Mapecuard™ 2

30 TECHNICALLY SPEAKING
• Installing porcelain tile on a suspended concrete slab
• Installing tile in a wet environment exposed to extreme temperatures

32 SINGLE-SOURCE SYSTEM
Installation of tile over suspended concrete slab

34 TECHNICAL DO’S AND DON’T’S
New high-performance membranes are a breeze to install

extras

21 MAPEI AROUND THE WORLD
• Selfridges Department Store
• Shoppi Center
• Attica Department Store

36 BUSINESS NEWS

39 MAPEI TECHNICAL INSTITUTE

40 PROJECTS IN THE WORKS

ON THE COVER
MAPEI keeps taking huge strides toward sustainability
In today’s advanced and often complex tile and stone installations, ISO 13007 test methods help provide added value by identifying and establishing mandatory performance characteristics for tile and stone adhesives and grouts. Given that the performance characteristics of mortars and grouts have significantly evolved in recent decades, ISO 13007 standards serve to classify these characteristics, which are critical for choosing the right product for the right application. When there is a clear distinction in performance amongst adhesives and grouts, everyone benefits.

Why enhance performance standards?

All industry standards need to be updated and expanded to incorporate progressions in product design and installation methods. Setting impervious porcelain, slate and glass tile with low water absorption; large-format wall and floor tile; and 1/8” to 9/32” (3 mm to 7 mm) thin, lightweight tile that measures several feet in length and width – all of these installation challenges require advanced adhesive formulations. Grout performance requirements also continue to evolve toward high-performance products that resist cracking and abrasion, while being easy to install and maintain. As tile and stone products continue to innovate, test methods for ensuring installation success must evolve as well.

Real-world application

With the adoption of the ISO 13007 classifications and the ensuing implementation of architectural specifications, product performance will be more clearly defined. Correct mortars and grouts, based on expected building design and usage, can no longer be easily substituted. Take, for example, a high-rise façade application located near an airport that is exposed to extreme temperatures and vibration. Such an application would require mortar performance capabilities that include a higher than normal level of bond strength and deformability, and grout performance capabilities that include improved water absorption and, possibly, improved abrasion resistance. Using ISO 13007 classifications, mortars and grouts that are designed and performance-tested to withstand such conditions are clearly distinguished from those that do not exhibit such capabilities.
Per the ISO 13007 performance standards, MAPEI’s Kerabond/Keralastic™ premium flexible tile mortar system (C2ES2P2) offers the best mortar solution, because the application requires a cementitious adhesive capable of achieving high bond strength ("C2") while deforming enough to accommodate thermal expansion and contraction ("S2"). Like the C2 designation for cementitious adhesives over concrete substrates, the P2 designation ensures improved bond over a plywood substrate. MAPEI’s Ultracolor® Plus efflorescence-free sanded grout (CG2WAF) is designed with improved performance capabilities ("CG2"), which allows it to withstand ongoing exposure to movement. Formulated with high abrasion resistance ("A") and reduced water absorption ("W"), Ultracolor Plus offers required protection against rain, hail and wind.
Every two years, TCNA publishes an updated handbook for ceramic tile installation, which is designed to provide specification writers, architects, contractors and installers with industry-consensus, detailed technical drawings and installation specifications for more than 100 installation methods. The specifications for each method include recommended uses, limitations, requirements, materials, preparation by other trades, movement joints and installation standards.

In 2011, the TCNA is broadening its scope by producing the TCNA Handbook for Ceramic, Glass and Natural Stone Tile Installations. In addition to referencing ANSI (American National Standards Institute) and ASTM (American Society for Testing and Materials) test methods, this year the handbook will also reference the ISO 13007 standards for classifying mortars and grouts.

The TCNA Grout/Mortar Subcommittee has determined minimum performance required for each of its handbook installation methods, and lists both ANSI and ISO 13007 specifications for each method. For example, tile installation methods F113 (on-ground) and F113A (above-ground) are listed as follows:

- Method F113 pertains only to slab-on-ground construction.
  - A mortar meeting ANSI A118.1 or ISO C1 may be used.
- Method F113A pertains to above-ground slabs.
  - A mortar meeting ANSI A118.4 or ISO C251 must be used.

Both specifications are listed because different properties are measured by ANSI and ISO 13007, and because different tests are used to measure those properties.

The 2011 handbook includes an explanatory section on ISO 13007, which gives a key to ISO 13007 nomenclature and describes testing/performance requirements for mortars and grouts to meet the designated classifications. Because an adhesive or grout must meet specific performance criteria before being accredited with a classification code, MAPEI feels that ISO 13007 removes the guesswork when it comes to specifying the right products for specific installations. The construction industry now has easy-to-use, easy-to-understand guidelines that optimize communication, decision-making and installation success from beginning to end.
How ISO 13007 benefits construction professionals

In general, understanding the important details behind ISO 13007’s letters and numbers will significantly help contractors, installers, distributors, architects and specifiers better understand which of today’s mortars and grouts would perform best in a specific tile and stone installation – based entirely on the adhesive’s performance characteristics in a real-world setting. Ultimately, performance-based, measurable standards allow for a level playing field across the entire industry:

• Because product performance outcomes are clear, measurable and specific, architects can quickly identify and specify the adhesive or grout that would perform best in a specific tile and stone application. This streamlines the process of writing specifications and simplifies subcontractor submittal comparisons.

• Contractors can bid on projects equitably according to adhesive performance and install products that are tested to perform long-term. This significantly reduces the risk of inferior substitutions that lead to installation failures and associated callbacks.

• With product classifications distinctly marked on packaging, installers can accurately make well-informed decisions about using the right products for a particular installation, along with enjoying the benefits of a faster, easier installation the first time around.

• Distributors can be confident that they are selling products that meet the level of performance required for their customers’ applications.

Committed to exceeding customer satisfaction with exceptionally performing products and systems, MAPEI has been a strong North American proponent of the ISO 13007 test methods and standards. Over the past several years, MAPEI’s sizeable investments in sophisticated laboratory equipment and personnel training on ISO 13007 testing methodologies have paid off. All MAPEI tile and stone adhesives and grouts that have been tested against ISO 13007 standards meet the prescribed performance levels, with accredited classification codes displayed on their packaging and technical data sheets. Customers can be assured that MAPEI has made every effort to support easy-to-use, easy-to-understand global performance guidelines that serve to optimize installation success from start to finish.

Who makes up the ISO 13007 committee?

The International Organization for Standardization (ISO) is composed of members from national standards bodies involving more than 160 countries. The ISO 13007 committee worked for several years to produce a detailed set of performance tests that could be reliably repeated to obtain standards against which commercial adhesives and grouts could be measured. The United States’ American National Standards Institute (ANSI) and Canada’s Standards Council of Canada (SCC), both voting members of ISO, participated in the formation of these new global standards.

about the author

Dr. Neil McMurdie

Neil oversees the development of innovative new technologies and products for MAPEI Americas. After completing his B.S. in Chemistry as a Presidential Scholar at the University of Texas, Neil gained his Ph.D. in Chemistry from Yale University. He has 17 years’ experience in chemical research and is a member of the American Chemical Society, the Materials and Methods Standards Association, the American Concrete Institute, the Adhesives & Sealants Council and the Ceramic Tile Distributors Association. He received the U.S. EPA Presidential Green Chemistry Challenge Award in 2001, and he is a holder of nine U.S. patents.
After thorough consideration of North American, British and European ceramic tile adhesive standards, ISO (International Organization for Standardization) reached a consensus about new product standards. Under the ISO 13007 standards, an adhesive or grout must pass certain minimum performance tests before being accredited with a performance classification.

In North America, construction-related organizations and associations continue to see the need for ISO 13007 standards that clearly and specifically identify product performance levels so that the right product is always correctly specified for the right job.

- Product classifications are expressed alphanumerically, using simple letters and numbers.
- Letters describe the chemical nature of the adhesives (such as cement-based, mastic, epoxy, or reactive resin) along with special characteristics (such as fast-setting, slip-resistant or deformable).
- Numbers indicate whether the product performance is “normal” (such as normal bond strength, for light to medium traffic use) or “improved” (such as higher bond strength, for high traffic use).

### Adhesives

<table>
<thead>
<tr>
<th>TYPES</th>
<th>CLASSES</th>
<th>SPECIAL CHARACTERISTICS</th>
</tr>
</thead>
</table>
| C = Cementitious (Thin-set mortars) | 1 = Normal 2 = Improved | F = Fast-setting  
|       |         | T = Slip-resistant  
|       |         | E = Extended open time  
|       |         | S1 = Deformable  
|       |         | S2 = Highly deformable  
|       |         | P1 = Plywood adhesion  
|       |         | P2 = Improved plywood adhesion |
| D = Dispersion (Mastics) | 1 = Normal 2 = Improved | F = Fast-drying  
|       |         | T = Slip-resistant  
|       |         | E = Extended open time |
| R = Reaction resin (Epoxies) | 1 = Normal 2 = Improved | T = Slip-resistant |

### Grouts

<table>
<thead>
<tr>
<th>TYPES</th>
<th>CLASSES</th>
<th>SPECIAL CHARACTERISTICS</th>
</tr>
</thead>
</table>
| CG = Cementitious grouts | 1 = Normal 2 = Improved | W = Reduced water absorption  
|       |         | A = High abrasion resistance  
|       |         | F = Fast-setting |
| RG = Reaction resin grouts | - | Higher performance characteristics than improved cementitious grouts |
MAPEI’s improved mastics
When you want your tiles to sit and stay

Improved sag resistance, increased ridge hold, low VOCs, minimized odor and ease of trowelability are just a few of the enhancements that have been made to the MAPEI mastics line. A leader in the industry for LEED project certification, MAPEI continues to innovate not only for performance but also for improved indoor air quality and standards.

Go green, go innovative, go MAPEI!
In recognition that a healthy economy is vital to sustainability, business practices are no longer just about increasing the economic bottom line. Instead, a sustainable business is focused on the “triple bottom line” that, as with a three-legged stool, is supported equally by three vital aspects for balance and stability:

1) **Concern for the environment**: Responsible businesses are no longer turning a blind eye to the effects of human activity on world resources. By all accounts, the rate of depletion of natural resources threatens supply, driving up demand and the ensuing costs.

2) **Social well-being** that maintains quality of life for employees, customers and the world at large: Ignoring the social aspects of business only serves to increase business expenses further. The negative impact of poor working conditions for employees is well-documented.

3) **Economic viability**: A combination of unsatisfactory working conditions and miserable employees leads to increased workplace accidents, more absenteeism and sick days, resulting in decreased productivity and product quality. Business owners suffer increased healthcare costs, increased liability and negative reputation in the marketplace, which leads to depressed sales and profitability and runs counter to a healthy triple bottom line.

**MAPEI keeps taking huge strides toward sustainability**
A smarter way of doing business

A variety of factors has proven successful in pushing sustainable business practices to the forefront. Old, single bottom line, shareholder-driven business philosophies have become antiquated, thanks to the positive influence of sustainability-minded businesses, peer pressure from competing companies, demand from investors for a triple bottom line business approach, and employees and customers voicing desire for sustainable business practices, as well as environmentally focused regulations and green building code requirements. Today’s broadminded, responsible and profitable employer sees with both eyes and listens with both ears – to employees, customers and competing corporations. More and more, consumers are drawn toward companies that display ethical, social and environmental consciousness. Products that are well-made, safe for use and manufactured with minimal negative environmental and social impact are now preferred.

A welcome change in sustainable attitudes

With ongoing pressure from a variety of sustainably minded individuals and organizations, yesterday’s attitude of “use and dispose” is rapidly transitioning to one with a sustainable core. Popular messages of sustainability – such as doing no harm or less harm, restoring what is damaged, recycling whenever possible and making environmentally based efforts economically feasible – are being translated into action. New viewpoints are not only refreshing, but offer much hope for a more sustainable future.

<table>
<thead>
<tr>
<th>Old viewpoint</th>
<th>New viewpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on shareholders/ profit only.</td>
<td>Focus on shareholders, the environment and society.</td>
</tr>
<tr>
<td>We can afford it even if we are wasting resources.</td>
<td>Waste is expensive, and we can’t afford to rob the next generation.</td>
</tr>
<tr>
<td>Social and environmental issues are expensive.</td>
<td>Negative social impact is expensive. The key to long-term financial success and growth is the triple bottom line approach.</td>
</tr>
<tr>
<td>Customers just want low prices.</td>
<td>Today’s customers want good value, quality and responsibly produced products.</td>
</tr>
<tr>
<td>Products are disposable.</td>
<td>Products should be recycled or reused to mimic nature.</td>
</tr>
</tbody>
</table>
Environmental sustainability: Exceeding operational excellence

Leading by example has been a deep-rooted philosophy for MAPEI. Always striving to be an exceptional green building role model for the manufacturing and construction industries, MAPEI works hard to stay ahead of its environmentally conscious vision. Sustainable initiatives are comprehensive, affecting all MAPEI facilities, products, processes and people. With a clear understanding that clean air and water can no longer be taken for granted, that the world’s natural resources are limited and that excessive waste has to stop, MAPEI is taking clear steps toward facing today’s critical environmental challenges.

MAPEI has committed to implementing a formal environmental management system (EMS) according to ISO 14001. To this end, it has developed an environmental policy and timetable for the implementation of the EMS at all of its facilities in North America.

An important part of implementing an EMS is the identification of environmental aspects, which include elements of the organization’s activities, products or services that impact the environment. One example is the creation of dust emissions from the use of powdered raw materials during the manufacturing of construction products. The ISO 14001 EMS helps to minimize the negative impact of a company’s operations on the environment, which ultimately helps companies operate in an environmentally sustainable manner. In a nutshell, ISO 14001 EMS supports sustainability through environmental improvements.

MAPEI is committed to having all of its manufacturing plants in the Americas certified according to ISO 14001 by 2013. In fact, the plant in Laval, Quebec received its certification in 2009 while the Fort Lauderdale (Florida) and Delta (British Columbia) plants are scheduled to receive certification in 2011.

From implementing a facility-wide waste recycling program to seeking LEED certification for new plants and plant expansions, significant efforts are in place to help improve the planet. Using a collaborative leadership approach, MAPEI invites its employees, customers and fellow corporations to be agents of positive change, steering away from a disposable philosophy to one that supports a healthy and sustainable future that generations can enjoy.

Sustainability: MAPEI’s Mission Statement

At MAPEI, we are committed to protecting the earth, using energy and resources sustainably, minimizing waste and developing and supplying products with user-safety in mind, while being good corporate citizens. MAPEI is committed not only to manufacturing the best products for the building industry, but also to providing leadership in sustainability improvements that will be documented and reported periodically. This commitment is good for business, the environment and community at large.
Social sustainability: Improving quality of life

While social sustainability encompasses human rights, labor rights and corporate governance, it includes ethical business practices, incorporates respect for diversity, and provides a safe and healthy work environment that employees look forward to working in. Recognizing that employees are a company’s greatest asset, socially sustainable businesses offer employees comprehensive training and career development opportunities such as workshops, seminars and paid education reimbursements, in order to continually learn and expand on existing skills. No matter the state of the economy, conducting business with uncompromising honesty and integrity helps sustain customer relationships and increase business opportunities over the long term.

‘Giving back’ one step at a time

Social sustainability and corporate citizenship reach new heights when companies take the extra step of investing in local, national and international communities. MAPEI employees are encouraged and applauded for volunteering time, donating resources and offering professional expertise (pro bono) to enhance the lives of others and help contribute to a more socially sustainable world.

Just a few of MAPEI’s most recent individual employee and corporate contributions include:

- Partnership with American Forests’ Global ReLeaf program (leader in global forest protection and reforestation)
- Rebuilding of the Gulf Coast following Hurricane Katrina with Tile Partners for Humanity
- Donations to Haitian earthquake victims
- Participation in Red Cross drives
- Thanksgiving holiday meal donations
- Numerous sports sponsorships
- Hospital charity contributions
- Fund-raising for diabetes research
Economic sustainability: Vital to financial growth

Key to achieving corporate financial sustainability are reducing waste and maximizing customer goodwill. Given that labor costs are a huge corporate expense, responsible employment practices that focus on basic human rights and retention of good employees benefit greatly from social and financial sustainability. MAPEI works hard to establish itself as an employer of choice, making every effort to attract and retain talented people. With minimal operational interruptions and fewer expenses associated with replacing and training new employees, profitability increases.

Actions that have a positive environmental and social impact also make a positive financial contribution. Some of MAPEI's most impactful social and environmentally based initiatives include:

- Implementation of new packaging machines that use plastic packaging. Along with being recyclable, plastic packaging helps to decrease costs associated with product leakage and waste.
- Improvements in shipping and logistics, which have helped to keep transportation-related costs and carbon footprint under control.
- Improvements in cycle time, which have allowed for more efficient manufacturing.

- Investing in new research and development laboratories. Advanced facilities promote consistent product quality, reduce product-related claims and help build/maintain a solid industry reputation.
- Implementing systems to reduce trash and recycle waste in all facilities.
- Implementing a facility-wide standard that calls for printing on both sides of pages.
- Implementing new energy-efficient lighting systems in all facilities that have resulted in more pleasant work environments while reducing energy consumption.
- Encouragement of less travel and more conference calling.
- Powering down of computers that are not in use.

Being sustainable is good for business!

<table>
<thead>
<tr>
<th>Performance measures</th>
<th>Top 20%</th>
<th>Bottom 30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon footprint</td>
<td>-9%</td>
<td>+5%</td>
</tr>
<tr>
<td>Energy cost</td>
<td>-6%</td>
<td>+18%</td>
</tr>
<tr>
<td>Operating cost</td>
<td>-7%</td>
<td>+18%</td>
</tr>
<tr>
<td>Paper cost</td>
<td>-10%</td>
<td>+12%</td>
</tr>
<tr>
<td>Transportation cost</td>
<td>-7%</td>
<td>+19%</td>
</tr>
<tr>
<td>Customer retention</td>
<td>+16%</td>
<td>+4%</td>
</tr>
</tbody>
</table>

[Taken from Aberdeen Market Research Study, May 2009]
Innovation in R&D is advancing environmental sustainability

With a global shift toward environmental consciousness and a “do less harm” approach toward living, researchers have been challenged to think more innovatively when it comes to product development. No longer can product formulations contain raw materials that may negatively impact people or the environment. For several decades, MAPEI has kept environmental stewardship at the forefront of product developments and has demonstrated responsible leadership in how hazards are disclosed. Going forward, considerable efforts continue to be made in order to reduce or eliminate any potential for environmental or human health hazards.

Here are a few recent sustainable developments from MAPEI’s R&D labs:

- The wood urethane family of products is completely phthalate-free. New adhesive formulations utilize bio-based (non-petroleum), rapidly renewable resources.
- Mastic formulations have been modified to exceed VOC compliance requirement.
- The total VOC content of flooring adhesives has been reduced.

In the end, corporate sustainability is a business approach that creates long-term company value by embracing opportunities and managing risks from all three aspects – economic, environmental and social. Consistently serving as a role model for sustainable leadership is vital to achieving a culture that supports and furthers sustainable action. As Mahatma Gandhi once said, “Be the change you wish to see in the world.” MAPEI invites you to become a positive agent of change by taking whatever steps you can toward creating a healthier, sustainable tomorrow.

Customer demands: How sustainable is your business?

Despite a challenging national and global economy, more and more customers are demanding that manufacturers operate with the highest standards regarding social and environmental business practices, while producing high-quality, ecological products. Great questions to ask your suppliers include the following:

- Does your company have a formal environmental policy and management system?
- Does your company have an active recycling program?
- Does your company have an active workplace safety program?
- Does your company have a supplier sustainability evaluation program?
- Is your company involved in any community development activities?
- Describe your ability to offer environmentally friendly products.

[Taken from Shaw Customer Questionnaire, 2009]

about the author

Dr. Ephraim Senbeta

Ephraim is currently responsible for Sustainability and Quality Management for MAPEI’s North American operations. As a LEED AP, Ephraim is MAPEI’s representative to the U.S. Green Building Council (USGBC) and drives MAPEI’s efforts related to green building initiatives. He received his B.S., M.S. and Ph.D. degrees in civil engineering from Purdue University, and is a registered professional engineer. Ephraim is a member of the sustainability committees of the American Concrete Institute (ACI), ASTM and Tile Council of North America (TCNA).
An industry leader in sustainable product development since the 1980s, MAPEI has been a strong supporter and promoter of the LEED certification program since its inception. LEED is the recognized standard for designing and constructing “green” buildings, and an excellent way for MAPEI to demonstrate strong environmental and social commitment. The LEED green building rating system is designed to promote design and construction practices and reduce the negative environmental impacts of buildings, while improving occupant health and well-being.

Designed by architect Raffaele Greco, the MAPEI Warehouse Expansion adds 46,123 sq. ft. (4,285 m²) of floor area to the eight-year-old existing warehouse facility, located in Delta, British Columbia (Canada). The project includes new administration and shipping offices, a quality control laboratory and new amenity areas for facility staff. A new branch of the MAPEI Technical Institute (MTI) was added in order to provide ongoing professional technical training opportunities for MAPEI’s West Coast customers.
“The MAPEI Delta plant demonstrates that industrial warehouses need not be dark, enclosed boxes. One of this project’s greatest achievements is the incorporation of natural daylight into the warehouse through the use of skylights and large windows.”

– Bjorn Richt, Green Building Consultant, Recollective

Sustainable sites: Some points were met by providing alternative transportation choices such as designated carpool parking, electric/hybrid car charging availability and bicycle racks. Showers and changing facilities were also provided. Additional points were met by reducing urban heat island or heat haze effects. Strategies included paving the roads and parking areas with water permeable pavers and light-colored concrete (instead of asphalt), as well as installing a white thermoplastic olefin (TPO) roofing membrane that reflects thermal energy away from the surface. This helps reduce energy and costs associated with cooling during hot summer months.

Water efficiency: Potable (drinking) water usage was reduced by capturing rainwater from the warehouse roof into an underground cistern. Captured water supports landscape irrigation and is also run through a series of pumps and filters for use in the building’s plumbing system. Throughout the building, toilets and urinals are flushed using the filtered water, which radically reduces the annual volume of potable water used in toilets. Installation of low-flow plumbing fixtures and dual flush toilets also helped contribute to water efficiency goals.

Energy and atmosphere: Because hydrochlorofluorocarbon (CFC) refrigerants contribute to ozone depletion, they are banned in both Canada and the United States. Enhanced energy performance and significant potential energy savings were achieved through insulation of exposed walls and floors, increased gas-fired boiler efficiency, and reduced lighting power consumption through use of daylight sensors and occupancy sensors.

Materials and resources: Some points were earned by diverting the majority of onsite construction waste from a landfill to a local waste recycling firm. About 30% of material cost savings were achieved by constructing the warehouse with regionally produced materials that included recycled components (such as fly ash in concrete and recycled steel in structural steel and reinforcing steel bars). Additional points were earned by implementing in-house waste reduction initiatives: During operations, recycling bins located throughout the facility are used for collection of glass, cans, paper and cardboard materials.

Indoor environmental quality: To protect construction workers and future building occupants, the contractor implemented an indoor air quality (IAQ) plan. Use of low-VOC materials, including MAPEI’s eco-friendly adhesives and sealants along with best management practices that reduce the impact of construction activities on IAQ, were implemented. Installation of environmentally friendly paints, coatings, carpets and cabinetry all helped to optimize indoor environmental quality. The new warehouse building design optimized use of natural light by allowing for multiple large windows and skylights, which created a refreshing and striking contrast to traditional warehouse design.

Innovation and design process: Innovation credits are intended to capture unique sustainability strategies or to award points for exceptional performance in other credits. For MAPEI, exemplary performance credits have been applied for material recycled content, regional material use and reduction in potable water use. Finally, adding a LEED Accredited Professional to the project team helped positively contribute to innovation credits.

All documentation required for LEED certification of MAPEI’s Delta plant expansion has been submitted to the Canadian Green Building Council (CaGBC). It is expected that final review and certification will occur in 2011.
Green blueprints: the new norm

MAPEI’s ongoing commitment toward sustainable solutions

In the balancing act between the welfare of building occupants and the concerns of building owners, “green architecture” serves to bridge the gap between tomorrow’s sustainable design expectations and today’s budget realities. Throughout North America, green building projects are on the rise – with sizable municipal projects like hospitals, universities and sports facilities leading the way. Opting for an efficient building design that reduces demands on natural resources has proven to result in long-term savings. A desire for healthier, more efficient buildings is the driving force behind new building design, innovations in construction products and installation methods.

Green building is finding a welcome home in many communities as sustainable building practices prove their worth. To that end, MAPEI continues to make every effort to helping preserve the environment – while helping customers stay on budget.
SUSTAINABLE PHILOSOPHY – PAST, PRESENT AND FUTURE

MAPEI has demonstrated a long-standing commitment to “green architecture” for building projects. Yet thinking sustainably also extends to its facilities, products and processes. For decades, the company has implemented cost-effective strategies that minimize waste, maximize use of recycled materials and lower VOCs (volatile organic compounds).

Location, location, location: Thanks to strategically positioned MAPEI plants throughout the Americas, projects that utilize MAPEI products can more easily qualify for LEED’s MR Credit 5 for regional produced products within 500 miles. Less mileage in transporting products translates into reduced shipping and gasoline costs, along with lower carbon emissions. And while plans are to design MAPEI’s new manufacturing plants to LEED standards, long-term efficiency goals at its existing plants will continue to focus on lowering operation-based energy consumption.

Reduce, reuse, recycle: MAPEI is committed to increasing the use of recycled materials in its products. In fact, Ultralite Mortar™ premium lightweight tile mortar contains 30% recycled content.

Participation in sustainable associations: For almost a decade, MAPEI has been a member of the U.S. Green Building Council (USGBC), which focuses on sustainable building processes as well as environmental and internal air-quality issues. As a committed member, MAPEI has helped transform the construction industry by developing products and resources that support the adoption of sustainable building practices.

To further support sustainable construction efforts, some MAPEI employees have either received or are seeking accreditation as LEED APs (Accredited Professionals). More LEED Green Associates are planned for MAPEI’s technical team, in a continuing effort to efficiently respond to LEED-related customer requests and to provide expert advice on how MAPEI’s LEED-compliant products fit within a specific project’s requirements.
Empowering continuing education: MAPEI’s Technical Institute (MTI) offers high-quality, hands-on technical training at minimal cost to architects, contractors, installers and distributors throughout the Americas. In keeping with MAPEI’s commitment to green building strategies, technical consultants emphasize the use of LEED-compliant products and systems for all product lines.

Proactive architectural team: To help support architects and specifiers, MAPEI’s architectural team stays on the cutting edge of green blueprints, ensuring that all specifications and CAD details are written with sustainable practices and include LEED-compliant products. In addition to offering a comprehensive website, MAPEI supports the architectural community by integrating its products directly into ARCAT’s latest Building Information Modeling (BIM) systems. Educational programs offered by MAPEI’s technical experts to the American Institute of Architects (AIA) include presentations on LEED in addition to sustainable construction products and practices.

Merging Green Design with Building Information Modeling (BIM)

According to an August 2010 report published by McGraw-Hill Construction, 13 industry organizations – including the USGBC and Autodesk – see significant advantages in the partnership of two leading construction industry disciplines: green building and BIM, or “Green BIM.” BIM has the potential to optimize design and construction efficiency. Coupled with sustainable design and green building practices, BIM’s potential to positively impact the construction industry is just around the corner. As green building becomes the construction norm, the benefits provided by BIM will become more widely recognized with the marriage of these two disciplines, thus leading to a truly integrated and sustainable design. For more information on BIM, please see the “Inside Scoop” column in Issue #12 of Realtá MAPEI Americas magazine.
Innovations in ‘sustainable chemistry’

The primary focus of MAPEI’s Research and Development (R&D) team – which comprises 10 worldwide laboratories – is formulating cost-effective, ecologically sustainable solutions that maximize environmental and indoor air quality, as well as minimize VOC content. At least 5% percent of MAPEI’s annual revenue is invested back into R&D, and 70% of its efforts support LEED-compatible product formulations. Currently, more than 110 MAPEI products are LEED-compatible, the largest selection in the construction industry.

BioBlock™ technology: For more than a decade, MAPEI has taken steps toward improving indoor air quality through the development of BioBlock. This technology has been added to select adhesives, grouts, caulks and waterproofing products to help protect them from mold and mildew.

Long-standing Ultrabond ECO® line: For more than three decades, MAPEI has offered customers a line of water-based floor-covering adhesives specifically formulated to reduce environmental impact and minimize VOCs. Recently, the Ultrabond ECO technology was extended to the urethane wood-flooring adhesives. Ultrabond ECO 995 is a new “3-in-1 urethane” adhesive that combines a moisture barrier, sound reduction and bond in one product. This revolutionary 100%-solids polyurethane, developed with rapidly renewable raw materials and no solvents added, features very low-odor and negligible VOC content. Now that MAPEI’s entire wood polyurethane line is produced with rapidly renewable raw materials, Ultrabond ECO 975, Ultrabond ECO 980, and Ultrabond ECO 990 are better for the environment and the wood urethanes of choice for green building projects that are candidates for LEED certification.

External testing certification: The Carpet and Rug Institute’s Green Label Plus voluntary industry-testing program for products for carpet and adhesive products establishes high standards for improving indoor air quality (IAQ). Several MAPEI floor-covering adhesives have been approved for Green Label Plus certification. Voluntary excellence is another means by which MAPEI demonstrates environmental stewardship, assuring customers that products have been stringently tested to produce the lowest-emitting materials possible.

Sustainability through the ages

Ancient Romans were able to achieve a considerable leap in construction by using a wide variety of local materials such as pozzolans to make concrete, and using methods such as adding pumice stone to concrete. This helped to lighten the concrete load without sacrificing strength, as demonstrated in the long-standing architecture of the Roman Colosseum and Parthenon. Using local materials whenever possible allowed Roman architects to utilize LEED’s MR Credit 5 (for regional materials that are extracted, harvested and manufactured within 500 miles of the project site) … without even realizing it.
**Low-Dust Technology:** Cementitious products developed with this innovative technology experience up to 90% reduction in the amount of dust released during their production, pouring, and mixing. This helps contribute to improved air quality, a cleaner environment, and a cleaner jobsite, providing savings in costly time and labor for contractors and installers.

**Lightweight technology:** Lightweight construction products assist building owners, engineers, and architects by lessening the effects of dead load, which reduces overall building costs. Lightweight technology developments at MAPEI labs have resulted in several exciting product formulations. A 25-lb. (11.3 kg) bag of installer-friendly **Ultralite Mortar** provides twice the coverage of standard thin-set mortars with more than 30% recycled content. And **MAPEI’s Mapelite™**, a lightweight aggregate mixture, significantly reduces the weight of traditional cementitious self-levelers from about 128 lbs. per cu. ft. (58.1 kg per 0.03 m²) to less than 70 to 90 lbs. per cu. ft. (31.8 to 40.8 kg per 0.03 m²).

New lightweight gypsum-based, self-leveling underlayments **Planitex™ SL** and **Planitex SL 35** feature outstanding compressive strengths and offer customers easy-to-use, cost-effective flooring solutions.

Going forward, MAPEI will continue to respond to the construction industry’s needs for sustainable products and systems, along with participation in sustainable practices that conserve, reuse, and limit the impact on natural resources. What seems certain in this ever-changing economy is that sustainable practice will continue to be employed as a North American construction standard—and as the smart way of doing business for generations to come.

### Strategies that support ‘green’ blueprints

<table>
<thead>
<tr>
<th>LEED Credits</th>
<th>MAPEI’s Commitment</th>
<th>Cost Benefits of LEED-Certified Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycled Product Content (LEED USGBC rating: MR Credit 4)</td>
<td>MAPEI is heavily committed to utilizing post-industrial materials.</td>
<td>8% to 9% decrease in operating costs</td>
</tr>
<tr>
<td>Rapidly Renewable Materials (LEED USGBC rating: MR Credit 6)</td>
<td>Several adhesives include rapidly renewable ingredients.</td>
<td>7.5% increase in building value</td>
</tr>
<tr>
<td>Low-VOc Products (LEED USGBC rating: IEQ Credit 4.1, 4.2 and 4.3)</td>
<td>Several adhesives are certified as Green Label Plus.</td>
<td>6.6% improvement in return on investment</td>
</tr>
<tr>
<td>Indoor Air Quality Management (LEED USGBC rating: IEQ Credit 3.2)</td>
<td>Low-Dust Technology helps reduce dust up to 90% during pouring and mixing compared with traditional cementitious products.</td>
<td>3.5% increase in occupancy</td>
</tr>
<tr>
<td>Regional Materials (LEED USGBC rating: MR Credit 5)</td>
<td>Strategically located plants reduce the environmental impact of transportation.</td>
<td>3.0% increase in rent</td>
</tr>
</tbody>
</table>

---

**about the author**

Cris is a MAPEI Technical Resource Consultant who writes and develops the company’s training programs. Cris’ 28 years of experience in field engineering and training include collaboration on numerous global installation projects. During the past 7 years with MAPEI, he has applied his experience to the construction and flooring industry.
For more than 70 years, MAPEI has supplied the construction industry with innovative products and systems that meet project goals. With more than 50,000 customers and 57 manufacturing plants in 26 countries, MAPEI is a single-source supplier for commercial, industrial and residential projects. MAPEI is committed to thinking globally and solving locally, and it finds a solution – no matter the project challenge.

World-class shopping centers

Selfridges & Co. in London, England
With superb customer convenience at the forefront of Harry Gordon Selfridge's vision, the first London-based American-style department store was realized. Just over a century ago in the heart of London's bustling Oxford Street, the sophisticated and innovatively designed Selfridges Department Store opened its doors, revolutionizing the shopping experience for both local and international browsers. By offering smartly displayed, unique merchandise accompanied by music, quiet rest areas, comfortable seating and affordable restaurants, Selfridges gave customers an opportunity for daylong recreation.

When this monument required refurbishment, work had to be carried out quickly during evening hours when the store was closed. MAPEI supplied specialty fast-drying surface-preparation products for preparing screeds, followed by fast-track adhesives and grouts for setting elegant Carrara marble slabs.

Shoppi Center in Spreitenbach, Switzerland
Located in the canton (state) of Aargau, the Shoppi Center was originally built in the 1970s and became a landmark of Spreitenbach. Comprising two prominent towers, the centrally located Shoppi Center expanded to include the Tivoli Shopping Center, which was built immediately adjacent.

MAPEI was fortunate to help extensively restore and renovate the Shoppi Center, as well as help construct a bright and attractive new promenade known as the “Centermall” that efficiently bridges the Shoppi Center to the Tivoli Center. A number of MAPEI's surface-preparation, self-leveling and wood-flooring adhesive products were used to install solid parquet planks, made of exotic Brazilian cherry wood, throughout the Shoppi Center as well as the new Centermall.

Attica Department Store in Athens, Greece
Housed in one of the most interesting historical buildings in central Athens on Papepistimiou Avenue, the Attica Department Store was remodeled from a massive office building originally constructed for the army in the 1930s. Modern for its time, this eight-story, impressive urban development provided downtown Athens with a much-needed cosmopolitan feel. At the dawn of the century, the largest part of the building was renovated and converted to a contemporary department store that featured hundreds of shops and a restaurant with panoramic view.

To help preserve the building's original architectural features, composite marble slabs, as well as light-colored porcelain tile that resembled original white marble stairs, were chosen to refurbish seven floors of the building. To accommodate strict construction timelines, MAPEI's fast-setting surface-preparation and leveling products helped prepare the substrate and wall renders. In addition, fast-track, high-compressive-strength adhesives and grouts were relied upon to set the marble slabs on floors, and porcelain tiles on walls.
Two of the most important criteria for end users of floor-covering adhesives are the amount of volatile organic compounds (VOCs) in the product formulation, and how those compounds will be released into the environment. It is vital to consider the health and safety of those occupying areas of an indoor living environment where adhesives are installed, in order to reduce any potential for harm. As well, it is important to consider the impact on outdoor air quality, making all attempts to reduce the release of petrochemical compounds that can negatively impact the ozone layer by contributing to smog and air pollution.
North American consumers have the right to access the amount of chemical compounds contained in flooring adhesives, paints, cleaning solutions, air fresheners – virtually, any product that releases an odor.

In the U.S., the federal government regulation, under its Occupational Safety and Health Administration (OSHA), is documented in Standards 29 CFR, Section 1910.1200. The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information about their hazards is communicated to employers and employees. Information is to be transmitted through comprehensive hazard communication programs, which are to include container labeling and other forms of warning, Material Safety Data Sheets (MSDSs) and employee training. As such, the federal government requires that every manufacturer must disclose to the consumer the percent amount of hazardous materials, health risks, and risks of fire or explosions associated with the use of all products. Such reporting is ultimately documented in an MSDS.

In Canada, the national hazard communication standard is known as the Workplace Hazardous Materials Information System, or WHMIS. As with the U.S. regulations, key elements of the system include cautionary labeling of “controlled product” containers, the provision of MSDSs, and worker education and training programs (see the sidebar “About WHMIS”).

MAPEI is vigilant in reporting accurate and exact information per U.S. and Canadian regulations for all manufactured products. Putting human safety and environmental responsibility at the forefront, MAPEI uses a sophisticated software program that generates required documents using the most updated raw material information and latest North American government regulations. And whether a product formulation has changed or not, MSDSs must be updated every three years in order to be in government compliance. So while MAPEI updates its chemical product information and the resulting MSDSs every time a formula is modified and at least every three years, it is important to check the issuance date of competitive MSDSs for accurate, current VOC data.

Canada’s Workplace Hazardous Materials Information System (WHMIS) is implemented through coordinated federal, provincial and territorial legislation. Supplier labeling and MSDS requirements are set out under the Hazardous Products Act and associated Controlled Products Regulations, which are administered by the Government of Canada’s public health department known as Health Canada.

The Controlled Products Regulations establish a national standard for the classification of hazardous workplace materials, including biohazards as well as chemical and acute hazards. In addition, the regulations specify criteria for chronic health hazards including mutagenicity, carcinogenicity, embryo and reproductive toxicity, respiratory tract sensitization and skin sensitization.

Each of the 13 provincial, territorial and federal agencies responsible for occupational health and safety has employer WHMIS requirements. Employers are required to ensure that controlled products used, stored, handled and disposed of in the workplace are properly labeled, that MSDSs are made available to employees, and that workers receive WHMIS education and training. WHMIS addresses the workers’ right to know the identity and hazards of workplace chemicals in addition to the need for industry to protect confidential business information.
Committed to the highest standards of compliance per 29 CFR 1910.1200, WHMIS and SCAQMD Rule 1168, MAPEI utilizes all test methods and guidelines to continually report current and accurate VOC content in all of its construction products.

**SCAQMD raises the VOC compliance bar**

California’s state governmental body known as the South Coast Air Quality Management District, or SCAQMD, was formed for the purpose of establishing reasonable limits and mandates regarding the amount of chemical compounds that could be released into the atmosphere. Over the past few decades, the Los Angeles Basin in particular has endured mounting air quality problems due to overwhelming vehicle exhaust emissions and other hydrocarbon/petrochemical compounds.

Fortunately, with SCAQMD enforcement, the LA Basin has experienced improvement in its air quality. Due to this success, remaining U.S. states and Canada have accepted SCAQMD rules as the benchmark with which all chemical products should comply. In the construction industry, SCAQMD’s Rule 1168 is the reference standard for adhesive and sealant applications.

**SCAQMD Rule 1168 defined**

Adopted in 1989 and last amended in 2005, the purpose of SCAQMD Rule 1168 is to reduce emissions of volatile organic compounds and to eliminate emissions of chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene from the application of adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and other primers. The rule applies to all commercial as well as industrial sales and application of aforementioned product types, unless otherwise specifically exempted by this rule.
SCAQMD’s regulations and mandates provide chemical-based manufacturers, such as MAPEI, with explicit rules regarding the amount of volatile organic compounds allowed in their construction building products, as well as how VOC numbers need to be reported.

Because there is currently no statement of allowance for listing VOCs in a “calculated” method, it simply should not be done. Some companies do, however, report product formulations that have no addition of solvent as zero calculated VOCs. However, it stands to reason that if a product has an odor or contains a hydrocarbon or petrochemical base, it will indeed have some organic content that will volatize and, per regulations, that content needs to be reported.


For decades, MAPEI has demonstrated global consciousness in its development of environmentally friendly adhesives, tested against the most stringent industry standards. Committed to the highest standards of VOC compliance per 29 CFR 1910.1200, WHMIS and SCAQMD Rule 1168, MAPEI utilizes all test methods and guidelines to continually report current and accurate VOC content in all of its construction products. Bottom line: If solvent is not added to a formulation and yet a very small portion of organic content remains volatile, MAPEI reports the data exactly as such.

With MAPEI’s longstanding demonstration of socially responsible manufacturing practices throughout the world, customers can be assured that environmental consciousness is at the core of MAPEI’s corporate values and global philosophy. Maximizing every effort to support green-building construction practices, MAPEI offers a complete line of low-VOC flooring solutions – including its popular Ultrabond ECO® line and several Green Label Plus-certified adhesives. These products undergo rigorous testing for VOC compliance, and as a result, help contribute valuable points toward the growing number of LEED-certified projects.

ASTM International is one of the largest voluntary standards development organizations in the world – a trusted source for technical standards for materials, products, systems and services. Known for their high technical quality and market relevancy, ASTM international standards have an important role in the information infrastructure that guides design, manufacturing and trade in the global economy.

Jeff is the Product Manager for MAPEI’s Floor Covering Installation Systems line. He brings more than 20 years’ experience in floor-covering installation, product development and marketing. Practical experience in the construction industry and as a bench chemist gives Jeff a unique and exciting perspective to the FCIS line.
Revitalizing Montreal’s luxurious Le Westin Hotel

Multiple MAPEI products help renovate centuries-old buildings

by Anita Burton, Realtà MAPEI Americas Editor

Nestled in the heart of Old Montreal’s vibrant downtown – right across from the convention centre and just a short, cobblestone walk to shops, galleries, restaurants and old historic sites – Le Westin Montreal is an architectural gem. Its distinctive main entrance is situated directly below a glass-bottomed swimming pool and allows cars to drive into a grand lobby that was formerly the Gazette newspaper’s printing presses.

While the largest part of the Le Westin Montreal is a brand-new 22-story tower, the hotel encompasses three heritage buildings that date back two previous centuries. The old Montreal Gazette building of the 1950s is connected by an enclosed corridor to the former Montreal Star building (built in the 1890s) and an aged parking lot that was built in the 1860s. All three have been renovated and modernized to form part of the new upscale Le Westin Montreal Hotel.

Following almost 4 years of construction, Le Westin’s newest creation features over 450 guest rooms, spread over four towers, with a combined total of 65 stories. MAPEI products were used extensively to help prepare the surface of the buildings’ concrete substrates before carpet, tile and stone were installed.
**Challenge:**
Scarify all nine floors of the former Montreal Gazette building before repairing and resurfacing.

**Solution:**
After several decades in the nine-story newspaper building, most of the concrete floors were severely pitted. Heavy industrial tools used to service the presses, combined with the newspaper presses that were anchored to the floors with concrete pilings (machine bases), eventually took their toll, severely damaging the concrete. Flooring contractors demolished the machine bases and scarified the floors to remove half-inch layers of grease and oil. Thick layers of epoxy, which were originally applied to the floors in printing production areas to prevent contamination by ink and grease from the presses, were also removed in the scarification process.

Other floors that were covered in terracotta tile and vinyl composition tile were shotblasted in order to maximize bond to the surface preparation products applied over the substrate.

**Challenge:**
Repair and level severe depressions throughout several of the former Gazette building’s nine floors.

**Solution:**
Installers first used Mapcem\textsuperscript{®} 100 high-build, fast-setting mortar to screed severe depressions throughout nine floors of the building. More than 200,000 square feet (18,581 square meters) of advanced-technology, acrylic latex Primer L\textsuperscript{™} was then used to prime the substrate, with some Planibond\textsuperscript{®} EBA epoxy bonding agent and primer applied in areas with more challenging substrate conditions. To successfully level the nine floors, installers used 140 2,500-lb. (1,134 kg) “Supersacks” of high-compressive-strength Ultraplan\textsuperscript{®} M20 Plus quick-setting underlayment. A total of 200,000 square feet (18,581 square meters) was mixed, pumped and poured from the building’s fifth floor via a tower crane. This ultimately created smooth, even surfaces that were now highly suitable to receive floor-covering installations.

**Challenge:**
Self-level the old Montreal Star building’s substrate before installing floor coverings.

**Solution:**
Following application of Primer L, installers poured over 50,000 square feet (4,645 square meters) of high-strength Novoplan\textsuperscript{®} 2 professional self-leveling underlayment before installing floor coverings in this area of the hotel, which eventually became a series of guest rooms.

**Challenge:**
Waterproof and tile the floors and walls of guest bathrooms.

**Solution:**
Ready-to-use Mapelastic\textsuperscript{™} HPG flexible, liquid acrylic membrane was applied to the floors and walls of all hotel bathrooms to provide an excellent waterproofing solution. Large-format 18” x 18” (46 x 46 cm) Porcelanosa Crema Marfil tile was installed on bathroom floors, while a 13” x 25” (33 x 63 cm) version of the same tile was installed on bathroom walls using Chembond’s Magniflex\textsuperscript{™} Ultimate 8830 adhesive from MAPEI. The ceramic tile was then grouted with Keracolor\textsuperscript{™} S premium sanded grout for joints measuring 1/8” to 5/8” (3 to 16 mm) and Keracolor U premium unsanded grout for tighter grout joints measuring 1/16” to 1/8” (1.5 to 3 mm).
Challenge: To install exotic Saraceno 16” x 24” x 1/2” (41 x 61 x 1,25 cm) limestone and Calacatta marble tile inserts throughout the three buildings’ lobby floors.

Solution: A team from Olympique Tile set the hotel lobby’s floors with the chocolate brown Saraceno limestone that was interspersed with a white Statuario marble – both imported from Italy – using MAPEI’s Ultraflex™ 2 professional tile thin-set mortar. Formulated with Low-Dust Technology, Ultraflex 2 reduces dust by 90% during pouring and mixing, resulting in a cleaner working environment.

Challenge: To install 12” x 24” x 3/4” (30 x 61 x 1,9 cm) Pierre St-Marc granite tile on exterior walls of the hotel’s main lobby entrance.

Solution: MAPEI’s Granirapid® flexible tile mortar system and Ultracolor® Plus rapid-setting sanded grout were used to ensure a rapid, efflorescence-free outcome when installing the large-format, heavy granite tile.

In the main lobby of Le Westin Montreal is an extraordinarily colorful artwork created by Jean-Paul Mousseau that originally resided in the former Gazette building’s lobby. It is believed that this artwork inspired the colorful glass panels that welcome guests at the Palais de Congres, Montreal’s premier convention centre located just across the street. Canada’s Minister of Culture requested that Le Westin keep the artwork displayed in its lobby, which beautifully contrasts the new limestone and marble flooring installation.

MAPEI products

- Mapcem 100 high-build, fast-setting mortar for screeding severe depressions throughout the building’s nine floors.
- Primer L acrylic latex primer for priming over 250,000 square feet (23 225 square meters) of concrete substrate.
- Planibond EBA epoxy bonding agent and primer for maximizing bond in areas of the substrate that were more challenging.
- Ultraplan M20 Plus quick-setting underlayment was mixed, pumped and poured onto each floor of the hotel to create a smooth, even surface in preparation for floor-covering installations.
- Novoplan 2 professional self-leveling underlayment for leveling concrete substrates before installing floor coverings.
- Mapelastic HPG flexible, liquid acrylic membrane for waterproofing the floors and walls of guest bathrooms.
- Chembond’s Magniflex Ultimate 88301 for setting large-format ceramic tile on guest bathroom floors and walls.
- Keracolor S premium sanded grout and Keracolor U premium unsanded grout for grouting ceramic tile on guest bathroom walls and floors. Both grouts are formulated with improved bond, high abrasion resistance and reduced water absorption, and have ISO 13007 classification CG2WA.
- Ultraflex 2 professional tile thin-set mortar for setting exotic limestone and marble tiles on hotel lobby floors. Because Ultraflex 2 is deformable, has improved bond and extended open time, and can bond to plywood, it carries ISO 13007 classification C2EP1.
- Granirapid® flexible tile mortar system for setting large-format granite tile on the hotel’s exterior walls. Fast-setting, highly deformable Granirapid® has improved bond and improved adhesion to plywood, for an ISO 13007 designation of C2FS2P2.
- Ultracolor Plus rapid-setting sanded grout for grouting granite tile on the hotel’s exterior walls. This fast-setting grout also has improved bond, high abrasion resistance and reduced water absorption for an ISO 13007 classification of CG2WAF.

MAPEI partners

Owner: Starwood Group, Montreal, QC
Work: Prime, repair and level over 250,000 sq. ft. (23 225 m²) of concrete substrate; waterproof bathroom walls and floors; set and grout ceramic, granite, limestone and marble tiles throughout hotel.
Year: 2007-2009
Architect: Huet et Geiger Architectes
Engineer: Nicolet, Chartrand, Knoll, Bouthillette, Parizeau
CRS Distributor: Geroquip
Concrete Installer: Scal-tek
TSIS Distributor: Italcem and Clot
Tile Installer: Olympique Tile
Project Manager (tile): Canio Di Cairano
MAPEI Coordinators: Michel Lafortune and Pat Desanctis
High-performance Ultraplan M20 Plus is a calcium-aluminate-based, quick-setting, self-drying material specifically designed for fast-track resurfacing and restoration of interior, horizontal wear surfaces. This high-compressive-strength underlayment has maximum resistance to wheel tracking and indentations experienced in softer underlayments. Ultraplan M20 Plus is suitable for use as a commercial wear topping in warehouse and alternate light-industrial applications where an exceptional flat and smooth concrete surface is desired.

Uses
- For fast-track resurfacing and construction of horizontal wear surfaces
- For quick-turnaround leveling, smoothing and repairing of interior floors before the installation of floor coverings
- For use as a finish topping. Expect variations in color, stainability and general finish due to the nature of polymer-modified cementitious materials. See the Technical Data Sheet for details.
- For warehouse floors and loading docks subject to continual light vehicular and foot traffic

Suitable substrates
- Properly prepared, sound, dry, dimensionally stable, fully cured concrete at least 28 days old
- Engineer-approved plywood subfloors that are properly prepared, bonded and free from dirt and dust
- Ceramic tile, VCT installations over 1 year old, cement terrazzo and small amounts of old outback adhesive residue that are well-bonded and dimensionally stable
- Steel decking that is sound, stable, free of bond-breaking materials and properly primed with a suitable MAPEI bonding agent or epoxy primer utilizing the sand broadcast method.

Technical Data

### Ultraplan M20 Plus (before mixing)

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Light gray</td>
</tr>
<tr>
<td>Flammability</td>
<td>Flame spread: 0</td>
</tr>
<tr>
<td></td>
<td>Fuel contribution: 0</td>
</tr>
<tr>
<td></td>
<td>Smoke development: 0</td>
</tr>
<tr>
<td>VOCs (Rule #1168 of California's SCAQMD)</td>
<td>0 g/L</td>
</tr>
</tbody>
</table>

### Ultraplan M20 Plus (mixed)

<table>
<thead>
<tr>
<th>Mixing ratio</th>
<th>Water to Ultraplan M20 Plus (powder) = 5.5 to 5.8 U.S. qts. per 50 lbs. (5.20 to 5.49 L per 22.7 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>128 lbs. per cu. ft. (2.06 kg per L)</td>
</tr>
<tr>
<td>pH</td>
<td>11</td>
</tr>
<tr>
<td>Application temperature range</td>
<td>50° F to 95° F (10° C to 35° C)</td>
</tr>
<tr>
<td>Working time</td>
<td>About 15 minutes</td>
</tr>
<tr>
<td>Final set</td>
<td>2 to 3 hours</td>
</tr>
<tr>
<td>Time required before installation of tile and stone</td>
<td>3 to 6 hours, depending on temperature and humidity</td>
</tr>
<tr>
<td>Time required before installation of floor covering or coating</td>
<td>16 to 24 hours, depending on temperature and humidity</td>
</tr>
<tr>
<td>Compressive strength – ASTM C109 (CAN/CSA-A5)</td>
<td>&gt; 2,800 psi (19.3 MPa)</td>
</tr>
<tr>
<td></td>
<td>&gt; 4,000 psi (27.6 MPa)</td>
</tr>
<tr>
<td></td>
<td>&gt; 5,000 psi (34.5 MPa)</td>
</tr>
<tr>
<td>Flexural strength – ASTM C348 (CAN/CSA-A23.2-6B)</td>
<td>&gt; 715 psi (4.93 MPa)</td>
</tr>
<tr>
<td></td>
<td>&gt; 1,145 psi (7.90 MPa)</td>
</tr>
<tr>
<td></td>
<td>&gt; 1,280 psi (8.83 MPa)</td>
</tr>
<tr>
<td>Pullout strength (rupture of concrete) – ASTM C109 (CAN/CSA-A23.2-6B)</td>
<td>&gt; 360 psi (2.48 MPa)</td>
</tr>
<tr>
<td></td>
<td>&gt; 440 psi (3.03 MPa)</td>
</tr>
</tbody>
</table>

### Packaging

| Bag | 50 lbs. (22.7 kg) |

For more information on the complete line of MAPEI products, call 1-800-42-MAPEI (1-800-426-2734). Visit our Website at www.mapei.com.
Focus on two-component mortars

Installing porcelain tile on a suspended concrete slab

Q: I have a mall project with walkways on a suspended concrete slab where the flooring will be subject to deflecting loads. If I am installing large-format porcelain tile over the slab, which mortar is best for handling this type of stress?

A: There are two types of polymer-modified mortars in the market today, single-component and two-component. Single-component, polymer-modified mortars contain a unique dry polymer that requires only the addition of water for mixing. On the other hand, a two-part system consists of a dry-set (non-modified) mortar, which is mixed with a liquid latex polymer. There is a lot of confusion as to why a contractor would choose a one-part, dry polymer-modified mortar over a two-part liquid polymer-modified mortar.

While polymers in general offer similar features, such as adding flexibility and bond strength to mortars, dry polymers have limitations that liquid polymers do not. In applications where substrates are subject to deflecting loads (as with a suspended slab), it is critical to have a significant level of flexibility that allows for sufficient expansion and contraction. In your specific case, a mortar with the ISO 13007 designation “S2” – the performance classification for improved deformability – is key to a successful installation.

Note that the deformability rating in mortars is directly related to the amount of polymer in a setting adhesive. In the case of dry polymers, there are limits to the amount of polymer that can be added to a mortar before the mixture becomes lumpy and ineffective. Therefore, by being able to add more polymer (and therefore increase flexibility and bond strength) in a liquid form, two-component systems offer serious advantages.

MAPEI’s Kerabond/Keralastic™ System is a premium flexible tile mortar system consisting of Kerabond™ premium dry-set mortar and Keralastic™ premium latex additive. This system has an exceptional balance of bond strength and flexibility for most demanding tile and stone installations. The Kerabond/Keralastic system has an ISO 13007 rating classification: C2ES2P2 for improved flexibility (“S2”), improved bond strength (“C2”) and extended open time (“E”). The P2 designation signifies that the adhesive also offers superior shear bond value over plywood. This premium system also meets ANSI A118.4 and A118.11.
Installing tile in a wet environment exposed to extreme temperatures

Q: My installers need to quickly set porcelain tile throughout a series of exterior fountains that will be subject to extreme weather conditions. Which setting materials would best withstand water and weather elements over the long term?

A: Flexibility is also a key factor for tile installations that are subject to rapid and extreme temperature changes, as well as constant water submersion. As outdoor temperatures change, the entire flooring system needs to expand and contract accordingly. With this also being a submerged water application on a fast-track schedule, waiting the usual 28 days before filling with water is not an efficient option.

Fortunately, MAPEI offers Granirapid®, a premium, rapid-setting, flexible tile mortar system with the ISO 13007 classification C2FS2P2. This two-component cementitious adhesive system is formulated with improved bond strength (“C2”) and a high level of deformability (“S2”) that permits adequate expansion and contraction under extreme temperatures. Its superior drying-out characteristics produce low residual moisture behind tile after just 24 hours, which allows Granirapid to cure considerably faster and have the “F” designation for fast-setting performance. When used with MAPEI’s Ultracolor® Plus premium, rapid-setting sanded grout (CG2WAF), Granirapid allows grouting in 3 to 4 hours and can be submerged in water in just 3 days. Due to its high early mechanical strength, Granirapid also contributes to an efflorescence-free outcome, which is crucial in a submerged water application that is exposed to extreme weather conditions. Granirapid meets ANSI A118.4 and A118.11.

Advantages to using a two-component liquid latex mortar system

- Excellent balance between flexural, bond and compressive strength
- Easy workability
- Outstanding freeze/thaw stability
- Performs well over most substrates and under most environmental conditions
- Promotes successful installation of impervious, large-format, thick, heavy tile and stone products on interior and exterior floors, walls and facades

About the author

Judy Pugatch

After receiving a bachelor’s degree in industrial engineering, Judy joined MAPEI’s product management team and currently works as the Associate Product Manager for the Tile & Stone Installation Systems division. Judy is dedicated to innovative products and positive installation systems for the flooring industry.
Installation of tile over suspended concrete slab

**Solution:**
Create a LEED-compliant, highly flexible flooring system that can withstand constant deflection as a result of high foot traffic.

**Prep:** Prepare concrete to a sound, clean, dust-free condition that is free of any potential bond breakers and properly profiled to an ICRI concrete surface profile #2.

A. Roll or brush a layer of water-based, styrene butadiene rubber MAPEI SM Primer over the properly prepared substrate to optimize bond between the concrete and sheet membrane.

B. Help effectively reduce sound while preventing existing or future in-plane cracks up to 3/8" (10 mm) wide from transmitting through tile by installing Mapeguard 2 premium crack-isolation and sound-reduction sheet membrane. After just 15 minutes following application of MAPEI SM Primer, simply fold the Mapeguard 2 sheet membrane in half, peel back the release film, place the membrane so that all edges abut, and roll it to ensure a secure bond.

C. Immediately after placing the sheet membrane, set tile using premium-grade Kerabond/Keralastic flexible tile mortar system, which includes an acrylic latex additive. With ISO 13007 classification C2ES2P2, Kerabond/Keralastic system is formulated with improved flexibility (“S2”) and bond strength characteristics (“C2”), making it an ideal system for tile installations subject to deflecting loads.

D. Complete the installation with Ultracolor® Plus premium, rapid-setting sanded grout. Suitable for joint widths from 1/16" to 1" (1.5 mm to 2.5 cm), Ultracolor Plus is specially designed to prevent efflorescence and maintain color consistency. Carrying the ISO 13007 classification CG2WAF for improved bond (“CG2”), high abrasion resistance (“A”) and fast-setting characteristics (“F”), it is an ideal grout for a mall application that will be subject to constant foot traffic.

**Challenge:**
Install large-format tile on walkways built over suspended concrete slabs in a multi-level, newly constructed mall that is targeted for LEED certification.

A. MAPEI SM Primer™
B. Mapeguard™ 2
C. Kerabond/Keralastic™ System (C2ES2P2)
D. Ultracolor® Plus (CG2WAF)
MAPEI’s Mapeguard 2 load-bearing, 40-mil-thin, fabric-reinforced “peel-and-stick” membrane is 35% lighter than previous generations and offers high-performance, in-plane crack isolation up to 3/8” (10 mm). This commercial-grade semi-rigid sheet easily cuts to size and easily positions without losing its form. LEED-compliant Mapeguard 2 contains post-industrial recycled material and features a smart split-back release film and white surface that promotes easy-to-view, fast, trouble-free installations.

Also offering impressive STC and IIC ratings for sound reduction, this membrane is perfectly compatible with MAPEI SM Primer™ and the ideal solution for high-traffic, commercial settings and multi-story buildings. Just prime, peel, stick – and install tile, stone or wood immediately.

**Uses**
- Residential (homes, apartments, condominiums) and commercial (airports, malls, office buildings, restaurants) floors, both interior and exterior (with proper drainage)
- Multi-family or multi-story buildings, to reduce noise transmission through floors

**Suitable substrates**
- Fully cured concrete, at least 28 days old
- Cement mortar beds and leveling coats
- Cement backer units (CBUs) – see manufacturer’s installation guidelines
- Properly prepared cement terrazzo floors; well-bonded ceramic tile and natural stone; vinyl composition tile

**Product Performance Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>0.04&quot; or 40 mils (1 mm)</td>
</tr>
<tr>
<td>Maximum crack movement capacity</td>
<td>3/8” (10 mm) wide, in-plane</td>
</tr>
<tr>
<td>Fabric color</td>
<td>White</td>
</tr>
<tr>
<td>VOCs (Rule #1168 of California’s SCAQMD)</td>
<td>0 g/L</td>
</tr>
<tr>
<td>ANSI A118.12 (crack-isolation membranes for thin-set ceramic tile and dimension-stone installation)</td>
<td>4.1 Fungus and micro-organism resistance: 4.1.2 14-day incubation: Pass 5.1.6 After accelerated aging: Pass 5.2 Point load test: 5.2.3 Point load resistance after 28-day cure: Pass 5.3 Robinson floor test: Please see TDS at <a href="http://www.mapei.com">www.mapei.com</a> for Robinson test results and warranted systems.</td>
</tr>
<tr>
<td>Shelf life</td>
<td>1 year when stored in a dry area in original shipping container between 40°F and 95°F (4°C and 35°C).</td>
</tr>
</tbody>
</table>

**Industry Standards and Approvals**
See “Product Performance Properties” section of Mapeguard 2 TDS at www.mapei.com for details on the following:
- ASTM C627 (Robinson)
- ASTM E492-04 (impact sound), E90-04 (airborne sound), E2179 (impact sound)

**LEED Points Contribution**

- MR Credit 4, Recycled Content* Up to 2 points
- MR Credit 5, Regional Materials* Up to 2 points
- IEQ Credit 4.1, Low-Emitting Materials – Adhesives & Sealants 1 point
- IEQ Credit 4.3, Low-Emitting Materials – Flooring Systems 1 point

* Using this MAPEI product may help contribute to LEED certification of projects in the categories shown above. Points are awarded based on contributions of all project materials.

For more information on the complete line of MAPEI products, call 1-800-42-MAPEI (1-800-426-2734). Visit our Website at www.mapei.com.
NEW high-performance sheet membranes are a breeze to install

When it comes to installing crack-isolation and sound-control membranes under ceramic tile, stone and wood, customers are seeking “greener” options that combine both important functions in one product. Contractors and installers working on large sized projects, multi-level buildings and LEED certification will appreciate the evolution towards dual-function membranes that combine crack isolation up to 3/8” (10 mm) and outstanding sound reduction in a thinner, much lighter weight, semi-flexible, easy-to-position sheet membrane. And with fast-track construction being today’s norm, the ability to prime, peel, stick – and install tile immediately – is a cost-effective, win-win solution for everyone.

Mapecguard 2: Fast Facts

- Dual-protection solution for both crack isolation and sound reduction
- Prevents in-plane cracks up to 3/8” (10 mm) wide from transmitting through tile and stone
- Reduces gaps in wood flooring
- Allows tile, stone or wood to be installed immediately after the membrane is applied
- 40-mil membrane is 35% lighter than previous generations for easier lifting and carrying
- Semi-rigid sheet promotes easy cutting to size and positioning on floor
- Efficient split-back release film for quicker installations
- Low odor, making it perfect for occupied and confined spaces
- Has extra heavy service rating per ASTM C627
  - Contains post-industrial recycled material per corporate commitment to green building
  - Helps contribute points toward LEED-certified projects
  - Ideal for multi-family or commercial, multi-story buildings
Use water- or acrylic-based adhesives to install wood-flooring products over sheet membranes. Water- and acrylic-based adhesives won’t penetrate into the membrane and therefore won’t ever dry, preventing the wood from ever sticking to the membrane. For a successful, long-term wood installation, use a urethane wood adhesive such as MAPEI’s lightweight Ultrabond ECO® 975 for engineered wood; or high-performance Ultrabond ECO 980 for solid, engineered wood and bamboo; or Ultrabond ECO 990 for solid wood and exotics.

Properly prepare the substrate before placing the membrane. Suitable substrates must be clean, smooth, structurally sound and free of any substance that could prevent adhesion. Concrete substrates should be mechanically cleaned and prepared by diamond-cup grinding to achieve an ICRI concrete surface profile #2.

Prime the substrate with a compatible primer. To maximize bond of the concrete or plywood to MAPEI’s Mapeguard™ 2 “peel-and-stick” sheet membrane, roll or brush a layer of MAPEI’s water-based, styrene butadiene rubber (SBR) primer, MAPEI SM Primer™. After reaching a tacky stage, just 10 to 15 minutes following application of this ready-to-use, quick-drying primer, the sheet membrane installation can begin.

Cut the membrane’s pre-split backing to length and butt all seams. This effectively isolates and protects the finish floor installation from existing and future substrate cracks while achieving proper, effective sound reduction and a desirable flat surface. Installing Mapeguard 2 sheet membrane is simple: Just fold in half, peel back the release film, place the membrane so that all edges abut, roll membrane to ensure bond – and instantly start installing ceramic, stone or wood.

Install Mapeguard 2 crack-isolation and sound-reduction sheet membrane in exterior spaces unless proper drainage is provided. Exposing the membrane to wet conditions will degrade it to the point where it becomes mushy and soft, possibly resulting in flooring failure.

Install sheet membranes over concrete substrates with a moisture vapor emission rate (MVER) greater than 3 lbs. per 1,000 sq. ft. (1,36 kg per 92,9 m²) per 24 hours. Sheet membranes will just trap excess moisture vapor — causing tile and grout to effloresce, stone to discolor, and wood to warp and buckle. To prevent a floor installation failure due to excessive substrate moisture emissions, always perform a moisture test using an ASTM F1869 calcium chloride test.

Sam Biondo

Sam directs the MAPEI Technical Institute’s three U.S. branches, which provide training for contractors, distributors and the Architect and Design community. Sam has more than 25 years of international experience in the flooring industry, encompassing all aspects of flooring installations, including vinyl, wood, carpet and ceramic. A popular speaker at many industry functions, Sam uses his expertise to help audiences easily comprehend new and innovative technologies.
MAPEI has appointed Real Bourdage to the position of Director, Strategic Marketing for MAPEI Americas. His executive management presence will promote attainment of MAPEI’s marketing and sales goals.

Bourdage comes to MAPEI with more than 30 years of experience in the flooring industry. He has held senior management positions with H.B. Fuller in Canada and TEC Specialty Products (a division of H.B. Fuller), Aqua Mix Inc. and Custom Building Products in the United States. His proven expertise in finance, business development, operations and marketing will help MAPEI continue to deliver innovative new products to the industry.

“We have known Real for many years, and we highly value his market knowledge and his leadership skills,” said Luigi Di Geso, President and CEO of MAPEI Americas.

MAPEI is excited to broaden its concrete restoration systems (CRS) business in the Americas with the addition of Kevin Smith as the National Sales Director of this division. Initially, Smith is focusing his efforts on promoting the sale of MAPEI’s concrete mortars, grouts, waterproofing and repair products to the concrete restoration market segment.

Smith has a sustained history of successful sales management in the construction industry. During the past 20 years, he has concentrated on sales in the United States and Canada for such companies as Coastal Construction Products (Florida), Sika Corporation and, most recently, for CETCO Building Materials (an AMCOL company).

“Kevin’s experience is providing MAPEI with improved sales through structuring and focusing a dedicated CRS sales force working with architects, engineers, key consultants, specification writers, construction managers, waterproofing contractors and distributors,” said Luigi Di Geso, MAPEI Americas President and CEO. With an energetic, team-oriented perspective, Smith brings excellent leadership qualities to MAPEI’s senior management team.
MAPEI helps make history at Four Freedoms Park

On September 13, 2010, dignitaries and citizens of New York gathered to celebrate the first shipment of granite foundation stones for the Franklin D. Roosevelt Four Freedoms Park. Honored guests included David Paterson, New York’s Governor; Michael Bloomberg, New York City’s mayor; Carolyn Maloney, congresswoman for New York’s 14th District; Scott Stringer, Manhattan Borough president; Christine Quinn, speaker of the New York City Council; and Jessica Lappin, New York City councilmember for Manhattan’s 5th District. Ambassador William J. vanden Heuvel, chairman of the Franklin D. Roosevelt Four Freedoms Park, presided over the momentous event.

Representatives from the general contractor, F.J. Sciame Construction Co., Inc.; the stone installer, Port Morris Tile & Marble Corporation; and the installation materials manufacturer, MAPEI Corporation, participated in the day’s events. The sheer size of the giant granite stones being placed by Port Morris’ crew awed attendees as each one weighed on average about 72,000 pounds (32,7 metric tons). During the ceremony, dignitaries signed their names on a plaque made with MAPEI’s Ultracolor® Plus rapid-setting sanded grout. The massive stones will be set with masonry mortar, and MAPEI’s Kerapoxy® 100%-solids epoxy grout has been specified to fill joints between the stones.

The park, located at the south end of Roosevelt Island in the center of the East River, will be dedicated to U.S. President Franklin D. Roosevelt. A square plaza called “The Room,” 72 feet (21.9 m) on each side with walls 12 feet (3.66 m) high rising on two sides, will highlight Roosevelt’s famous “Four Freedoms” speech, delivered on January 6, 1941. “The Room” will pay homage to America’s commitment to these freedoms – freedom of speech, freedom of worship, freedom from want, and freedom from fear.

Granite-paved promenades protected by low granite walls will line the tree-shaded garden that leads to “The Room” at the tip of the park. The tops of the granite walls alongside two beautiful alleys of Little Leaf Linden trees will be engraved with memories from FDR’s – and our country’s – life. Each of the 144 milestone “chapters” will be engraved with a memory and the name of the chapter donor or someone each donor wishes to honor.

In 1972, the original design of the park was developed by eminent architect Louis I. Kahn, who frequently used bold geometric forms to create his masterpieces. The triangular shape of the garden, surmounted by the square “Room” at its tip, are reflective of his architectural expression. Kahn died in 1974, shortly after he completed his final plans for the Park. In 1975 New York City underwent a fiscal crisis that put the project on hold for more than three decades; but on March 29, 2010, construction began on the site and is expected to be completed in 2011.
Strongly recommended for high-performance resurfacing

Foothills Hospital
Calgary, Alberta – Canada

Products used:
- **Concrete Renew™** – High-performance concrete resurfacers
- **Concrete Renew™ Fine** – High-performance, fine-grade concrete resurfacers

Come visit us at **WORLD of CONCRETE**
January 18 – 21, 2011 • Booth # S10439
at the Las Vegas Convention Center in Las Vegas, NV

MAPEI
ADHESIVES • SEALANTS • CHEMICAL PRODUCTS FOR BUILDING
The MAPEI Technical Institute (MTI) provides the highest-quality, hands-on technical training to architects, contractors, installers and distributors in 6 locations: Deerfield Beach (FL), San Bernardino (CA) and Garland (TX), all in the USA; and Brampton (Ontario), Laval (Quebec) and Delta (British Columbia), all in Canada. At the Laval MTI location, seminars are offered in either English or French.

<table>
<thead>
<tr>
<th>U.S. seminars</th>
<th>Canadian seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concrete Restoration Systems (CRS)</strong></td>
<td>Basics and Hands-On Training One- or two-day class that focuses on levelers, toppings, moisture mitigation and concrete repair.</td>
</tr>
<tr>
<td></td>
<td>Training 101, Basics: Surface preparation, one-step repair mortar and systems.</td>
</tr>
<tr>
<td></td>
<td>Training 102, Hands-On: Surface preparation, column repair, balcony repair and sidewalk refurbishing.</td>
</tr>
<tr>
<td><strong>Floor Covering Installation Systems (FCIS)</strong></td>
<td>Basics and Hands-On Training One- or two-day class that covers products for surface preparation, moisture mitigation, vinyl, rubber, carpet and wood flooring.</td>
</tr>
<tr>
<td></td>
<td>Training 101, Basics: Surface-preparation products, multipurpose adhesives and specialized adhesives.</td>
</tr>
<tr>
<td></td>
<td>Training 102, Hands-On: When and how to use moisture-reduction barrier coatings; choosing the most appropriate surface preparation products; installation of engineered wood and hardwood using various adhesive options, and of homogeneous sheet goods using Ultrabond® G21.</td>
</tr>
<tr>
<td><strong>Tile &amp; Stone Installation Systems (TSIS)</strong></td>
<td>Basics and Hands-On Training One- or two-day class that covers products for surface preparation, waterproofing, crack isolation, tile and stone installation, and grouting.</td>
</tr>
<tr>
<td></td>
<td>Training 102, Hands-On: When and how to use different membranes, including crack-isolation and waterproofing systems.</td>
</tr>
</tbody>
</table>

> Sign up for MTI training by contacting your local MAPEI sales representative.  
For details on U.S. seminars, contact Sophia D’Amico at (954) 246-8555.

> Sign up for MTI training by contacting your local MAPEI sales representative.  
For details on Canadian seminars, contact Raffaelina Aceto at (450) 662-1212, ext. 293.
MAPEI projects in the works

MAPEI partners with a host of flooring professionals throughout the Americas and Caribbean to provide solutions for a variety of project challenges. “Projects in the Works” showcases some of the installations currently under construction or close to completion. Check out what’s happening in your area — MAPEI may be right around the corner.

Dimond Shopping Center
Anchorage, Alaska

After witnessing the outstanding, durable performance of MAPEI’s Concrete Renew™ resurfacers on the sidewalks of a private residence in Alaska, maintenance managers of Anchorage’s largest shopping center, the Dimond Center Shopping Mall, looked to MAPEI for a repair solution that would meet their needs. One full year following exposure to Alaska’s multiple freeze-thaw cycles, de-icing salts, studded tires and snow brooms, the work at the private residence showed no signs of delamination, chipping or pop-off on the property's sidewalks. Also impressive was the lack of delamination at the rounded joint nosings between slab sections.

Maintenance managers were convinced that MAPEI construction products would provide an aesthetically pleasing and long-standing repair solution to the Dimond Shopping Center's 20,000 square feet (1 858 m²) of aging and worn sidewalks and entrances. Installers used a combination of Mapecem Quickpatch high-flow concrete patch and Concrete Renew, combined with Planicrete UA latex additive, to successfully repair and resurface this sizable area of concrete.

Amway Center
Orlando, Florida

The Amway Center will be open in time for the Orlando Magic basketball team to play their first game of the NBA season to a sell-out crowd of 20,000. E & E Construction Supply of Boca Raton, Florida, used MAPEI’s Novoplan® 2 to level the four 30-foot-wide (9,14-meter-wide) concourses, 37 bathrooms, and numerous kitchens throughout the event center. Novoplan 2 is a high-strength, self-leveling cement-based underlayment and repair mix for interior concrete and engineer-approved floors. To improve the bond between the properly prepared/ profiled concrete substrate and Novoplan 2, installers relied on MAPEI's Primer L™.

Panama Canal
Canal Zone, Panama

One of MAPEI’s construction products is playing a vital role when it comes to repairing the Panama Canal locks. Planitop® 15 is being used to form columns in the divisions of the monumental waterway, an application that requires very low permeability concrete. One-component, fiber-reinforced Planitop 15 is a shrinkage-compensated fluid mortar that contains a corrosion inhibitor, making it ideal for form- and-pour applications requiring high early strength and flowability.

Fulton Street Transit Center
New York, New York

The Fulton Street Transit Center project comprises 5 projects in total, including the A & C Subway Lines. Projected to take three to five years to complete, work at the Fulton Street station involves renovating the subway station, subway platform and subway tunnels. Products used to accomplish repairs include MAPEI’s Planitop 12 vertical and overhead repair mortar, Mapecem® Premix fast-setting mortar for subfloor preparation, Planitop 12 vertical and overhead repair mortar, Mapecem® Premix fast-setting mortar for subfloor preparation, Planitop 12 vertical and overhead repair mortar, Mapecem® Premix fast-setting mortar for subfloor preparation, Planitop 12 vertical and overhead repair mortar, Topcem™ Premix accelerated-cure screed, Planicrete® AC acrylic latex admixture, while Mapelastic™ AquaDefense waterproofing and crack-isolation membrane is being used to waterproof floors and walls.

After concrete repairs are completed, new tile will be installed throughout the station, platform and tunnels. A variety of MAPEI’s Tile & Stone Installation Systems will be used for the application, including Granirapid® rapid-setting, flexible tile mortar system and Kerapoxy® epoxy mortar and grout. Decorative glass tile will be set with bright white, nonsag Adesilex® P10 thin-set mortar and grouted with fast-setting, color-consistent Ultracolor® Plus efflorescence-free grout.
MAPEI supports the new ISO 13007 Standards for adhesives and grouts. This forward-thinking classification system establishes performance-based global standards for the tile-setting industry.

BioBlock technology has been added to select MAPEI products to help protect them from mold and mildew.

MAPEI mortars with Easy Glide Technology offer extreme ease of application, yielding a buttery consistency that reduces fatigue during troweling.
MAPEI provides new LEED tools online.

Green initiatives have moved to the forefront in the construction industry, and MAPEI has upgraded its Website to meet our customers’ needs in this area. These upgrades include a tutorial for contractors and architects to help them better understand the LEED (Leadership in Energy and Environmental Design) rating system, as well as a LEED calculator that aids in keeping track of products that help contribute to LEED certification points. Customers also now have the ability to print MAPEI product certification letters directly from MAPEI’s Website at www.mapei.com.