

INTERNATIONAL

# Realtà MAPEI

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Year XX... August 2020

81

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**GUIDO PALMIERI**  
*Realtà Mapei*  
*International's*  
Editor-in-Chief

## A leading player in the United States

Dear readers,  
the economic crisis caused by the Coronavirus pandemic will be the worst since the end of the Second World War. The full effects of the health crisis are not yet clear, and this has created a great sense of uncertainty. Meanwhile, every nation is drawing up its own plan to stimulate economic-social recovery.

The Coronavirus has not spared the United States either and has interrupted a lengthy period of constant growth in the nation's GDP. Nevertheless, the U.S. economy has once again proven to be more reactive and dynamic than economies in other regions around the world.

In this tricky situation, Mapei Corporation, the Group's U.S. subsidiary, has quickly implemented new plans to combat the crisis and fully resume its activities so that the economy will be able to perform really well during the second half of the year. The United States are the focus of this issue of *Realtà Mapei International*, which includes a comprehensive special about a country where Mapei has been a leading player in the building industry for so many years and is widely considered to be a business of the very highest order. Its operations are being strengthened by launch-

### A U.S.A. SPECIAL ABOUT MAPEI'S BUILDING PROJECTS AND PLANS TO GROW ON THE AMERICAN MARKET

ing new product lines on the market and extending its production facilities, warehouses and offices.

Mapei's cultural "vocation" is perfectly embodied in its sponsorship of important projects, such as a campaign of archaeological digs in eastern Turkey close to the border with Syria. An incredible experience described in this issue in one of the "hottest" areas of the planet and an enterprise that not even the war could stop.

The magazine also covers various other Mapei projects: from its social responsibility initiatives to sustainability and sport.

And we will also be looking back nostalgically twenty-five years ago to 1995, the year when the legendary Mapei Professional Cycling Team won so many races worldwide.

Enjoy your reading

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**Cover story**  
This issue features a "U.S. Special" focusing on the current situation of U.S. national economy, the real-estate market, and Mapei's operations: sales figures, strategies, new facilities, exhibitions and plenty of projects where Mapei solutions have been used.

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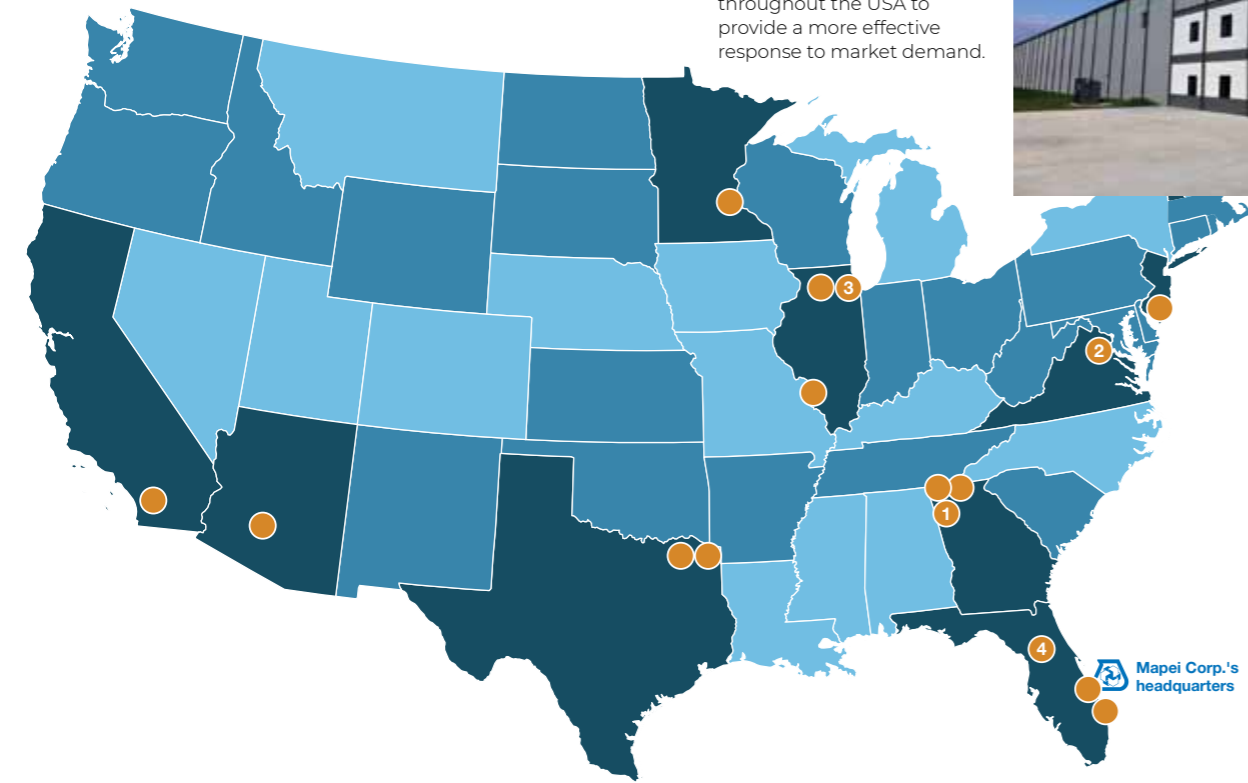
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# Steady Amidst Turmoil

MAPEI CORP, THE U.S. SUBSIDIARY OF THE GROUP, QUICKLY IMPLEMENTED NEW PLANS SO THAT IT COULD KEEP ON DOING BUSINESS EVEN DURING THE COVID-19 CRISIS

Mapei Corporation has a network of offices and 15 production facilities throughout the USA to provide a more effective response to market demand.



1. Calhoun, Georgia: new production plant under construction.
2. Fredericksburg, Virginia: new warehouse under construction.
3. West Chicago, Illinois: office extension under construction.
4. Wildwood, Florida: new production warehouse expansion.

According to a report on [construct-connect.com](http://construct-connect.com), the construction sector, which was “considered to be ‘essential’ in most locations (and therefore allowed to remain open) even as the coronavirus was decimating employment in many other categories of work, managed good month-to-month jobs numbers in May: +464,000 as a level and +7.1% in percentage-change terms.<sup>7</sup> Based on information through May, the CBO estimates that “over the 2020–2021 period, economic activity is projected to fall by the greatest amount in the second quarter of 2020, because of the pandemic and the social distancing measures. Real GDP – or real output – is projected to pick up during the second half of the year, and labor market conditions are expected to materially improve after the third quarter as concerns about the pandemic diminish and as state and local governments ease stay-at-home orders, bans on public gatherings, and other measures.”<sup>8</sup>

Things are starting to improve with business re-openings in the months of May and June. Individual states are beginning to re-open with strict social distancing policies in place. The U.S. Constitution grants power to the individual states to determine how and when they will re-open, so it will be a patchwork of policies as state after state comes back “online,” each with its own set of social distancing regulations. As I write this, the GDP numbers for Q2 have just been released. The numbers show a much stronger picture than anticipated.

#### Better than GDP

Mapei Corporation has had a better outlook than the GDP. This was in part because we entered 2020 with strong momentum, capitalizing on positive growth from 2019. We experienced an increase in sales at the beginning of the year, which was the result of the natural trends within the market, as well as an increase in year-over-year (YOY) pricing. Our retail and wholesale sales channels have increased 24% and 3%, respectively, from 2018. The strong numbers from our retail sales have been helped by the fact that, although they may have

reduced hours and/or closed some locations, as “essential businesses,” our retail distributors have remained open during the COVID-19 crisis. One unexpected result of the “stay-at-home” precautionary measures has been an increase in home improvement projects, such as re-tiling kitchens and bathrooms, and we have consequently experienced the increased sales through our retail channels. Mapei Corporation expanded in terms of production capabilities as well. The growth that started in 2019 before the crisis continued after, with safety protocols in place, at the following facilities:

- **Calhoun, Georgia:** New production plant under construction (19,500 m<sup>2</sup>); work began in May 2020 and is scheduled to be completed in Q3 2021.
- **Fredericksburg, Virginia:** New warehouse under construction (5,730 m<sup>2</sup>); scheduled to be finished in Q3 2020.
- **West Chicago, Illinois:** Office extension under construction (148 m<sup>2</sup>); scheduled to be completed in Q3 2020.
- **Wildwood, Florida:** New production warehouse expansion (149,000 m<sup>2</sup>); scheduled to be finished in Q4 2021.

The months leading up to the COVID-19 crisis were among the strongest for both the U.S. economy and Mapei Corporation. In fact, Mapei Corporation closed out 2019 with a very strong showing – a 5.5% increase over 2018’s record numbers. In Q4 of 2019, the American GDP increased 2.1%. Q1 of 2020 began as a continuation of that growth. According to a March statement released by the U.S. Federal Reserve Board’s Federal Open Market Committee, “the labor market remained strong through February and economic activity rose at a moderate rate.”<sup>2</sup> February 2020 was the last month

in which the U.S. economy was unaffected by COVID-19. Then, the effects of the pandemic were widely and quickly felt. As the virus spiked in March and April, social distancing measures were put into strict practice throughout the U.S. Many businesses were forced to close. This has had an effect on the economy. By March, construction employment numbers were down by 29,000<sup>3</sup>, while the total number of unemployed in the U.S. was reported at 710,000. April saw the total jobs lost equalling almost all the jobs gained since 2008-2009: 20.5 million<sup>4</sup>. Construction was -924,000.

By May, the Congressional Budget Office (CBO) estimated “that real gross domestic product will contract by 11% in the second quarter of this year, which is equivalent to a decline of 38% at an annual rate, and that the number of people employed will be almost 26 million lower than the number in the fourth quarter of 2019.”<sup>5</sup> In their most recent report, the Bureau of Labor Statistics (BLS) announced in May that the construction industry’s unemployment rate was 12.7%<sup>6</sup>. It was at 3.2% in May of 2019. This is a steep and rapid decline and mirrors the effects of the pandemic felt worldwide.



#### MAPEI CORP.’S FIGURES

(2019/2018 percentage variations)

- +5.5% increase of sales over 2018’s record numbers
- +24% increase of sales through retailers
- +3% increase of sales through distributors

Mapei Corporation also expanded with the introduction of a variety of new products. Our Sports Flooring division has launched the TNS line of products for sport surfaces. Our Concrete Restoration Systems division recently launched PLANITOP EL, PLANITOP 18 TG, PRIMER SN and PRIMER SN FAST. At The International Surfaces Event (TISE), our Tile & Stone Installation Systems and Floor Covering Installation Systems divisions introduced the following new products to the market: ULTRAFLEX LHT SG, ULTRACOLOR PLUS MAX, ULTRABOND ECO GPT, MAPELASTIC TURBO, KERAFLEX SUPER, MAP-EHEAT radiant floor-heating system, ULTRABOND ADHESIVE SPRAYS, ULTRABOND ECO 907, SHOWER SYSTEM 4 LVT, PRIMER X, and NOVOPLAN DPL.

#### Committed to excellence

We are proud of the industry recognition of our commitment to excellence that we have garnered in the past year, such as the 2019 GreenStep International award (for further information see the article on Coverings in this issue of the magazine). Accolades such as this are the result of the hard work and dedication of our various departments and speak to the teamwork inherent within the com-

pany. It is that teamwork and dedication that has pulled us through the COVID-19 crisis. While nobody could have foreseen a pandemic of this magnitude, I am proud to say that here in North America, we quickly pulled together plans to continue operating during the crisis.

We have shifted our daily practices – telecommuting whenever possible, attending virtual conferences, conducting our training program via a robust calendar of webinars, meeting our clients online rather than in person – all while continuing to deliver product.

And as the country slowly reopens, we have instituted the “Building America’s Recovery Together” promotion, which features a selection of our fast-track products in response to problems faced by contractors on today’s jobsites: limited hours of availability on jobsites and fewer crew members working on shifts due to social distancing requirements.

All of these efforts have required the attention of all departments, working together to ensure that as an “essential business” we remained open.

As previously stated, the forecast for Q3 and Q4 predicts a pick-up in the economy and we are optimistic about the rest of 2020. As I write this in early June, the economy is on the

rise, and is shifting so quickly that even the experts can’t agree on the exact figures. But they can agree that the numbers weren’t as dire as predicted. The American economy was the strongest it had ever been going into this crisis, and we are confident that we will exceed that growth once the country opens up fully again. As states begin to come back online, and our market fully reopens, we anticipate steady and continued growth in the coming quarters. Our efforts during the quarantine have further positioned us to drive sales and product to better support and reach our clients.

In the end, we are predicting strong positive growth for the year, even considering the losses of Q2. In fact, the remainder of Q2 is returning to a form of normalcy for June and we will most probably see very positive results in July. We expect that the 3<sup>rd</sup> and 4<sup>th</sup> quarters will be very strong.

This is still a very positively performing company and still a record year from 2019.

**Luigi Di Geso**, President and CEO, Mapei North America

As of writing, the economic data contained herein is accurate and up-to-date per the latest U.S. government information.

## INTERVIEW

# A bridge between business communities



IN THE WORDS OF SIMONE CROLLA, MANAGING DIRECTOR OF AMCHAM ITALY

#### What is the role of the American Chamber of Commerce in Italy as regards business relations between the two countries?

Our organisation has two purposes: on one hand to represent American investors - current and potential - in Italy, helping improve the business climate and hence Italy’s appeal to American investors and, on the other hand, to support the business operations of Italian companies planning to internationalise in the United States.

In other words, we play both an institutional and representative role, thanks to a very close working partnership with the United States Embassy in Italy and the Italian Embassy in the United States.

We are a link between the business communities in both countries, implementing an agenda focused primarily on the need to strengthen business, financial and investment relations even more.

#### Might the American market be interesting for small Italian companies? How can they be helped in developing their business in the United States?

The American market is certainly of potential interest to all Italian companies, regardless of their size. However, a business must be organisationally structured the right way to successfully take on the challenge posed by the United States. An initial cognitive survey based on market analyses and feasibility studies is vital for understanding the market in question and the specific demands of American clients.

Only after completing these studies and assessing how well prepared a business is can you possibly think about breaking onto the American market, also bearing in mind such technical factors as certification standards, the issue of visas etc.

#### Have Italian companies flourished in the USA over recent years?

Italian investments in the USA have grown exponentially over the last 15 years (2003-2018), increasing from 6.9 billion U.S. dollars to 31.3 billion U.S. dollars, equivalent to a rise of over 350%. Exports have risen in a similar way, reaching a figure of 57.2

billion US dollars in 2019 (plus 124.9% compared to 2003), which has enabled Italian companies to accumulate a business surplus of over 30 billion U.S. dollars, something which has placed them under the careful scrutiny of the USTR, the authority in charge of investigating business imbalances and, if necessary, enforcing countervailing duties.

#### Which business sectors offer the best opportunities?

Alongside the familiar 3Fs (Food, Fashion and Furniture) the fourth and most valuable F is...FCA. Mechanics in all its various aspects represents over 16% of Italian exports to the USA, surpassed in 2019 by chemicals (19.4% of total exports). Italian manufacturing is admired, technologically advanced and has succeeded in breaking into key market sectors. Many exporting companies decide to increase their presence by investing in manufacturing plants and taking over American companies, so they can grow even further from both a financial and organisational viewpoint. As proof of this, the rise in exports has moved hand-in-hand with a simultaneous increase in Italian investment in the United States, as mentioned previously.

#### Can a big company like Mapei help small businesses and boost the supply chain for Italian manufacturing and design in the USA?

Big companies can, and perhaps should, be the drivers behind the growth of the industrial supply chains they represent, so as to help develop the kind of system Italian economy needs so badly, bearing in mind it is mainly composed of small and medium-sized businesses that need internationalisation and managerial expertise to grow successfully.

Italian leading national companies, including Mapei of course, have a major mission: to be both the standard bearers and ambassadors for the internationalisation of Italian manufacturing system in the USA. A goal which, I firmly believe, can be reached thanks to the leadership and success these businesses have achieved down the years.

Italy has enormous and untapped potential: we just need to recognise this and bring it to the fore.



#### Veronica Squinzi is Vice President of AmCham Italy

Veronica Squinzi, Corporate CEO & Global Development Director of the Mapei Group, was appointed Vice President of the American Chamber of Commerce in Italy (AmCham) on the 25<sup>th</sup> June after being a member of the Board of Directors for a number of years. The American Chamber of Commerce in Italy, a private non-profit organisation, sets out to promote economic-cultural relations between the United States and Italy and to protect the interests of its own members in business dealings between the two nations. At the moment it has over 500 members, including the largest Italian and American multinationals, numerous Italian medium-sized enterprises, as well as the most well-known international professional law firms.



# Uncertainty for the future of the U.S. construction industry

COVID-19 HAS HAD AN IMPACT THROUGHOUT THE UNITED STATES: HOUSING STARTS HAVE HELD THEIR GROUND IN THE PACIFIC COAST STATES WHILE DEMAND FALLS DRAMATICALLY IN THE NORTHEAST

What a difference between this year and 2019! 2020 has been a year of rupture and, we hope, a year of reconstruction. Up until now we were able to look at the figures for this sector and forecast what would happen in the future, or at least make reasonably reliable projections. In normal conditions, the sector tends to expand or contract by a rather limited amount. At the beginning of 2020, we were hopeful that the number of housing starts would have managed to climb back to the historical average of 1.4 to 1.5 million units. And instead, Covid-19 put the brakes on the United States economy and also had a major impact on the construction sector.

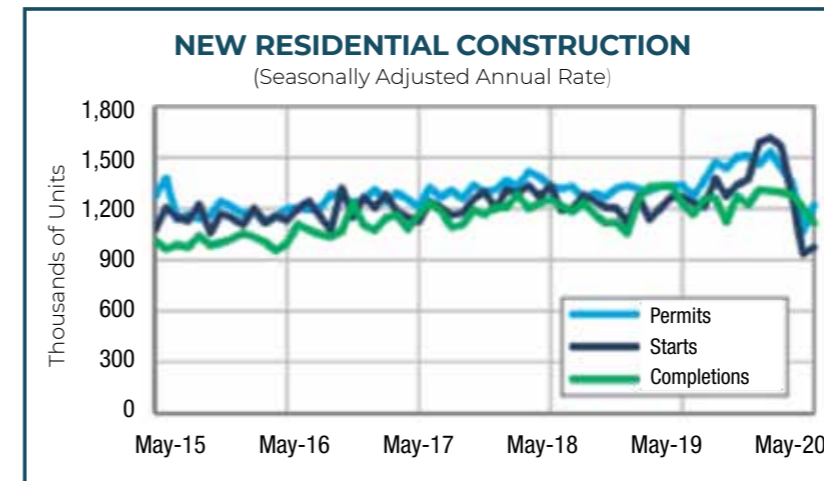
## A fall in investments forecast for the residential remodelling sector in most major cities

### The effect of the order to stay at home

The "lockdown" order created categories of essential activities that were allowed to carry on operating and other activities considered non-essential that had to be put on hold. These essential activities included health service and food stores and applied to all states. The construction sector was exempted in only a part of the United States.

The number of housing starts in May 2020 fell dramatically compared with the same month in 2019, dropping from 1,268,000 to 891,000 units<sup>1</sup>. According to an editorial that appeared in the Wall Street Journal on May 25, only 4% of construction workers in Florida remained without work, while the percentages were much higher in other states where the lockdown had been enforced earlier and was more widespread. In the state of New York the number of unemployed construction workers rose to 41%, in New Jersey to 27%, in California to 17% and to 11% in the state of Illinois. Florida was the state with the highest number of exemptions for occupations considered to be "low-risk", such as contractors, manufacturers and certain sectors of the retail trade.

According to an analysis carried out for each region, the figures show that, of the 974,000 "Housing Starts" throughout the entire country, 479,000 (49%) were in the southern region of the United States, which goes from Florida to Texas. The variations between one year and the other are dramatic: the south, for example, registered a



Source: U.S. Census Bureau, HUD, June 17, 2020

decline of 708,000 to 479,000 housing units (a fall of 32%). In the west, on the other hand, which covers the states along the Pacific coast, the decline was limited to just 2%, from 315,000 to 309,000 units. In the Midwest, the central part of the country, the fall was from 158,000 to 133,000 units (a 16% drop), while the Northeast saw the highest fall in percentage terms, from 87,000 to 53,000 units (39% fewer).

### Non-residential construction sector

The general uncertainty led to many projects being postponed or cancelled. Also, the guidelines recommended by the Occupational Safety and Health Administration (OSHA) to prevent contagion, reduced the number of workers that could be on site at the same time and specified that no more than one contractor could be present at any one time. Unlike the residential sector, there are no figures available for the number of projects that have been started in the non-residential construction sector. It will only be possible, therefore, to measure the full effect of Covid-19 after a few months.

### Remodelling sector

According to projections published on April 30 by the Remodelling Futures Program at the Joint Center for Housing Studies of the University of Harvard, the impact of Covid-19 will lead to a reduction in the amount spent on residential remodelling in most metropolitan areas of the country. It is worth noting that "Home Centers", which are the main sources for materials used in remodelling, had been classified as "essential activities" and benefited from the lockdown ordered by state authorities, enjoying a real boom during Covid-19. One such example is Home Depot, the largest chain of Home Centers in the United States, whose shares on the Stock Exchange returned to their maximum levels during the pandemic.

### Changes in the construction and housing sectors

Covid-19 has been a real blow to the economy and has also changed the way many companies operate. In New

## VARIATION IN HOUSING STARTS COMPARED WITH 2019

(figures for May)

- Southern states: **-32%**
- Western states: **-2%**
- Midwest: **-16%**
- Northeastern states: **-39%**

York, employees of some companies will continue to work from home on a permanent basis. Other companies will reduce office-based staffing levels. As a result, there will be lower demand for office space and, at the same time, an increase in demand for houses in suburban areas.

Covid-19 has proven that, for a lot of companies operating in the service sector, their employees can work anywhere. In San Francisco, for example, rents have already fallen by almost 10% in anticipation of many employees from local companies transferring to suburban areas where housing costs are lower. In the same period, there has also been

an exodus from New York to other states where costs are lower. In the meantime, in this state of emergency, the Federal Reserve has lowered interest rates. The demand for 30-year mortgages, with an average interest rate of 3.37%, at the beginning of June was 18% higher than last year.

All this means there is a mixed outlook for the economy and the construction sector. On the one hand, when factories and offices reopen, and employees finally go back to work, a significant recovery is expected. On the flip side, it must be noted that some sectors of the economy have received a mortal blow. First and foremost Retail Sales<sup>3</sup>.

The real-estate sector will suffer because of the number of bankruptcies and unpaid rent due from companies and tenants that have remained without work. And in the meantime, there will certainly be much less spent on remodelling in the non-residential sector and on rented apartment buildings.

The online newsletter published by the magazine *Builder* on June 5 opened with the title "Here's Why Home Building's Future Has Never Been Brighter". It all depends on how we define the word "Future"!

<sup>1</sup> <https://www.census.gov/construction/nrc/pdf/newresconst.pdf>

<sup>2</sup> <https://www.osha.gov/SLTC/covid-19/construction.html>

<sup>3</sup> <https://www.dallasfed.org/-/media/Documents/research/econdata/uscharts.pdf>



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Las Vegas (Nevada, USA)

**WORLD OF  
CONCRETE**

4<sup>th</sup> - 7<sup>th</sup> February, 2020  
Las Vegas (Nevada, USA)

# The world of Mapei at the World of Concrete

MORTARS FOR REPAIR, WATERPROOFERS, PRIMERS AND LEVELLING COMPOUNDS FOR EXPERTS IN THE CONCRETE INDUSTRY

More than 54,000 industry professionals from around the world attended the 45<sup>th</sup> edition of World of Concrete (WOC), the commercial construction industry's largest annual international event for concrete and masonry professionals. The event featured 1,310 companies - both U.S. and international - exhibiting across more than 65,032 m<sup>2</sup> of space. In fact, in spite of the threat of coronavirus, the international presence remained strong with 237 companies from 29 countries outside the United States exhibiting this year.

Centered around a demonstration stage and filled with innovative system solutions, Mapei Corp.'s two-storey booth dominated the convention floor. For a second year, Mapei Corp.'s

product demonstrations were emceed by Kevin O'Connor, the host of the award-winning home improvement television show "This Old House." As emcee, O'Connor interacted with the Mapei team and with the gathered crowd, asking perceptive, real-world questions that drew people to the booth.

#### Product demonstrations

Products demonstrated included several solutions distributed by Mapei Corp. on the U.S. market for repairing concrete (PLANITOP 18 TG, PLANITOP 11, PLANIGROUT 712, PLANILEVEL 420), waterproofing systems (PLANISEAL CRI, MAPEI LMR FABRIC, MAPEBOND 720), draining systems (MAPEDRAIN 30), grouts for anchor-

ing and fixing (PLANIGROUT 350), primers and levelling compounds for substrates (PRIMER T, PRIMER SN), as well as solutions for cementitious floorings (PLANITOP EL).

Mapei Corp. also participated in two charity events at WOC, donating products to auctions to benefit Concrete Cares and Concrete Industry Management (CIM). Concrete Cares is a charity that supports research into curing childhood cancers, as well as supporting families dealing with the disease by helping with rent and other living expenses. CIM is a program that works with colleges to enroll students in concrete industry degree programs.

In addition, Mapei Corp. held an in-booth VIP event which was highly anticipated and well-attended.

From demonstrations and education, to industry support and networking, Mapei Corp. covered the shows, successfully capitalizing on every ability and opportunity.

Mapei Corp.'s product demonstrations showed the general public a variety of the company's products for the concrete industry.

## New products with lots of benefits

### IN THE SPOTLIGHT: SYSTEMS FOR HEATED FLOORS AND LVT SURFACES INSTALLED IN WET ENVIRONMENTS

This year the International Surface Event (TISE) drew approximately 25,000 industry professionals from 78 countries to The Mandalay Bay Convention Center in Las Vegas (Nevada, USA). Comprising three trade shows – SURFACES, StonExpo/Marmomac and TileExpo – TISE featured 600 manufacturers and suppliers of tile, stone, marble, resilient, textile and wooden floor and wall coverings. It was a busy and successful show for Mapei Corp., the U.S. subsidiary of the Group. The Mapei Demo Team, led by National Technical Presenter Sam Biondo, debuted MAPEHEAT

product line for heated floors, which is distributed on the U.S. market by Mapei Corp., to large interested crowds each day. The crowds also gathered around a mock shower installation featuring SHOWER SYSTEM 4 LVT, three complete systems developed by Mapei for waterproofing and installing LVT in showers, bathrooms and damp surroundings in general. Other new products manufactured and distributed by Mapei Corp. on the U.S. market that were demonstrated at TISE 2020 included products for bonding and grouting ceramic tiles and stone materials (ULTRACOLOR PLUS MAX, ULTRABOND ECO GPT, ULTRAFLEX LHT SG, KERAFLEX SUPER), waterproofing and preparing substrates (MAPELASTIC TURBO, PRIMER X, NOVOPLAN DPL) and installing wooden floors (ULTRABOND ECO 907). On the final day of the show, Mapei

Corp. held a very successful press conference at which the U.S. subsidiary introduced its new products and thanked the press for their continued support. That evening Mapei Corp. also held an in-booth VIP reception to thank its valued clients.

Product demonstrations by the Mapei Demo Team showcased the benefits of adhesives for ceramics and wood, waterproofing compounds and products for substrates distributed by Mapei Corp.







# Coverings Connected 2020

A VERY SPECIAL EDITION: MAPEI'S ONLINE EXPERIENCE



Brittany Storm,  
Sustainability  
Manager for  
Mapei Corp.

Coverings, the preeminent event for the ceramic tile & natural stone industry in North America, was originally slated to take place in New Orleans from April 20-23, but the COVID-19 crisis derailed plans. Yet the industry refused to cancel the conference, and "Que le bon temps roule... en ligne" ("let the good times roll... online") became the rule of the day.

Although initially there was some disappointment about the cancellation of the physical conference, the virtual conference (which started on April 20<sup>th</sup> and will remain ongoing until Coverings 2021) has proven to be a success. Coverings is always one of the highlights of the exhibition calendar for Mapei Corporation, the U.S. subsidiary of the Group, and 2020 has been no exception. "Rather than a physical booth that has a finite lifespan, the online conference provides us with a virtual booth and the opportunity to present videos, product spotlights and press releases," said Steven Day, Mapei Corporation's Director of Operational Marketing.

## A Rock Star for Mapei Corporation

Among the innovations highlighted in Mapei's "booth" is the press release celebrating the fact that Brittany Storm, Mapei Corporation's Sustainability Manager, was awarded "Rock Star of the Year" in the manufacturer category.

The Coverings Rock Star award is designed to honor emerging leaders in the tile and stone industry. Brittany is a LEED Accredited Professional (AP) with Building Design and Construction (BD+C) and Interior Design and Construction (ID+C) specialties, as well as a WELL AP and Fitwel Ambassador. In addition, she is active in several sustainability committees. Her background as a sustainable building consultant and experience in construction management allows her to speak to both big picture and technical aspects of a project. "I am honored for the recognition. Thank you all for your continued support and encouragement," Brittany said when asked to speak about the recognition.

## New products for ceramic tiles and heated floors

Visitors to the Mapei virtual booth also discovered a variety of new products on offer, which are manufactured and distributed on the U.S. market by Mapei Corp., including the MAPEHEAT line of radiant floor-heating products, adhesives for ceramic tiles and stone (KERAFLEX SUPER, ULTRAFLEX LHT SG, ULTRABOND ECO GPT) and coloured grouts for joints (ULTRACOLOR PLUS MAX, MAPEI FLEXCOLOR CQ).

In the spotlight also MAPELASTIC TURBO, a high-performance, two-component, rapid-drying elastic waterproofing mortar which is also available on the international market.

Coverings 2021 is scheduled to be held on April 13<sup>th</sup>-16<sup>th</sup> in Orlando, Florida.



In the spotlight at Coverings Connected 2020 the new Mapeheat family of products for heated floors, distributed on the US market by Mapei Corp.

## THE SHOW MUST GO ON... LINE

To experience Mapei Corp.'s virtual booth, visit: <https://expo.coverings.com/cov2020/public/eBooth.aspx?IndexInList=0&FromPage=Exhibitors.aspx&ParentBoothID=&ListByBooth=true&BoothID=361850>

To learn more about the 2020 Rock Star awards, visit: <https://www.coverings.com/press-release/coverings-honors-emerging-professionals-with-2020-rock-star-awards/>

## The Winners of the "2020 Ceramics of Italy Tile Competition"

THE "CERAMICS OF ITALY TILE COMPETITION" IS AN INITIATIVE OF CONFINDUSTRIA CERAMICA (ASSOCIATION OF ITALIAN MANUFACTURERS OF CERAMIC TILES AND REFRACTORY MATERIALS) TO PROMOTE EXCELLENCE

IN THE USE OF ITALIAN CERAMIC TILES IN BUILDINGS DESIGNED IN NORTH AMERICA. THIS YEAR THE WINNERS WERE ANNOUNCED DURING A VIRTUAL PRESS CONFERENCE HOSTED BY COVERINGS CONNECTED ON APRIL 20.

### Commercial architecture

#### WINNER

**Project:** Garden City Shopping Centre, Winnipeg (MB, Canada)  
**Design:** Ruscio Studio  
**Photos:** Kyle Thomas, Mart Progettista Company

#### HONORABLE MENTION

**Project:** Hotel Bennett, Charleston (SC, USA)  
**Design:** Progettista Continuum, Inc.  
**Photos:** David Allen; Library Associates, LLC/ Bennett Hospitality; Joseph Heath; Clovis LaCour; David Laudadio

### Residential architecture

#### WINNER

**Project:** M+B Residence Club de Golf la Herradura, Monterrey (NL, Mexico)  
**Design:** Bolivar Arquitectos  
**Photos:** Francisco Álvarez, The Raws

#### HONORABLE MENTION

**Project:** 426 Tompkins Ave, Brooklyn (NY, United States)  
**Design:** STUDIOOSC  
**Photos:** Heidi Solander, Etienne Warneck

### Institutional architecture

#### WINNER

**Project:** NYC Healthcare Clinic, New York (NY, USA)  
**Design:** Perkins and Will  
**Photos:** Dave Burk

#### HONORABLE MENTION

**Project:** Nathan Phillips Square Bicycle Station | Archive 513, Toronto, (ON, Canada)  
**Design:** uoai architects  
**Photos:** Scott Norsworthy

### Student

#### WINNER

**Project:** ...sensuum spa  
**Design:** Carolina Cardona, Gabriela Mesquita, Rachael Cowan E Mariapia Sierra, Florida International University (FIU)

### People's choice award

#### HONORABLE MENTION

**Project:** The Rodney, Portland, (OR, United States)  
**Design:** Vida Progettista  
**Photos:** Shelsi Lindquist Photography





## Philadelphia (Pennsylvania)

# THE MET PHILADELPHIA

### REPAIR MORTARS AND A CUSTOMIZED COATING HELPED TO REVIVE A HISTORIC THEATRE

In 1908, when the massive building opened, it was the largest theater of its kind in the world. Home to the Philadelphia Opera Company and built by the company's owner, Oscar Hammerstein I (grandfather of the famed composer Oscar Hammerstein III), the Philadelphia Opera House was the sparkling jewel in Philadelphia's thriving arts community. In 1910, the Hammerstein family sold the Opera House to the New York Metropolitan Opera. Renamed as the Philadelphia Metropolitan Opera House, the beautiful Classical Revival theater with superior acoustics continued to draw crowds of music lovers.

#### Film killed the opera diva

By the 1920s, the crowds were clamoring for a new art. The theater adapted and began showing silent films as well as staging operas. After the US Stock Market Crash of 1929 and the ensuing Great Depression, interest in the theater waned. Opera performances declined at the theater and eventually ended. The films moved to their own "palaces" (movie theaters) built especially for the exhibition of motion pictures. The Metropolitan Opera House building briefly became a public ballroom. Next, it was purchased by a sports promoter who turned the orchestra pit into a basketball court.

Finally, in 1954, the building became a church designed to minister to the needs of the surrounding neighborhood, whose fortunes had also declined along with those of the venerable theater building.

Although it was officially added to the U.S. National Historic Registry of Places in 1972, by the late 1980s the Opera House was all but abandoned and had begun to deteriorate. In 1996, it was in danger of demolition by the City of Philadelphia. The building was saved when another church, this time the Holy Ghost Headquarters Revival Center, purchased the property and began renovation efforts.

In 2017, Holy Ghost Headquarters and developer Eric Blumenfeld established a joint ownership agreement and large-scale renovation efforts to begin restoring the building to its former glory, now rebranded as The Met Philadelphia.

#### Mapei products on the jobsite

"Blumenfeld is the developer who is playing a large role in the revitalization of Philadelphia's N. Broad Street area," said David Marofsky, Concrete Restoration & Waterproofing Specialist for Pennsylvania, Ohio, Delaware and Southern New Jersey at Mapei Corporation (the U.S. subsidiary of the Group). "He knew the building's history and its importance to the neighborhood. He wanted to be sure that it was faithfully restored."

As part of the larger N. Broad Street area renaissance, Blumenfeld worked with Culbertson Restoration Ltd. and their highly trained crews of waterproofing and exterior façade restoration experts. For this project, he was joined by superintendent Mike Kirchhoff and project manager Mark Meighan. "Historic renovations are one of our specialties," Kirchhoff said. "It has been great to see this area of town coming back to life."

For the Metropolitan Opera House building, that resuscitation – on the building's exterior – came with help from Culbertson and Mapei Corp. "Mapei was involved very early on in the specification process," Marofsky said. "We worked with the owners and with Culbertson for a little more than a year before construction actually started in the Fall of 2017. The repair mortars were easy. We wanted to get the exact right color and texture of the coatings."

Kirchhoff concurred. "The existing original coating was a cementitious type, and not all of it would be removed. We wanted to be sure to match its color and texture with the repaired pieces. That meant that we needed a coating that had a sandier texture than the existing coatings that we were looking at."

Mapei has a solution for every problem... and can create a new product solution if needed, according to



**1, 2.** Several concrete repair solutions by Mapei were used on different areas of the building, before applying ELASTOCOLOR TEXTURE coating.  
**3.** Thanks to Mapei products, the MET has been restored to its original glory.

Rankin Jays, Mapei Corp.'s Business Development Leader – Coatings. "We were in the throes of developing a heavier-textured coating," he added, "and this project came along at the right time." Mapei Corp.'s Research & Development lab in Deerfield Beach (Florida, USA) worked with Jays, Marofsky and Kevin Smith, Mapei Corp.'s Director of Concrete Restoration Systems (CRS), to find the exact right color and texture to match the specifications for the historic building. The resulting product was ELASTOCOLOR TEXTURE, a water-based, acrylic, high-performance textured coating. "The lab worked quite hard to push it through," Jays said. ELASTOCOLOR TEXTURE was designed to be the topcoat on several repairs utilizing Mapei Corp.'s products for concrete repair. "We had a wide variety of concrete repairs on that façade," Kirchhoff explained. "Repairs ranged from brick patch work to replacement, cement cornice repair and/or replacement and concrete repair – in some instances there were exposed steel members." The building's intricately detailed cornices had been originally created from shaped plaster that was poured over a brick foundation. "The cornices form a band of poured concrete around the building and there are three different types of cornice profiles," Kirchhoff said. "Each floor has its own cornice band. This means there is a top cornice, a middle cornice and a bottom cornice." For repairs in the larger areas of the

band, the Culbertson crew used PLANITOP 15, a one-component, cementitious, fibre-reinforced repair mortar, manufactured and distributed on the U.S. market by Mapei Corp. "This created a surface that is very smooth, almost like glass," Kirchhoff stated. "For the smaller, more intricate areas where the cornices have fine details, we used PLANITOP X or PLANITOP XS depending on the working time needed." PLANITOP X is a one-component, fast-setting, fibre-reinforced, vertical and overhead repair mortar, while PLANITOP XS provides the same properties with an extended working window. Both products are manufactured and distributed on the U.S. market by Mapei Corp. Because the building had fallen into such a state of disrepair, the façade needed some extra care. "There were areas where we were repairing rebar, to the there were sections where actual steel members were exposed," Kirchhoff said. "The steel members were blast-cleaned to the NACE No. 2 / SSPC-SP 10 standard for Near-White metal." They were then protected with MAPEFER 1K one-component corrosion-inhibiting cement mortar and then covered with PLANITOP X or PLANITOP XS. This was topped by using ELASTOCOLOR coating system. "The lab color-matched the existing colors perfectly," Marofsky said. "The repaired brick work was coated with ELASTOCOLOR COAT in gray, and the concrete was coated with ELASTOCOLOR TEXTURE in a light gray. This is the application of the ELASTOCOLOR



TEXTURE that was developed specifically for the project." When asked about the project's biggest challenges, Kirchhoff does not mention finding and developing the coating. Both he and Marofsky agree that Jays and the Mapei Corp.'s R&D team in Deerfield Beach made the process easy. "Blasting while working around trades and scheduling the scaffold were the main challenges on this project," Kirchhoff recounted. "The blasting itself wasn't the issue. It was the scheduling. Working around the other trades on the enclosed scaffold and actually getting time was not easy. The scheduling was so impacted, and the scaffold was so busy because this was one of the wettest seasons we'd had – in fact, I think it

was the wettest in recent history. So, working with the GC for access around all the other teams was a bit of a challenge for us all." The Met Philadelphia is now back in business as a mixed-use venue, housing Holy Ghost Headquarters and Live Nation concerts. The reincarnated space officially opened on December 3, 2018, with a concert by folk legend Bob Dylan. And as the spotlights turned on, the façade was once again lit up in all of its Classical Revivalist glory, thanks to the Culbertson crew and Mapei.

*This article was taken from Realtà Mapei North America no.29, the magazine published by Mapei Corp., whom we would like to thank.*

### Problems and solutions

In order to help repair and restore this Classical Revival style building to its original glory, Mapei Corp.'s concrete restoration products were used extensively to restore the façade. And working with the owners and historic conservators, the U.S. subsidiary of the Group developed a new coating product: ELASTOCOLOR TEXTURE. This allowed the Mapei team to meet the challenge of creating a new high-performance coating to match the texture and color of existing historic coatings.

### MAPEFER 1K

One-component, corrosion-inhibiting, cement mortar for the protection of reinforcing rods.

#### FIND OUT MORE



#### TECHNICAL DATA

**The Met Philadelphia,** Philadelphia (PA, USA)  
**Year of construction:** 1908  
**Original design:** William H. McElfatrick  
**Period of the Mapei intervention:** 2017-2019  
**Intervention by Mapei:** supplying products for concrete repair, protecting

and reinforcing rebar, and for coating façades  
**Client:** Holy Ghost Headquarters and Eric Blumenfeld  
**Design:** Atkin Olshin Schade Architects (AOS Architects)  
**Contractor:** Culbertson Restoration Ltd.  
**Mapei distributor:** Thoro System Waterproofing

**Mapei coordinators:** David Marofsky, Joe Markert, and Rankin Jays, Mapei Corp. (USA)

#### MAPEI PRODUCTS

**External concrete repairs:** Planitop 15\*, Planitop X\*, Planitop XS\*  
**External rebar and steel member repairs:** Mapefer 1K

**Wall coatings:** Elastocolor Coat, Elastocolor Texture

\*These products are manufactured and distributed on the U.S. market by Mapei Corp. For further information on products see [www.mapei.com](http://www.mapei.com)



## Oroville (California)

# OROVILLE DAM SPILLWAY

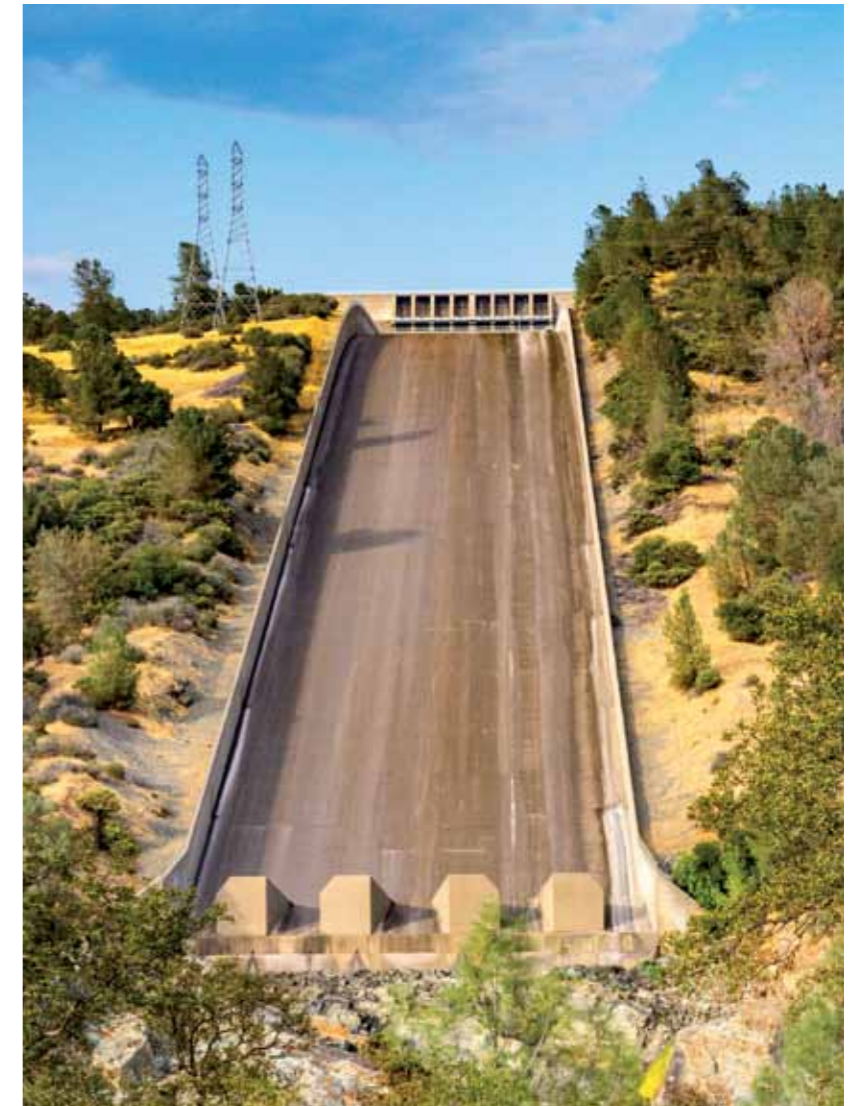
MAPEI PRODUCT HELPED TO STRENGTHEN  
A DAM'S STRUCTURE AND SAVE A CITY

The state of California had a massive problem. Decades had passed with public funds being diverted away from infrastructure projects, resulting in deteriorating freeways and roads, rusting bridges and – as the normally drought-ridden state learned during one rainy winter – crumbling dams.

February 2017 was an unusually rainy season, soaking Northern California to saturation and beyond. On February 7, as the water continued to pour down, state engineers noticed concrete erosion on the flood-control spillway at the Oroville Dam. In operation since 1968, the Oroville Dam is an earth-fill embankment dam

**RIGHT.** In operation since 1968, the Oroville Dam is an earth-fill embankment dam just east of the city of Oroville, California, in the scenic Sierra Nevada foothills.

**LEFT.** On February 7, 2017, as the rain water continued to pour down, California state engineers noticed concrete erosion on the flood-control spillway at the Oroville Dam in California. Strengthening and repair work was completed thanks also to PLANIGROUT 755.



### Problems and solutions

When devastating amounts of erosion were discovered on the Oroville Dam's spillway, thousands of lives were at risk. The dam had to be reinforced before the rains began again and the water levels in the lake started to rise. Mapei Corp.'s PLANIGROUT 755 grout (whose counterpart on the international market is called MAPEFILL) was utilized to fill voids in the concrete and strengthen the repaired structure which contributed to help the town.

located on the Feather River just east of the city of Oroville, California (population 19,895) in Butte County (population 220,400) in the scenic Sierra Nevada foothills. At 235 m high and 2,109 m long with a volume of 59,635,279 m<sup>3</sup>, the Oroville Dam is not only the tallest dam in the United States, it is the only thing separating Lake Oroville from the thousands of people living downstream in Oroville. As additional storms were being predicted, engineers inspected the spillway further and uncovered more erosion. Finally, the California Department of Water Resources stopped the spillway flow and the worst was revealed: the structure was badly damaged and in need of immediate repair. An emergency spillway was created, and the water flow was diverted to it. Rocks were carried by helicopter to the damage site to help shore up the erosion but, like a scene from a nightmare, the effort was no match for the rising water.

At that point, state officials issued evacuation orders for 200,000 people living downstream. The idea of the dam failing and sending Lake Oroville crashing downhill over everything in its path – including the town of Oroville – was turning into more of a reality.

California's massive problem had become a state of emergency. Heavy equipment and construction workers were called in from around the state. As water continued to pour from the emergency spillway, over 125 crews worked around the clock in an attempt to lower the lake level. Finally, by February 17 (10 days after the erosion was first noticed), the crews were ready to begin pouring concrete and Mapei Corporation., the U.S. subsidiary of the Group, was there to help.

**PLANIGROUT 755: Dam right**

"There was one product for this job," said Rob Dyer, the Mapei coordinator on the project. "They knew it would work. We knew it would work. And so, there was a lot of PLANIGROUT 755 delivered to this jobsite."

The specifications called for the installation of about 8,000 pieces of no. 10 rebar on the spillway to reinforce the heavily eroded structure. "Each piece of rebar was sized between 4.57 and 7.62 m in length," Dyer said. PLANIGROUT 755 is a one-component, non-shrinking, cementitious grout. This product is manufactured and distributed on the U.S. market by Mapei Corp. (its counterpart on the international market is called MAPEFILL). The product was excellent for use as non-shrink grout for rebar placement. About 8,000 cores were drilled. Rebar was then placed into the cores.

"We pumped PLANIGROUT 755 in to fill the voids between the pieces of rebar and the outer wall of the core," Dyer said. "We used about 16,000 bags of 22.7-kg product during the entire project."

Fortunately, the rains held off and the water levels in the lake dropped during the repair process. "This minimized the possibility of a dam failure during the quick fix on the damaged spillway and then on the repair/replacement that immediately followed," Dyer said.

Dyer then summed up the incredible experience. "This was a great project to be a part of. How often do you get the chance to help save an entire town?"

*This article was taken from Realtà Mapei North America, no. 30, the in-house magazine published by Mapei Corp., whom we would like to thank.*



**ABOVE.** PLANIGROUT 755 was pumped in to fill the voids between the pieces of rebar and the outer wall of the core.

**MAPEFILL**

High-flow, non-shrink, cementitious grout for precision anchoring of machinery and metallic structures.

**FIND OUT MORE**

**TECHNICAL DATA**  
**Oroville dam spillway,**  
 Oroville (California,USA)  
**Period of original**  
**construction:** 1961-1968  
**Original designer:** U.S.  
 Army Corps of Engineers  
**Period of the Mapei**

**intervention:** 2017-2018  
**Intervention by Mapei:**  
 supplying a grout to install  
 about 8,000 pieces of rebar  
**Client:** California  
 Department of Water  
 Resources  
**Mapei distributor:** USC

Supply, Inc.  
**Mapei coordinator:** Rob  
 Dyer, Mapei Corp. (USA)  
**Photos:** Rob Dyer  
**MAPEI PRODUCTS**  
 Placing rebar:  
 Planigrout 755\*

\*This product is  
 manufactured and  
 distributed on the U.S.  
 market by Mapei Corp., the  
 U.S. subsidiary of the Group  
 For further information  
 on products see [mapei.com](http://mapei.com)

# TECHNOLOGY FOR LARGE HYDROPOWER PROJECTS

MAPEI PROBLEM-SOLVING SOLUTIONS ON JOB-SITES THROUGH SPECIFIC PRODUCTS AND TECHNICAL ASSISTANCE

ADMIXTURES FOR CONVENTIONAL CONCRETE

ADMIXTURES FOR ROLLER COMPACTED CONCRETE

ADMIXTURES FOR HIGH STRENGTH CONCRETE

ACCELERATING PRODUCTS FOR SHOTCRETE

MINERAL ADMIXTURES

STRUCTURAL SYNTHETIC FIBRES

JOINTS AND WATERSTOP

SEALANTS

ANCHORING MORTARS AND RESINS

CONCRETE REPAIR SYSTEMS

TBM SYSTEMS AND TRADITIONAL EXCAVATION

WATERPROOFING AND PROTECTION SYSTEMS

RESIN AND CEMENTITIOUS FLOORING SYSTEMS

CRACK INJECTION SYSTEMS

Gibe III Hydro-Electric Project, Ethiopia  
 Image courtesy of Salini Impregilo





## Southwestern USA A CRUSHING VICTORY

MAPEI UTT SOLUTIONS STABILIZED THE FOUNDATION OF ONE OF NORTH AMERICA'S LARGEST ROCK CRUSHERS... WITH NO DOWNTIME

### Problems and solutions

The crusher needed to remain in operation, which required installation crews to work the "night shift" without interrupting production, saving time and money. Mapei UTT products (SILICAJET EXP and FOAMJET F), as well as the expertise and availability of UTT team members, quickly and efficiently solved the problem.

When the ground beneath one of a major aggregate-producing company's largest rock crushing machines, located in the Southwestern U.S.A. started to erode, a real problem loomed. The crusher sits upon a man-made foundation composed of crushed rock, sand and soil, all held in place with corrosion-resistant wire mesh.

More than 50 years of vibrations and general wear had created large voids in the foundation, which measures approximately 15.2 m deep and 45.7 by 91.4 m wide. The voids had to be filled to prevent further deterioration of the foundation and the ultimate collapse of the machine itself. Taking the crusher out of operation – either by collapse or forced stoppage – was not an option. Not only would it affect aggregate output, it could also reduce production at the entire facility by 66% for many months. And a product loss of this

magnitude could not be allowed to occur. The lost revenue would run in the tens of millions of dollars. So the mine's owners turned to Mapei's UTT (Underground Technology Team) group for help.

### MAPEI UTT products at work

Assessing the situation, the Mapei UTT professionals quickly realized that in order to stabilize the foundation and consolidate the existing soil into a compact and supportive base, they would have to act quickly. Two products were chosen to complete the task: SILICAJET EXP and FOAMJET F.

The former is a two-component, organo-mineral, fast reacting and high foaming resin. Thanks to the high fluidity obtained by mixing its two components, SILICAJET EXP is suitable for waterproofing, consolidating and filling voids, fractures, etc., in underground works whereas a very

high penetrating ability is needed in presence of narrow spaces. The high expansion capacity (over 40 times its initial volume), together with the high fluidity, makes SILICAJET EXP especially suitable for those applications where the ground formation must be made homogeneous and its mechanical properties must be improved. Due to the special formulation of the product, the presence of water or severe weather conditions do not influence the reaction of polymerisation and consequently the expansion of SILICAJET EXP.

FOAMJET F is an ultra-rapid setting, two-component, polyurethane resin with fluid consistency, to be injected, for consolidating and waterproofing structures subject to water ingress. Thanks to its high fluidity, it can penetrate through cracks of only some one hundred microns wide and seals the cracks even if they are subject to water infiltrations. At the end of the setting time, between 3 and 5 minutes, depending on the temperature, FOAMJET F becomes completely waterproof and ensures an adequate consolidation to the treated structure. Once the two components react and generate foam, this product has a good adhesion to rock substrate, it is self-extinguishing, non-toxic and not polluting. This combination of materials allowed for optimum cost control and overall performance.

With the use of a two-component, high-pressure pump, the Mapei UTT products were injected into the strata to stabilize the foundation, fill the voids and stop the erosion. The installing crew worked every night from 4 p.m. to 4 a.m. for about 2 weeks until all of the voids were filled, and the soil was stabi-

lized. With work taking place on the "night shift," the mine was able to remain in operation. Working on the night shift was also a large selling factor for Mapei UTT in a highly competitive market. Mapei UTT staff's on-site support and constant availability by phone made a huge difference in the customer's selection of materials.

Ultimately, the project consumed an excess of 285,000 U.S. dollars of material in less than two weeks, a figure that represents a huge savings in relation to the millions that the company stood to lose had there been a collapse or a shutdown of the rock crusher.

Mapei UTT solutions helped the mine efficiently and effectively repair a half-century's worth of damage in a matter of days without losing production or equipment.

*This article was taken from Realtà Mapei North America, no. 30, the in-house magazine published by Mapei Corp., whom we would like to thank.*

### FOAMJET F

Ultra-rapid setting, two-component, polyurethane resin with fluid consistency, to be injected for consolidating and waterproofing structures subject to water ingress.

### FIND OUT MORE



**1.** One of a major aggregate-producing company's largest rock-crushing machines, located in the Southwestern of the U.S.A., sits upon a man-made foundation composed of crushed rock, sand and soil. The ground beneath it lately started to erode causing real problems.

**2 and 3.** With the use of a two-component, high-pressure pump, the Mapei UTT products (SILICAJET EXP and FOAMJET F) were injected into the strata to stabilize the foundation, fill the voids and stop the erosion.

**TECHNICAL DATA**  
**Rock crusher's foundation in limestone mine,** Southwestern USA  
**Year of original construction:** 1964  
**Year of the Mapei intervention:** 2019

**Intervention by Mapei:** supplying products used to stabilize the foundation underneath the rock crusher, filling the voids and stopping the erosion  
**General contractor:** Tri-State Waterstoppers, LLC

**Installation company:** Green Orange Construction Pro, LLC  
**Project manager:** Green Orange Construction Pro, LLC  
**Mapei coordinator:** Haydn Whittam, Mapei Corp. (USA)

**MAPEI PRODUCTS**  
**Products for underground constructions:** Silicajet EXP, Foamjet F  
For further information on products see [mapei.com](http://mapei.com)

# Honolulu (Hawaii) PARK LANE ALA MOANA

MAPEI PRODUCTS ENSURED LUXURY AND PROTECTION FOR AN OCEAN-FRONT RESIDENTIAL COMPLEX



The Park Lane ala Moana is the newest, most exclusive, luxury beach-front development in a city known for luxury beach-front developments. But rather than add another high-rise condo to Honolulu's skyline, AMX Partners, LLC decided to build a luxury low-rise community of 217 private residences with floor plans ranging from 150 m<sup>2</sup> to more than 560 m<sup>2</sup>. Steps from Ala Moana Beach Park and boasting all of the amenities, including a private elevator connection to the Ala Moana Shopping Center, this property even has a 300-piece private art collection. The Park Lane ala Moana is lush, tranquil, and exclusive and Mapei products were used throughout the entire seven-acre property.

### Numerous products for plenty of interventions

"There was a total of 143,000 m<sup>2</sup> quoted for this project," says Stephen Pazienza, Mapei Corp.'s coordinator on the project. "It ended up being over 91,000 m<sup>2</sup> of ceramic tile and stone coverings; 349,000 m<sup>2</sup> of wooden floorings; 16,000 m<sup>2</sup> of textile coverings; and 2300 m<sup>2</sup> of resilient and rubber flooring."

It took a crew of over 100 people to install a variety of 40 Mapei products onto a footprint that covered over 140,000 m<sup>2</sup>.

Over the course of two years, crews from A-American Custom Flooring (installer) and AC Kobayashai Con-



**LEFT.** The Park Lane ala Moana is a luxury residential complex in Honolulu.

**IN THESE PAGES.** Mapei products were extensively used in many areas of the complex.

struction (contractor) installed a wide variety of Mapei products to match the wide variety of substrates and specified installation needs.

"This project included almost every type of installation you can think of," Pazienza says. "It was a completely new build. There was waterproofing and preparation work. The crews worked on masonry and on concrete. They worked on the building façades and installed coverings. They installed ceramic tiles and stone, wooden flooring, resilient and textile materials."

The list of specified products is impressive and includes products for building, for substrate preparation, for waterproofing substrates, installing ceramic tiles and stone materials, grouting tile joints, sealing expansion joints, installing textile and resilient materials, bonding wooden floors, and cleaning products. Most of these solutions are manufactured and distributed on the .S. market by Mapei Corp.



### MAPELASTIC AQUADEFENSE

Ready-to-use, ultraquick drying, flexible liquid membrane for internal and external waterproofing applications.

#### FIND OUT MORE



#### TECHNICAL DATA

**Park Lane ala Moana,**

Honolulu, Hawaii (USA)

**Period of construction:**

2017-2018

**Period of the Mapei**

**intervention:** 2017-2018

**General contractor:** AC

Kobayashai Construction

**Installer company:**

A-American Custom

Flooring

**Mapei coordinator:**

Stephen Pazienza, Mapei Corp. (USA)

#### MAPEI PRODUCTS

Concrete repair:

Planitop X\*, Planitop XS\*

Substrate preparation:

Mapecem 102\*, Mapecem

Quickpatch\*, Planiprep

SC\*, Eco Prim Grip, Primer

T\*, Primer L\*, Primer WE\*,

Novoplan 1\*, Novoplan 2\*,

Ultraplan 1 Plus\*

Waterproofing substrates:

Planiseal VS\*, Mapelastic,

Mapelastic AquaDefense

Installing ceramic tiles:

Granirapid System\*,

Kerabond/Keralastic\*,

Ultraflex LFT\*, Planicrete

W\*, Adesilex P10 W\*/

Keraply\*

Grouting joints: Kerapoxy

CQ, Ultracolor Plus FA\*,

Keracolor S\*, Keracolor U\*

Sealing expansion joints:

Keracaulk S\*, Keracaulk U\*,

Mapesil T\*

Installing textile materials:

Ultrabond ECO 185\*,

Ultrabond ECO 810\*

Installing resilient

materials: Ultrabond ECO

360\*, Ultrabond ECO 711\*,

Ultrabond ECO G21\*

Installing wooden floorings:

Ultrabond ECO 980\*,

Ultrabond ECO 985\*,

Ultrabond ECO 995\*

Cleaning products:

Ultracare Epoxy Grout Haze

Remover\*, Ultracoat Heavy-

Duty Stone, Tile & Grout

Cleaner\*

\*These products are

manufactured and

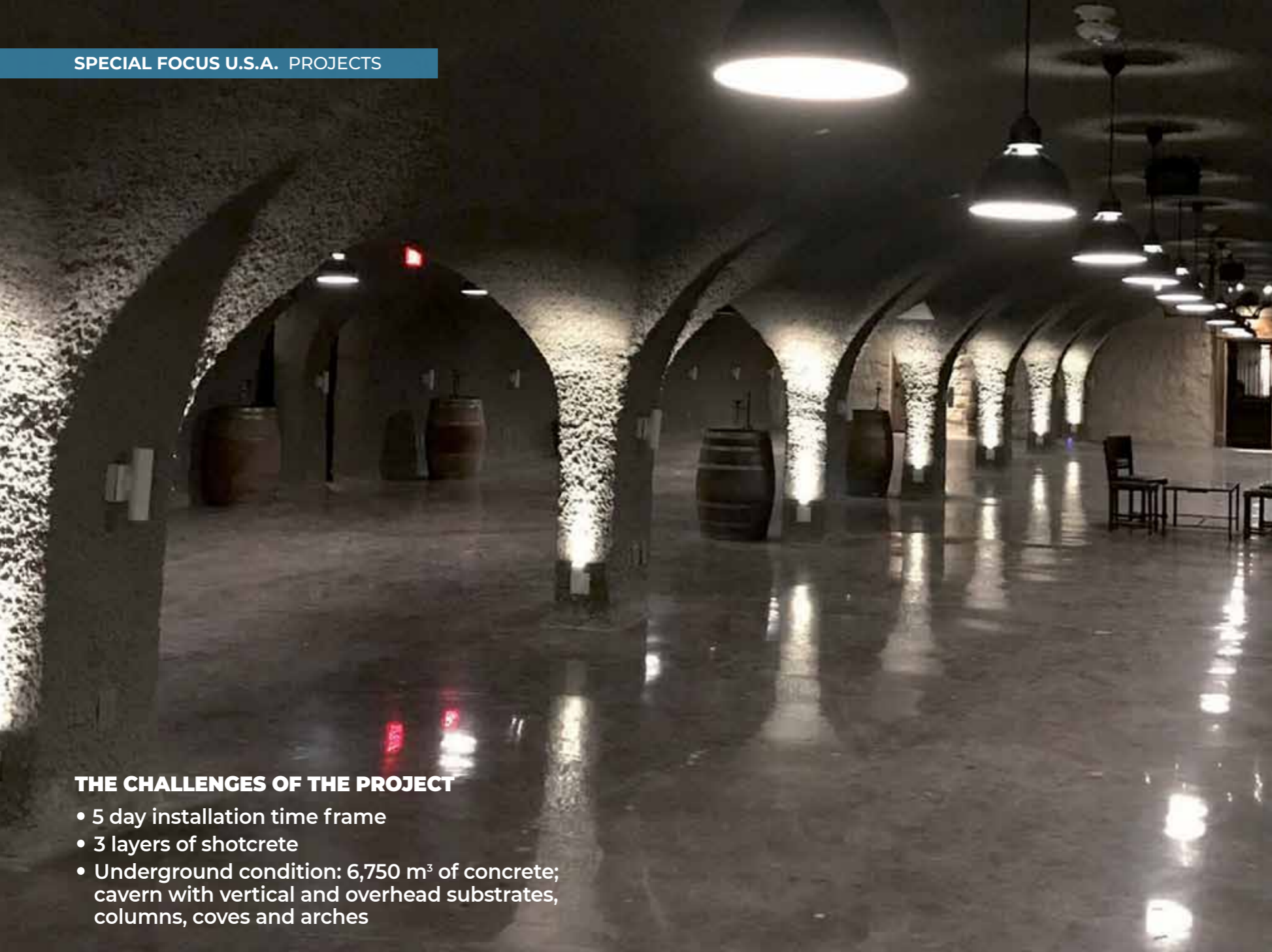
distributed on the U.S.

market by Mapei Corp., the

U.S. subsidiary of the Group

For further information

on products see [mapei.com](http://mapei.com)



### THE CHALLENGES OF THE PROJECT

- 5 day installation time frame
- 3 layers of shotcrete
- Underground condition: 6,750 m<sup>3</sup> of concrete; cavern with vertical and overhead substrates, columns, coves and arches



**ABOVE.** A Cold War bunker was converted into a high-tech wine cave at Houston Oaks, Hockley, Texas.

**LEFT.** MAPEQUICK AFK 888 accelerator was used to prepare the shotcrete that was applied onto the wine cellar's walls and ceiling.

## Hockley (Texas)

# HOUSTON OAKS WINE CELLAR

MAPEQUICK AFK 888 WAS USED TO SPEED AND STRENGTHEN THE CONCRETE APPLICATION THAT TURNED A 1950S-ERA BUNKER INTO A LUXURIOUS WINE CAVERN

In the world of natural gas, Tenneco has a long history. Around World War II, the company – then known as Tenneco Oil and Gas Co. – controlled the pipelines that deliver oil and gas along the Eastern Seaboard of the United States. By the 1950s, a series of acquisitions transformed Tenneco into an international force.

With the advent of the Cold War, Tenneco was concerned about security and wanted a location for its company headquarters that could be easily controlled. In 1956, Tenneco constructed a single facility from which the company could safely control its global gas lines. The site chosen for their new headquarters was in Hockley (Texas) – a suburb 60 km northwest of the facility's previous location in Houston. At that site, Tenneco also constructed the Tenwood Golf Club, which served as a nearly 405-hectare resort for employees and their families.

After the Cuban Missile Crisis in 1962, the Cold War became an international concern. In an effort to protect its global headquarters and employees from a nuclear blast, Tenneco built a 1198-m<sup>2</sup> underground nuclear bunker facility with concrete walls measuring 0.91 m in thickness.

The end of the Cold War and the rise of technology brought many

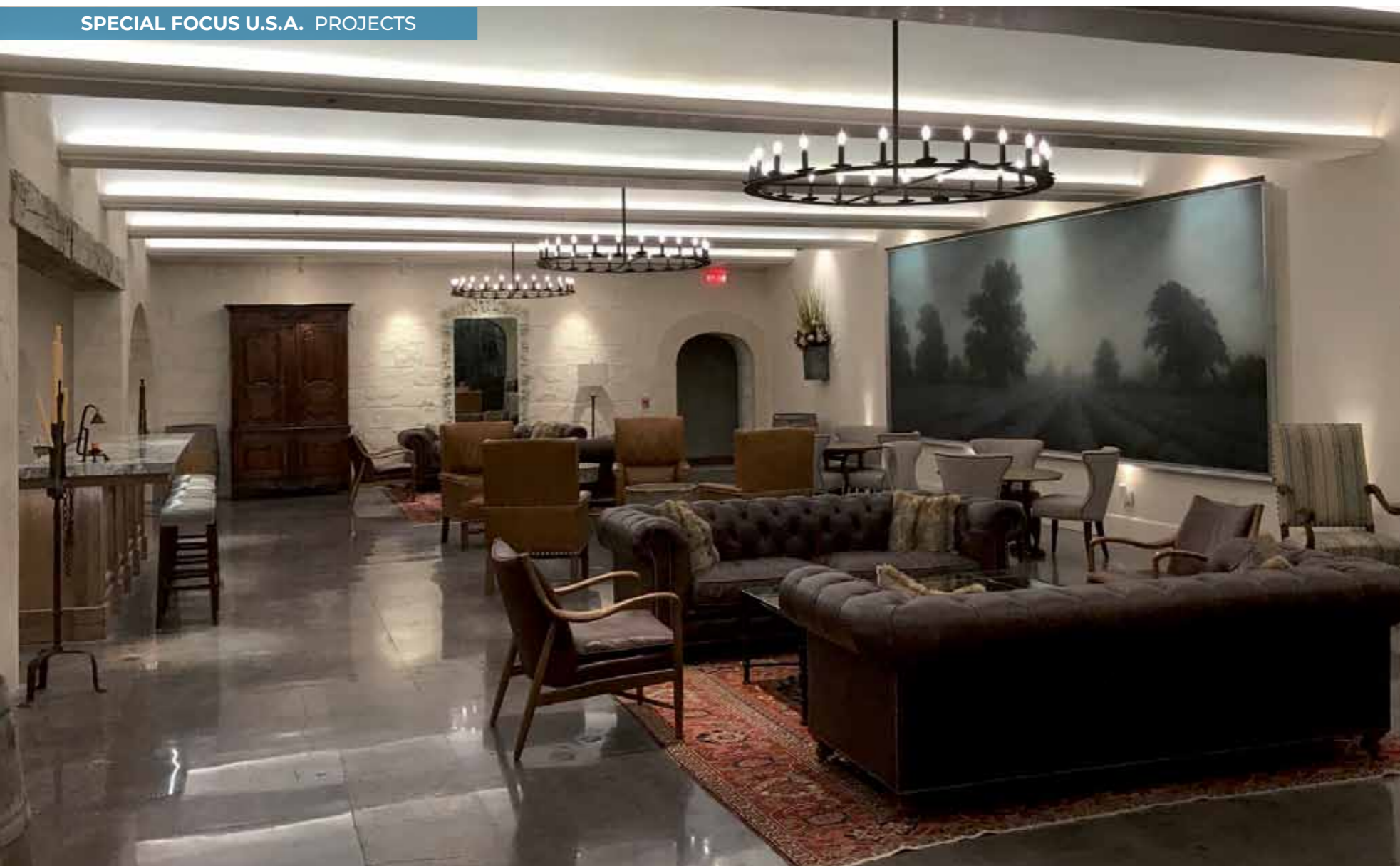
changes to the U.S. oil and gas industry. A series of mergers resulted in the oil and gas giant becoming a major auto parts company that is now headquartered in Lake Forest, Illinois.

The company's former global headquarters in Hockley is now The Clubs at Houston Oaks, one of the most exclusive family resorts in an area known for exclusive resorts.

Sitting on the 405-hectare footprint of the Tenneco property, Houston Oaks features luxury homes and lodging, tennis courts, an equestrian center, a shooting range, a clubhouse, a chapel and a championship golf course. Even the underground bunker remains, but it has been transformed into a state-of-the-art, Napa Valley-style wine cellar known as Bunker 55°.

The wine cellar serves as a complement to the resort's working farm and ranch, a greenhouse (which features an aquaponics farm) and a farm-to-table restaurant. The cellar is always kept at 13°C with an ideal humidity of 70%. In the cellar, Houston Oaks' wine club members have the option of reserving storage bunks that have space for 450 to 5,000 bottles of wine each. This massive wine cave also features a private dining room, a bar and event meeting spaces.





The new wine cave also features a private dining room, a bar and event meeting spaces

### Problems and solutions

The transformation of Tenneco's Bunker 55 into Houston Oaks' high-tech wine cellar required applying shotcrete to the walls and ceiling of the cellar. Given that the installation had such a tight time frame, the contractor knew that the shotcrete had to rapidly set and cure, and that they could count on Mapei's technology to make this happen. MAPEQUICK AFK 888, an alkali-free, inorganic salt-based liquid accelerator that is often used in tunneling projects, was added to the shotcrete to accelerate the curing process. It contains ingredients that activate the silicates contained in the concrete, causing a rapid curing reaction.

### How MAPEQUICK AFK 888 saved the cave

Byer Builders, Inc. was charged with sourcing a team of professionals, plus the most suitable products, to transform Tenneco's Bunker 55 into Houston Oaks' high-tech Bunker 55°. At five days from start to finish, the project's time frame was tight. With no time to waste, Byer Builders reached out to Bill Allen, Business Development Manager for Tunneling for Underground Technology Team (UTT) at Mapei Corp. (the U.S. subsidiary of the Group), to assist with the shotcrete chemistry and ensure that the project was completed to the highest standards. Allen was asked to perform quality control at the concrete truck to ensure that the

proper concrete slump was maintained during shotcrete production; he also worked as a nozzleman during the installation.

For his part, Byer Builders' Dave Johnson was glad to have Allen's experience on his jobsite. "I am excited to work with Mapei UTT, and welcome the products and support they bring to our industry," Johnson said. The shotcrete installation was hand-sprayed using Mapei's UTT product MAPEQUICK AFK 888, an alkali-free, liquid set accelerator for shotcrete. "Utilizing MAPEQUICK AFK 888 allows shotcrete to be sprayed in one pass, about 15 to 20 cm thick on the arches and overhead," Allen said. "This is amazing because you are basically hanging concrete upside

down without a form and defying gravity." Concrete mixed with this admixture adheres better to surfaces and has higher mechanical strength than concrete without the accelerator.

This means no slumping or sagging of unrestrained concrete with high-early strength performance that satisfies tight construction schedules.

"The MAPEQUICK AFK 888 accelerator produces shotcrete that is characterized by rapid-setting times, yet allows easy trimming," said Dominic Petrella of Petrella Concrete.

The fact that MAPEQUICK AFK 888 is alkali-free means that the chance for alkali-based corrosion is reduced. By using this admixture, shotcrete bonds better to rocky and/or uneven surfaces when it is used in conjunction with MAPEQUICK AFK 888, resulting in less concrete rebound and cost. In addition, shotcrete mixed with this admixture is 95% more compact than a sample of surface-compacted reference concrete without an accelerating agent. Moreover, on a project with a tight schedule, ease of application and finishing is crucial because time is money. The team of shotcrete applicators finished the project on time with superior performance, in part thanks to Mapei technology and expertise.

*This article was taken from Realtà Mapei North America no. 28, the magazine published by Mapei Corp. (USA), whom we would like to thank.*

### MAPEQUICK AFK 888

Alkali-free, inorganic salt-based liquid accelerator, with which it is possible to produce shotcrete characterised by rapid setting times and a very quick development of its strength after only a very short curing time.

#### FIND OUT MORE



**TECHNICAL DATA**  
**Houston Oaks wine cellar – The Clubs at Houston Oaks**, Hockley, Texas (USA)  
**Period of construction:** 1950s  
**Period of the Mapei intervention:** 2018  
**Intervention by Mapei:**

supplying an admixture for the shotcrete that was applied onto the wine cellar's walls and ceiling  
**Shotcrete installer:** Applied Shotcrete  
**Trimmer and carving:** Dominic Petrella  
**General contractor:** Byer

Builders, Inc.  
**Concrete pumping contractor:** Oscar Orduno, Inc.  
**Ready-mix concrete supplier:** Lauren Concrete  
**Mapei coordinator:** Bill Allen, UTT, Mapei Corp. (USA)

**MAPEI PRODUCTS**  
[Accelerator for shotcrete:](#) Mapequick AFK 888



## Issaquah Salmon Hatchery ISSAQUAH (STATE OF WASHINGTON)

Among the Washington Department of Fish and Wildlife's hatcheries, the Issaquah Salmon Hatchery is one of the most visited. In late 2016, Mapei Corp. was asked to provide a system that would allow tiles to be installed to form a mosaic, simply named "Salmon," while minimizing the impact on the environment. The recycled glass used in the pieces was sourced from vendors around Washington. As the 7.06-m<sup>2</sup> mosaic would be installed by volunteers, installation products had to be user-friendly.

The products chosen included MAPECEM QUICKPATCH\* to patch and smooth the existing concrete wall, MAPELASTIC 315\* for waterproofing, ADESILEX P10 and KERAPLY\* for bonding the mosaic tiles and MAPESIL T\* silicone sealant for expansion joints. MAPEI FLEXCOLOR 3D\* grout for joints, in the color "Crystal Moon", also played an integral role. Not only did this product complement the "green" goal of using recycled products, it also provided an iridescent-effect finish to the glass tile.

**TECHNICAL DATA**  
**Year of original construction:** 1936  
**Year of the Mapei intervention:** 2017  
**Client:** Washington State Department of Fish and Wildlife  
**Design:** Cheryl Smith

**Installers:** 100+ local volunteers  
**Project manager:** Cheryl Smith  
**Mapei distributor:** American Olean  
**Mapei coordinators:** Chris Anderson and Keith Haney, Mapei

Corp. (USA)  
**Photos:** Chris Anderson  
**MAPEI PRODUCTS**  
 Mapecem Quickpatch\*, Mapeiastic 315\*, Adesilex P10, Keraply\*, Mapei Flexcolor 3D\*, Mapesil T\*

## The Streets of Dreams Showroom THE VILLAGES (FLORIDA)

The Villages community is a dream retirement location in Florida and home to the Street of Dreams, a 929-m<sup>2</sup> design showroom filled with an almost infinite number of choices to build the house of your dreams. Once a purchase is made, the new owners meet with a design consultant who walks them through a wide range of vignettes that show different possibilities. The contractors used MAPECEM QUICKPATCH\*, PRIMER L\* and NOVOPLAN 1 PLUS\* to prepare the concrete substrates in all the vignettes and common areas. Felt

was applied over the substrates with ULTRABOND ECO 185. MAPEGUARD 2\* was installed over MAPEI SM PRIMER\* for crack isolation. MAPELASTIC AQUADEFENSE was used to waterproof corners. The large-format tiles on floors were bonded with ULTRAFLEX LFT\* mortar. For counter backsplashes and wall tiles, the installers used MAPEI ULTRALITE MORTAR PRO\*. ULTRACOLOR PLUS was used for grouting joints. Wood-like porcelain tile floorings were installed with ULTRABOND ECO 995\*.



**TECHNICAL DATA**  
**Period of construction:** 2015-2016  
**Period of the Mapei intervention:** 2015-2016  
**Client:** Holding Company of The Villages, Inc.  
**Design:** The Villages Design Department

**Flooring installers:** Great Lakes Carpet & Tile; Fred Nickel Tile; Blackton, Inc.  
**Project manager:** Joe Hanson – The Villages  
**Mapei distributors:** Wheeler Division of J.J. Haines, Marjam Supply Company, Trinity Tile,

Blackton Inc.  
**Mapei coordinators:** Jim Moffitt and Jon Shoemaker, Mapei Corp. (USA)  
**Photos:** Raul Ballester  
**MAPEI PRODUCTS**  
 Mapecem Quickpatch\*,

Primer L\*, Novoplan 2 Plus\*, Mapeiastic AquaDefense, Reinforcing Fabric\*, MAPEI SM Primer\*, Mapeguard 2\*, Ultrabond Eco 995\*, MAPEI Ultralite Mortar Pro\*, Ultraflex LFT\*, Ultraflex LHT\*, Ultracolor Plus, Ultrabond ECO 185.



## Baltimore Ronald McDonald House BALTIMORE (MARYLAND)

Ronald McDonald, the smiling face of corporate hamburgers is instantly familiar the world over. However, in the United States, Ronald McDonald is also synonymous with the Ronald McDonald House charity network, which provides free housing near medical facilities for families with children who are undergoing medical treatment. The Baltimore Ronald McDonald House first opened its doors in Mary-

land in 1982. In that time, more than 40,000 families have found comfort within its walls. Construction on the new House, which replaced the old House, involved several Mapei solutions for levelling, waterproofing and preparing the concrete substrate, as well as for the installation of ceramic, resilient and textile coverings. The new house has now room for 2,200 families per year.

### TECHNICAL DATA

**Year of construction:**

2017

**Period of the Mapei**

**intervention:** 2018-2019

**Main contractor:**

Whiting Turner

**Installer company:**

Floors Etc.

**Mapei coordinators:**

Gary Waldron, Allen Janofsky, and Vince Linton, Mapei Corp. (USA)

### MAPEI PRODUCTS

Mapeguard  
UM\*, Mapelastic  
AquaDefense,  
Ultraflex LFT\*,  
Ultralite\*, Flexcolor  
CQ\*, Ultracolor Plus  
FA\*, Ultrabond ECO  
810\*, Ultrabond 360\*,  
Eco Prim Grip, 4-to-1  
Floor Mud\*, Ultraplan  
Easy\*, Planiseal MSP\*.

\*These products are manufactured and distributed on the U.S. market by Mapei Corp. (USA)

For further information on products see [mapei.com](http://mapei.com) and [mapei.us](http://mapei.us)



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**Brindisi (Italy)**

# CHURCH OF SAN PAOLO EREMITA

EFFECTIVE AND LONG-LASTING PRODUCTS FOR THE RESTORATION AND CONSOLIDATION OF A CHURCH BADLY DAMAGED BY THE PASSAGE OF TIME

Sunday, 28<sup>th</sup> October 2018 marked the reopening of the fourteenth century Church of San Paolo Eremita (St. Paul the Hermit), one of the most important sites of the city of Brindisi's cultural heritage.

Naples State Archive conserves the most ancient document making reference to the church: a solemn ordinance dating back to 2<sup>nd</sup> March 1284 whereby Charles I of Anjou, King of Naples, granted permission for Franciscan monks to build a monastery and church, which went on to be completed in 1322.

Work commenced in November, 2016 and it took two years to complete the conservative restoration and consolidation work on the interior and exterior of the church. The work also included an overhaul of the

roof over the aisle, the replacement of the wooden trusses for the apse and the new pitched roof, a thorough cleaning of all the altars and consolidation of the stone features and elements of the altars.

### Winning teamwork on site

The complex work commenced with a preliminary study carried out by Luigi Dell'Atti, a local architect who also guided the team of restorers. Right from the start of the design work, the team was assisted by Mapei Technical Services, with specialists from various product lines also involved. When more significant problems regarding static consolidation arose, Prof. Alberto Balsamo from the Federico II University of Naples was also called upon to provide his assistance.

### Problems and solutions

The intervention ensured the conservative restoration and consolidation of the Church of San Paolo Eremita and the safeguard of its ancient walls. Thanks to the MAPE-ANTIQUE line, it was possible to carry out the work without compromising the historical significance of the walls, while the MAPEWOOD line products, which are chemically and physically compatible with the original wood, were used to restore and repair the wooden roof trusses. Lastly, the entire structure was consolidated with the help of products from the Mapei Structural Strengthening line.



This team-synergy approach also included the active participation of the main contractor Nicoli SpA, which enabled the product systems to be identified and perfectly modulated to overcome the problems that arose regarding the structural strengthening, dehumidification and protection of both the interior and exterior of the church.

**Static consolidation of the stone structure**

MAPE-ANTIQUE F21 binder was used to consolidate the stone structure and limestone vaulted ceiling of the church. This is a cement-free, salt-resistant product made from lime and Eco-Pozzolan used to make super-fluid, volumetrically stable slurries and was injected in

the structure by using low-pressure pumps.

For the installation layers and for pointing on the "natural finish" masonry of the church, on the other hand, the product chosen was MAPE-ANTIQUE ALLETTAMENTO salt-resistant masonry mortar, made from natural hydraulic lime and Eco-Pozzolan and available in 7 colours.

The joints were reinforced with 6 mm diameter MAPEI STEEL BAR 316, ultra high-strength, AISI 304 and AISI 316 stainless steel helical bars, used in combination with MAPE-ANTIQUE ALLETTAMENTO.

**Consolidation and restoration of the wooden trusses**

The wooden trusses were consolidated and restored using products from the MAPEWOOD SYSTEM. This line of products is made from special epoxy adhesives chemically and physically compatible with wood.

The surface of the wood was initially treated with MAPEWOOD PRIMER 100 – a fluid epoxy primer in water dispersion – and then with MAPEWOOD PASTE 140, a thixotropic epoxy adhesive for repairing wooden beams, trusses and columns.

**The dehumidifying system**

The macro-porous dehumidifying system for the interior masonry of the church consisted of a scratch-coat layer of MAPE-ANTIQUE RINZAFFO ce-

ment-free, salt-resistant, transpirant mortar made from lime, Eco-Pozzolan and recycled materials.

This product was followed by a layer of MAPE-ANTIQUE MC, a special salt-resistant, macro-porous, dehumidifying rendering mortar made from lime and Eco-Pozzolan.

Once this layer had cured, the walls were skimmed with MAPE-ANTIQUE FC GROSSO, a salt-resistant, large-grained, transpirant skimming mortar made from lime and Eco-Pozzolan for a rough finish on renders.

**Strengthening the masonry**

The masonry was strengthened by applying reinforced render made from MAPEWALL RENDER & STRENGTHEN, a high strength, fibre-reinforced, natural hydraulic lime-based transpirant rendering and masonry mortar with very low emission level of VOC (Volatile Organic Compounds) for making structural render, even "reinforced" (CRM). The product was used in combination with MAPE-GRID B250 primed alkali-resistant

basalt fibre mesh which was fixed in place with L-shaped MAPENET EM CONNECTOR L20 glass fibre fasteners anchored with MAPEFIX PE WALL styrene-free chemical anchor.

**Protecting the stone surfaces**

The stone surfaces of the church were treated to protect them from the action of heavy, driving rain with ANTIPLUVIOL W, a colourless, silane and siloxane-based water-repellent impregnator in watery emulsion which also improves the self-cleaning effect of the façade and reduces the capacity of moss and mildew from adhering to the material.



1. MAPE ANTIQUE F21 super-fluid binder was injected through small tubes using low-pressure pumps to consolidate the stone structure.

2. For the installation layers and for pointing on the "natural finish" masonry of the church, the product chosen was MAPE-ANTIQUE ALLETTAMENTO salt-resistant masonry mortar, made from natural hydraulic lime and Eco-Pozzolan.

3. The wooden trusses were consolidated and restored using products from the MAPEWOOD SYSTEM (MAPEWOOD PRIMER 100 and MAPEWOOD PASTE 140).

4. The stone surfaces of the church were protected from the action of rain with ANTIPLUVIOL W water-repellent impregnator.

5. A view of the wooden trusses after completion of the works.

**Consolidation of the surface of the masonry**

The surface of the masonry was consolidated in several steps. The first step was to pre-consolidate the surfaces with PRIMER 3296, an acrylic primer in water dispersion.

The larger cracks in the surface were then stitched with CARBOTUBE C 170/10 (pultruded carbon fibre tubes impregnated with epoxy resin) in combination with INJECTORS Ø23+MAPE-ANTIQUE F21.

**Consolidation of the vaulted ceilings**

The vaulted ceilings were consolidated by capping them with MAPE-ANTIQUE STRUTTURALE NHL, a pre-blended, cement-free mortar for transpirant render and masonry work, based on natural hydraulic lime, Eco-Pozzolan, recycled materials, natural sands, micro-fibres, glass fibres and special admixtures. The use of this product, in combination with MAPENET EM 40 pre-impregnated, alkali-resistant glass fibre mesh (FRP) and MAPENET EM CONNECTOR 7 mm diameter and 200 mm long fibreglass connectors, formed a reinforced layer suitable to consolidate the extrados of sandstone vaulted ceilings.

**MAPE-ANTIQUE STRUTTURALE NHL**

High-performance mortar for breathable render and masonry work, based on natural hydraulic lime, Eco-Pozzolan and recycled materials, particularly suitable for making reinforced render (CRM) and installation mortar.

FIND OUT MORE



**TECHNICAL DATA**

**San Paolo Eremita Church**, Brindisi (Italy)  
**Year of construction:** 1322  
**Period of the Mapei intervention:** 2017-2018  
**Client:** Brindisi-Ostuni Archdiocese  
**Intervention by Mapei:** supplying products for restoring and strengthening the building  
**Main contractor:** Nicoli SpA  
**Design:** Luigi Dell'Atti, Claudio Riotta, Giacomo Intiglietta

**Works director:** Luigi Dell'Atti  
**Mapei distributor:** Nicoli SpA  
**Mapei coordinators:** Giammario Dispoto, Achille Carcagni, Danilo De Matteis, Alessandro De Luca, Mapei SpA (Italy)  
**Photos:** Marco Cerra, Francesco Nicoli

**MAPEI PRODUCTS**

**Static consolidation of the stone structure:** Mape-Antique Allettamento, Mape-Antique F21

**Consolidation of the masonry:** Primer 3296, Carbotube C 170/10, Mape-Antique F21  
**Consolidation of the vaulted ceilings:** Mape-Antique Strutturale NHL, Mapenet EM 40, Mapenet EM Connectors, Mapei Steel Bar 316, Mape-Antique Allettamento  
**Consolidation and restoration of the wooden trusses:** Mapewood Primer 100, Mapewood Paste 140  
**Dehumidifying masonry:** Mape-Antique Rinzafo,

Mape-Antique MC, Mape-Antique FC Grosso  
**Structural strengthening:** Mapewall Render & Strengthen, Mapegrid B250, Mapenet EM Connector L20, Mapefix PE Wall  
**Waterproofing external walls:** Antipluviol W

For further information on products visit [mapei.com](http://mapei.com)



# Restoration work to recover the lost harmony

THE ARCHITECT AND DESIGNER LUIGI DELL'ATTI TALKS ABOUT THE WORK CARRIED OUT ON THE CHURCH OF SAN PAOLO EREMITA IN BRINDISI

## What guidelines did you have to follow for the restoration work on this church and what problems, if any, did you encounter?

When tackling such complex restoration work (for the sheer size of the building, the various additions that had been made over the centuries and the years it had been left abandoned), the important thing is to listen. Listen to what the different voices have tried to express in that place over the years, their stories. With restoration work, listening means getting up close to the various components to try "to recognise" them, so you can attribute their precise role within the context they find themselves, tuning them as it were as if they were the instruments of a symphony orchestra so, in the end, you are able to restore its lost harmony. This site was really surprising. Every surface revealed its own hidden story. The difficulty in this case was to find the right balance between the various parts, managing to bring them all together, while at the same time conserving their distinct, individual identity.

## What choices did you have to make when deciding upon the right balance between visually restoring the church to its original look at the expense of the ancient layers and vice versa?

The concept of balance is the basis for all restoration work. In the case of the San Paolo Church, the complexity derived from the sheer variety and heterogeneity of the components, but also from the gaps all over the surface of the walls, by a certain overall "coldness" due to the initial homogeneity of the colour scheme, a darkness that permeated inside the church which, on the other hand, had originally been created with an extraordinarily rich array of colours. Balance was also the target we had set ourselves when restoring all the single components. Just think about the Baroque altars, which revealed surprisingly decorative motifs. In this case we had to find a balance with the many missing parts to regain its overall wholeness, leaving it possible to distinguish between the original parts and what had been integrated, to create a single, aesthetic unit.

The most difficult problems arose with the samples taken from the walls, which gradually revealed the presence of architectural motifs and parts of frescos

beneath their surface. We had to make a clear decision: to interrupt the dismantling of the area in correspondence with any rare features from a later period that could have been compromised. There were numerous such cases and each one required its own dedicated solution, but always with the aim of maintaining an overall sense of wholeness.

## Aesthetics, functionality and durability: with a restoration and consolidation project, how do you manage to combine these distinguishing features of every building?

With monumental restoration work, you have to operate with decision but also with subtlety. Good restoration work is "invisible". New technologies are a great help to us when carrying out static consolidation work and they also allow us to intervene without excessive trauma to the original construction. Reversibility is one of the characteristics of restoration work which, however, isn't always possible to combine with static consolidation. In the case of the San Paolo Church, the rotation towards the outside of the longitudinal walls was overcome by recovering the chains that had been inserted when the church was restored in the 20<sup>th</sup> century and improving their effectiveness by inserting innovative dissipation systems. In other cases, we opted for traditional construction techniques, putting the walls back together with compatible materials with similar characteristics to the original materials. With restoration work, it is very important to do things gradually, which makes our approach to restoration stand out from the rest of the world. This is why the Italian school of restoration is of undisputed excellence.

## What influence do increasingly advanced products and technologies specific for restoration work, conservation work and structural strengthening have when making design choices?

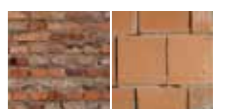
There is no doubt that the products chosen for the static consolidation work and to make the reinforced render using carbon fibre played an important role on site, which also gave me the chance to discuss the work almost on a daily basis with Mapei's experts such as Danilo De Matteis and Giammarco Disposto.



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## Cologno Monzese (Milan, Italy)

# IN'S DISCOUNT STORE

FRP-BASED MAPEWRAP SYSTEM FOR AN EFFECTIVE, QUICK AND COST-EFFECTIVE STRUCTURAL STRENGTHENING PACKAGE



1



2



3

1. Priming the surfaces where work is to be carried out with MAPEWRAP PRIMER 1.
2. First coat of MAPEWRAP 31 impregnator applied "wet-on-wet" over the levelling layer of MAPEWRAP 11.
3. Application of MAPEWRAP C UNI-AX 600/40 unidirectional carbon fibre fabric.



iN's Mercato SpA is a discount store belonging to Gruppo PAM, which has more than 450 stores across northern and central Italy. The first iN's discount store opened its doors to the public in 1994 and was an immediate success, quickly developing its own structure. Today, it is the fifth largest chain amongst the Italian groups operating in this sector. Inaugurated in March 2018, the store in Cologno Monzese (in the outskirts of Milan) underwent structural strengthening work in 2019 to bring the structure in line with the high safety standards required by the Group.

The work was carried out with the FRP technology (Fibre Reinforced Polymers) by positioning MAPEWRAP C UNI-AX SYSTEM, made of high-strength, high modulus of elasticity, unidirectional carbon fibre fabrics – in this case of 600 g/m<sup>2</sup> - im-

pregnated and bonded with epoxy resin along the beams, pillars and predalles slab roof of the structure. All this work brought the load-bearing capacity of the roof, where the heavy pallets containing all the goods on sale are deposited, to more than 800 kg/m<sup>2</sup>. The intervention also ensured that the rooms used for the discount store's administration offices below the roof are particularly safe.

### All the advantages of MAPEWRAP C UNI-AX System

In this specific case, the structural strengthening package chosen by the design studio was MAPEWRAP C UNI-AX SYSTEM. Compared with the cladding technique using metal plates (beton plaquè), which would previously have been one of the options for this type of work, the MAPEWRAP C UNI-AX SYSTEM may be modelled to suit any shape of element or structure requiring repair, it does not require temporary supports during application and there is no risk of corrosion to the strengthening system. Economic factors were also decisive when opting for the Mapei system: unlike work carried out using conventional techniques, thanks to the extremely low weight of the fabrics used in the strengthening package, MAPEWRAP C UNI-AX SYSTEM may be installed by a smaller team of workers. Application time is very

short and, as in the case of this iN's store, there was no need to interrupt activities normally carried out inside the structure. Once all the surfaces had been impregnated with MAPEWRAP PRIMER 1, work proceeded by applying a layer around 1 mm thick of MAPEWRAP 11 epoxy grout for levelling the support with a notched trowel while the primer was still wet. Then, while the MAPEWRAP 11 layer was still wet, the first layer around 0.5 mm thick of MAPEWRAP 31 epoxy adhesive for impregnation and bonding was applied, followed by immediately applying MAPEWRAP C UNI-AX 600/40 uni-directional continuous carbon fibre fabric.

### Problems and solutions

The building needed a structural strengthening intervention for its pillars, beams and floor slabs. The intervention and the products chosen allowed to bring the load-bearing capacity of the roof, where the heavy pallets containing all the goods on sale are deposited, to more than 800 kg/m<sup>2</sup>.

### MAPEWRAP C UNI-AX SYSTEM

Structural strengthening system consisting of high-strength, high-modulus unidirectional carbon fibre fabric and epoxy resins to impregnate and bond the fabric, covered by certificate of technical assessment (CVT) n. 206/2019 class 210C.

FIND OUT MORE



### TECHNICAL DATA

**iN's discount store,**  
Cologno Monzese (Milan, Italy)  
**Design:** SFRE Services For Real Estate Srl  
**Year of the intervention:** 2019

**Client:** iN's Mercato SpA  
**Intervention by Mapei:** supplying products for the structural strengthening of beams, pillars and floor slabs  
**Main contractor:** LB Group Srl

**Works direction:** SFRE Services For Real Estate Srl  
**Mapei coordinators:** Vincenzo Minardi, Andrea Peli, Giuseppe Melcangi and Luca Albertario, Mapei SpA (Italy)

### MAPEI PRODUCTS

**Structural strengthening:** MapeWrap C UNI-AX 600/40, MapeWrap Primer 1, MapeWrap 11, MapeWrap 31  
  
For further information on products see [mapei.com](http://mapei.com)



1



## Semmering (Austria) THE SEMMERING BASE TUNNEL

A GROUNDBREAKING PROJECT IS ON TRACK WITH GIGANTIC AMOUNTS OF CONCRETE PREPARED WITH MAPEI ADMIXTURES

The new Semmering Base Tunnel, a part of the "Baltic-Adriatic axis" transportation corridor, is one of the most important infrastructure projects at the heart of Europe. It is also one of the most complex European tunnel constructions. Implenia & Swietelsky Tunnelbau GmbH was awarded the contract for the mega construction, which poses many challenges, not least due to the geological conditions. A full 14 years are planned for the construction of the entire 27 km length. The 13 km section at Fröschnitzgraben alone is scheduled to take about 13 years to be completed. Before tunnelling work at Fröschnitzgraben could even begin, two 400 m deep shafts of around 10 m diameter had to be excavated. At their base, an enormous cavern was formed: a gigantic underground building site. This was the starting point for the excavation of the tunnel tubes. The 4 km section towards Mürzzuschlag is currently being dug out using excavators and blasting. The 9 km section towards Gloggnitz is being excavated out by two tunnel boring machines.

ther. God opened up a crevice in the rock face so that she could hide in it. Since then, she has been the patron saint of miners. According to the custom, a tunnel patron is the earthly representative of Saint Barbara. She is meant to bring good luck to the project and the workers during the construction phase. At the Fröschnitzgraben, this honour was awarded to Andrea Kapoun, Marketing Manager at Mapei GmbH (Austria). A bit of luck is always handy. Above all, however, skill and the perfect interaction of all participating companies are required. This is why Mapei admixtures for concrete and the Mapei mobile laboratory are both present on site to ensure the proper concrete mix is achieved. An incredible 850,000 m<sup>3</sup> of concrete is required for the works in Fröschnitzgraben – all of it processed by Mobil Baustoffe GmbH, a worldwide leading specialist in large construction projects and a Mapei partner. Among the chosen admixtures one finds: DYNAMON RC 520\* and DYNAMON LZ SP W20\*, two polycarboxylate-ether-based superplasticizers, DYNAMON LZ553\*, a plasticizer used to extend the workability of concrete, MAPEAIR LP 100\*, an air-entraining agent for freeze-resistant concrete, and the retarding agent MAPETARD VZM\*. All these products are distributed on the Austrian market by Mapei GmbH (Austria).



2



3

**1 and 2.** Tunnelling work is currently being carried out in Fröschnitzgraben, in Southern Austria. 850,000 m<sup>3</sup> of concrete are used for the works and the concrete mix was prepared with Mapei admixtures.

**3.** In Fröschnitzgraben, Andrea Kapoun, Marketing Manager at Mapei GmbH (Austria), was awarded with the honor of being the tunnel's patron.

### MAPEAIR AE 1

Air-entraining agent for concrete and cementitious mortars.

FIND OUT MORE



**TECHNICAL DATA**  
**Semmering Base Tunnel, Fröschnitzgraben section,** Fröschnitzgraben (Austria)  
**Period of construction:** 2014-2027  
**Design:** Planungsgemeinschaft Semmering- Basistunnel

neu  
**Client:** ÖBB  
**Period of the Mapei intervention:** 2020-2034  
**Main contractor:** Implenia & Swietelsky Tunnelbau  
**Subcontractor:** ÖBB Infrastruktur AG  
**Concrete supplier:**

Mobilbaustoffe  
**Mapei coordinator:** Herbert Kaufmann, Mapei GmbH (Austria)

**MAPEI PRODUCTS:**  
Admixtures for concrete:  
Dynamon RC 520\*,  
Dynamon LZ SP W20\*,

Dynamon LZ553\*, Mapeair LP 100\*, Mapetard VZM\*  
\*These products are distributed on the Austrian market by Mapei GmbH (Austria)

For further information visit [mapei.com](http://mapei.com) and [mapei.at](http://mapei.at)





## Udine (Italy)

# A NEW PAVING INCORPORATING THE CITY'S COAT OF ARMS

DURABILITY, URBAN DESIGN, AND SUSTAINABILITY TO RESURFACE THE PORPHYRY ROADS IN THE CITY CENTRE

Via Aquileia is a road in Udine (Northern Italy) that runs southwards towards the city of Aquileia.

Starting at the piazza just below the castle, it runs through the Porta Aquileia gate, an elegant reminder of the various city walls (five in total) built around the city of Udine over the centuries. It has always been an important thoroughfare for the city over the centuries and remains so today. In fact, this road is used every day by the intense city traffic, including public transport and lorries carrying goods to and from the city, leading to heavy, constant loads and stresses acting on the porphyry blocks which characterise the road surface.

### Project overview

Within the overall framework of interventions planned by Udine City Council, maintenance of the porphyry paving in Via Aquileia and part of nearby Via Gemona is one of the most significant.

The old paving was deformed and had numerous hollows and dips, especially in the areas most stressed by traffic such as the bends in the road and at crossroads, as well as more localised unstable areas due to the blocks becoming detached from the substrate.

Which is why the City Council came up with a plan aimed at improving the durability of the road surface and

reducing maintenance costs over the years by adopting non-traditional techniques to refurbish the paving.

The client, in this case Udine City Council, specified that the project also had to make use of as many of the existing blocks as possible, which had been installed in a traditional contrasting arch pattern using mainly 8 to 10 cm blocks, along with quite a large amount of smaller stones.

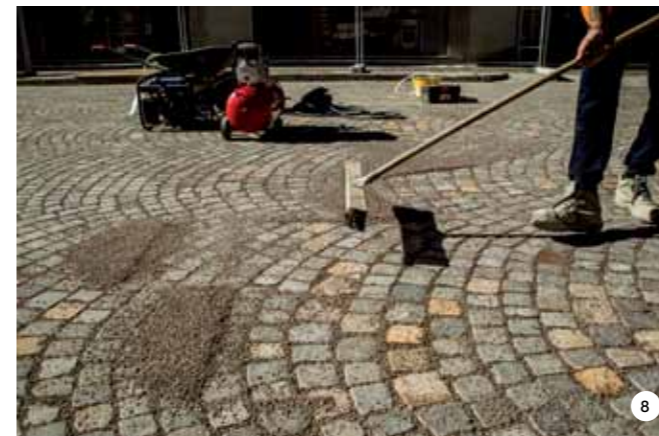
In view of these requirements, during the design phase it was decided to create an elastic, pervious surface compliant with the Italian standard UNI 11714-1:2018, class P9 (heavy traffic: urban roads; roads with bus lanes or prescribed lanes and highly



1. A close-up of the new porphyry block paving, with the gaps filled with crushed porphyry and MAPESTONE JOINT solvent-free, polyurethane binder.

### Problems and solutions

To redevelop the highly trafficked Via Aquileia, Udine City Council specified reusing as many of the porphyry blocks from the previous paving as possible to create new strong, elastic, pervious and durable paving compliant with current applicable standards. MAPESTONE JOINT solvent-free polyurethane binder enabled the old blocks to be reinstalled in complete safety and to create an elastic, pervious road surface with no joints which would require only limited maintenance.



**2.** The old blocks from the previous paving after cleaning, scarifying and tumbling ready to be installed in the new paving. **3.** Spreading the loose-laid installation bed made from 4-8 mm crushed porphyry. **4.** Installing the reused, cleaned and tumbled blocks on the loose-laid installation bed. **5.** A close-up of the blocks installed in a contrasting arch pattern. **6.** The gaps between the blocks were carefully filled with the same crushed porphyry used for the installation bed. **7.** The paving was compacted with a vibro roller to settle

the installation bed, blocks and filler in the gaps between the blocks. **8.** After vibro-compacting the paving, the installation bed and filler between the blocks settled and the spaces in the gaps between the blocks were topped up again with crushed porphyry. **9.** MAPESTONE JOINT solvent-free polyurethane binder was poured manually into the gaps using Zème equipment.

trafficked roads; roundabouts and speed bumps), using polyurethane binder for the gaps between the reused porphyry blocks, which were to be placed on a loose-laid installation bed over an improved sub-layer made up of cement-bound mixed granular aggregate. Apart from refurbishing the road surface, work also included upgrading the substrate, rebuilding the gutters along the sides of the road, repairing the manhole covers to bring them flush with the surface of the road and remarking the lanes, signs and indications on the surface of the road.

**The Mapei solution for a highly trafficked road surface**

To resurface Via Aquileia to class P9 (heavy traffic) according to UNI 11714-1:2018 standards using the old porphyry blocks, Mapei experts proposed MAPESTONE JOINT, a solvent-free polyurethane binder specially formulated to create safe, flexible,

pervious and durable architectural stone paving, which has lower installation and maintenance costs as well as many other benefits, such as its aesthetic qualities. MAPESTONE JOINT has an amber-coloured finish, which means it blends in perfectly with the colour of the porphyry blocks and the crushed porphyry used to fill the gaps, and its overall effect is particularly pleasing to the eye. MAPESTONE JOINT complies with the requirements of the REACH (the European Union's Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals) protocol and to the prescriptions and requirements of UNI 11714-1:2018 standards for polyurethane resins, which must guarantee product safety such as non-flammability, as well as safety while being transported, handled, stored and applied. By complying with the prescriptions of UNI 11714-1:2018 standards, this means that MAPESTONE JOINT

is suitable for class P9 paving and helps improve the overall durability of the paving. Stone paving correctly installed with MAPESTONE JOINT means that only limited maintenance will be required over the years, since it is particularly resistant to freeze-thaw cycles, de-icing salts, bad weather and the chemical action of contaminants from fuel and oil. Also, thanks to its elastic behaviour, expansion joints do not need to be included and paving is able to absorb the heavy loads and mechanical stresses caused by the passage of cars, buses and lorries without dangerous potholes forming due to settling and subsidence in the installation bed. Another advantage of using MAPESTONE JOINT is the speed at which paving can be put back into service, which can be reopened to traffic just 48 hours after installation at 20°C. But the sustainability of this paving is not limited to the fact that it

is pervious and drastically reduces overall site times, all to the benefit of residents and shops and businesses which can go back to using the paving after a very short downtime. Via Aquileia has demonstrated that it is also possible to reduce waste of non-renewable materials such as precious, natural and durable stone which, if still intact, can be successfully used again. In fact, the overall area of the newly-paved surface is more than 6,000 m<sup>2</sup> and only 30% of that area needed new porphyry blocks, while blocks from the old paving were used for the remaining 70%, which received a

new lease of life once they had been carefully selected, cleaned and tumbled. The only exception was the coat of arms of the city in black and white, which was made from blocks of granite – using a special transparent version of MAPESTONE JOINT – set permanently into the paving to give a welcome to all those entering the city, right in front of the Porta Aquileia gate.

**Grazia Signori.** Architectural stone paving product line, Mapei SpA (Italy)

**TECHNICAL DATA**

**Via Aquileia street,** Udine (Italy)  
**Year of the intervention:** 2019  
**Client:** Udine City Council  
**Intervention by Mapei:** supplying products for the

installation of architectural natural stone paving  
**Design:** Europrogetti Srl  
**Project manager:** Cristina Croppo, Udine City Council  
**Main contractor:** Battistella SpA  
**Works direction:**

Europrogetti Srl  
**Stone installation company:** Paving Stone Srl  
**Mapei coordinator:** Marcello Deganutti, Mapei SpA (Italy)  
**Photos:** Roberto Munizzi

**MAPEI PRODUCTS**

Installing stone paving: Mapestone Joint  
 For further information on products visit [mapei.com](http://mapei.com)

**MAPESTONE JOINT**

Solvent-free, one-component, polyurethane binder with a characteristic odour, intended to grout joints for setts, blocks and pebbles for flexible and pervious architectural stone paving.

**FIND OUT MORE**





## Beauty and innovation to enhance the old city

INTERVIEW WITH CRISTINA CROPPA, HEAD OF THE MOBILITY DEPARTMENT FOR UDINE CITY COUNCIL, AND HEAD OF WORKS FOR THE REDEVELOPMENT OF VIA AQUILEIA

### What challenge or challenges did you have to face during this project?

The aim of the City Council was to redevelop the urban landscape and create an area with durable, high quality paving capable of resisting traffic over the years, but it had to be in stone and as much of the old porphyry as possible that was still intact had to be reused.

So really there were three challenges, not just one: to create a road in stone that would be capable of withstanding the city traffic, including buses and lorries, that passes through every day, that had a high level of durability and, lastly, to not waste such any of the precious stone blocks that could be reused, thereby cutting down on the amount of material sent for landfill: the porphyry blocks that formed the old paving in Via Aquileia.

### What is the most original or distinctive feature of this project?

There are two distinctive features, both of which were driven by the attention we placed on environmental and economic sustainability which, in turn, also impacts on social sustainability. The first distinctive feature is the amount of porphyry we managed to recover, around 70% of the old blocks, which had to be scarified, cleaned and then tumbled one by one before they could be installed for the new paving.

**Stone paving is a historical feature that needs to be safeguarded and exalted because of the prestige and value it adds to the old city centres**

The second feature, which is also closely connected to the first one, was the decision to create elastic, pervious paving using such an innovative, high performance and safe installation system, in this case MAPESTONE JOINT polyurethane binder.

### Why was it decided to opt for elastic, pervious paving?

The decision to create elastic, pervious paving was the best solution to achieve the aim of having non-rigid paving, a solution that had some interesting benefits, which included not having to create expansion joints. Since the entire paving is flexible, it has a better response to temperature variations and mechanical loads and stresses. It also allows gases to filter through so, if there is a gas leak, it will be much easier to localise the exact point of the leak and to repair it and, as a result, put utilities back into service more promptly.

### What does it mean for the city of Udine to have stone paving?

Stone paving in a city like this, but also in the majority of European cities and towns characterised by their valuable urban centres, is a historical feature that needs to be safeguarded and exalted because of the prestige and value it adds to the old city centre.

It also communicates the idea of care, attention, beauty, tidiness and cleanliness.

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# Mapei technology in two Turkish archaeological parks

A BOOK PUBLISHED BY PROF. NICOLÒ MARCHETTI ABOUT ARCHAEOLOGICAL DIGS IN TILMEN HÖYÜK WAS DEDICATED TO GIORGIO AND ADRIANA SQUINZI

Prof. Nicolò Marchetti, head of many Turkish-Italian and Iraqi-Italian archaeological expeditions.



## INTERVIEW

### WHEN ANCIENT HISTORY IS STRONGER THAN WAR

**During your last interview for *Realtà Mapei International* in 2015, you talked about how busy you were working on the Karkemish archaeological park, a site on the Euphrates to the east of Gaziantep. What has happened since then?**

During our latest eighth excavation campaign, we finally inaugurated the archaeological park on 13<sup>th</sup> July, 2019 for the local public. It may seem like it has taken a long time, but the site is vast – 100 hectares – and it lies within the perimeter of a military base and former minefield and thus to obtain all the required permits, implement all the safety measures requested by the Turkish government and, above all, guarantee the sustainability of such a complex operation, required an enormous effort by all the institutions involved.

**The areas where you have been working – from Tilmen Höyük to Karkemish – are literally on the border between Turkey and Syria. What is it like to work in these conditions?**

The events we have witnessed at first hand, such as guerrilla warfare and wars (on 24<sup>th</sup> August 2016 Turkey invaded the strip on the Syrian side occupied by ISIS, the patrols of which used to pass within a few metres of us beyond the barbed wire along the border), may suggest that working in such a context would have been an almost impossible task. The reality on the field, however, is that the constant support and trust we have received from the local population and authorities have made our stay there not only safe and effective, but have always given us the motivation to overcome all the obstacles without ever finding ourselves in dangerous situations.

**Over the years, have you ever had at your sites looting and illegal excavations ultimately feeding the antiquities market?**

Since 1989 I have worked in many countries in the Near East and the relationship with the local populations has always been the key to understanding their needs, priorities, values and fears: when you manage to establish a structural relationship with them, this type of problem is eliminated at the root. As far as Tilmen is concerned, there has never been any damage to the park or to any of its numerous installations. This is an almost unique case and it is due to the commitment of the various social groups visiting or living around the site. At Karkemish, since it is a military base, the only potential danger for the site is from the military installations themselves. Over the years, however, we have managed to establish a good

relationship with the commanders of the base, and while we may have to start all over again every year, in the end it is something that works. The disaster taking place in Syria, however, is of an inconceivable gravity, also as far as its cultural heritage is concerned. In 2019 we started a new Iraqi-Italian archaeological project at Nineveh, seriously threatened by the urban expansion of Mosul which has already destroyed more than a third of that immense capital city of ancient Assyria: we couldn't simply stand back and ignore this daily destruction when the Iraqi government invited us to excavate, restore and repair the damage caused between 2014 and 2017 by the systematic destructions carried out by ISIS to the site, which is now being further threatened by the reconstruction process. We now need to collaborate at international level: it may seem like a herculean task, but together we can succeed.

Professor Nicolò Marchetti from Bologna University (Central Italy) led numerous archaeological camps and projects in partnership with Mapei as the main technical sponsor, starting with the consolidation of the old walls of Jericho at the end of the 1990s. The partnership continued with the Turkish-Italian archaeological expedition to the Gaziantep region of Turkey in 2003. Since then archaeology parks have been completed and opened in Tilmen Höyük, Taşlı Geçit Höyük and Karkemish that still attract thousands of visitors every year, despite how close they are to the Syrian border.

#### Excavations in Tilmen Höyük

Placed in charge of the Turkish-Italian expedition in 2003, Nicolò Marchetti supervised digs in the cities of Tilmen Höyük and Taşlı Geçit Höyük.

On both occasions the archaeological expedition adopted and experimented with an assortment of cutting-edge technology for carrying out the excavation work. The utmost respect was shown for the ancient structures and constructions with only minimal high-tech operations carried out in conjunction with Mapei Technical Services team for strengthening purposes and to repair and restore all the finds on the site (for further information see *Realtà Mapei International* no.28/2009). Important monuments and architectural finds dating

#### A long-time partnership with the Turkish-Italian expedition that uncovered an ancient city even mentioned in the Bible

back to 1700 BC were uncovered in Tilmen Höyük from 2003 to 2008, including temples, fortresses and royal palaces. The digs were carried out as part of an elaborate project aimed at protecting and enhancing the area from both an archaeological and environmental viewpoint. The joint Turkish-Italian expedition was headed by Marchetti and could count on the support of a number of Italian firms including Mapei, which supported the project from the very beginning by supplying products required for carrying out all the planned operations. It ended up being a major multidisciplinary project to construct an archaeology park that opened to the public in 2007.

Two years later in autumn 2009, an emergency dig was sent under way on the nearby site of Taşlı Geçit Höyük that uncovered the city of Taşlı. Taşlı was inhabited until

#### Excavations in Taşlı Geçit

Two years later in autumn 2009, an emergency dig was sent under way on the nearby site of Taşlı Geçit Höyük that uncovered the city of Taşlı. Taşlı was inhabited until



The official opening of the archeological park in Karkemish on 13 July, 2019



The archeological park in Tilmen: a view of the acropolis in the Islahiye valley.



Tilmen. A view from the north-east of the private quarters in the north wing of residence C of the citadel dating back to the Late Bronze Age I; close-up of a monolithic basalt collection tank on the outside of the structure for run-off water.

Terracotta figurine of a woman, 1750 BC (height: 14.4 cm; Gaziantep Archaeological Museum).



**The site of Tilmen Höyük, with its archaeological park, is the subject of your latest publication which you dedicated to Giorgio Squinzi and Adriana Spazzoli. What memories do you have of them?**

Boundless joviality and energy, enthusiasm and respect for Italy's contribution in the field of cultural heritage, a desire to contribute their own excellence for conservating our shared past. Whenever I visited Mapei's headquarters in Milan, Adriana Spazzoli was always on fire with a never-ending barrage of questions, comments, projects and proposals, you felt welcomed with a warmth which, to be fair, made her and the both of them really unique. It was something I could also see quite clearly through the relationship they had with the managers and employees at Mapei, there was this really close bond, especially on a

human level, their interest was real and ran deep.

**Is it possible to visit the archaeological parks at the moment? And are there still digs underway?**

The answer is yes to both questions. The site of Tilmen has been open to the public since 2007 and Karkemish since the summer of 2019. Maintenance at both sites is carried out constantly by our Turkish-Italian expedition. Security and the infrastructures for visitors, on the other hand, are the responsibility of local authorities. Excavations are only being carried out now at the site of Karkemish in Turkey – every year there are finds that change the way we look at the history of the ancient Near East, while unearthing new monumental Hittite architecture (which then needs to be conserved) – and now, of course, the Nineveh project in Iraq has started as well.

1800 BC before being abandoned due to the rising importance of neighbouring Tilmen Höyük. After the latter was destroyed around 1600 BC, Tasli Gecit was made the region's capital. Walls were built all around the city, along with fortresses, a residence and numerous houses, but it was later destroyed by an earthquake in 1400 BC.

Tasli Geçit Höyük Archaeology Park officially opened in 2010. New methods for safeguarding against erosion were experimented with and developed on the site, partly with the aid of three Italian companies, with Mapei once again lending considerable support. Mapei's Technical Services team again helped with the expedition, and all the relevant operations were carried out with the utmost respect for the ancient structures, preferring (as previously in the case of Tilmen Höyük) minor operations so as not to distort the appearance of the constructions and ensure they would stand the test of time (for further information see *Realtà Mapei International* no.44/2013).

**Excavations in Karkemish**

Located over on the Turkish-Syrian border and converted into a military installation, the site in Karkemish was closed to the public until 2011. After the Turkish authorities decided to carry out archaeological research, the work was commissioned to Professor Nicolò Marchetti,

**Marchetti: the support we received from the local authorities guaranteed our safety and gave us the motivation to overcome every obstacle**

who had previously supervised digs on archaeological sites in Tilmen Höyük and Tasli Gecit. Karkemish, which even gets a mention in the Bible, is an ancient city, whose wealth and importance is testified by its monuments made of decorative stone, sculpted walls, low reliefs, sculptures and fortified ramparts that have gradually

come to light during excavation work carried out from 2011 to the present day. Even back in 1876, a number of British expeditions carried out digs here, including excavations by Thomas E. Lawrence, better known as Lawrence of Arabia, and all the discoveries and finds are on display in museums, including the British Museum, the Louvre and the Vatican Museums. The excavations and surveys carried out on the site in Karkemish called for on-site experimentation with techniques providing protection against erosion, partly with

Mapei's support once again. In the case of Karkemish, just like in Tilmen and Tasli, Mapei's Technical Services team recommended products and systems capable of coping with on-site problems while, at the same time, safeguarding the ancient constructions. Once again, the operations carried out on the excavation site in Karkemish were "minimal", so as not to interfere too heavily with the archaeological finds while simultaneously guaranteeing they could be preserved over time (for further information see *Realtà Mapei International* no. 54/2015).

**You started collaborating with Mapei at the time of the archaeological digs in Jericho, followed by those at Tilmen Höyük and Tasli Geçit Höyük, and more recently at Karkemish. How important has the support provided by Mapei Technical Services been in helping to select the best products?**

During my visits to Mapei SpA's Research & Development Lab to meet Pasquale Zaffaroni, Mapei Group's Product Manager of the Building Line, we analysed the physical characteristics of the ancient materials that needed to be conserved (from extremely fragile, sun-dried bricks made from mud and straw, to soft limestone or very hard basalt cracked by the flames of ancient fires, right up to almost imperceptible layers of coloured mortars). Then, while going through the range of Mapei products available, we discussed the specific performance properties

required for our needs. And almost every time we carried out testing in the field, there was a successful outcome starting from the very first application, and this was always thanks to the hard work of the Mapei Technical Services.

**Did the Mapei products fulfill your requirements to carry out interventions based on full respect of the ancient structures?**

From bonding the basalt orthostats in the royal palaces and temples with ADESILEX PG2 adhesive, to the consolidation of rough bricks and mortars and the filling of potentially unstable gaps in the ancient walls with products from that incredible line which is MAPE-ANTIQUÉ, to a myriad of other micro-solutions we managed to define thanks to the Mapei range, we have always been at the cutting-edge of conservation work on structures dating back thousands of years.



**"An Integrated Approach for an Archaeological and Environmental Park in South-Eastern Turkey", published by Springer, provides an account of the important archaeology site of Tilmen Höyük in Turkey. Nicolò Marchetti, Giovanna Franco, Stefano Francesco Musso and Maria Benedetta Spadolini provide an overview of the project to renovate and redevelop the site with the help of products supplied by Mapei. The authors (and Prof. Marchetti in particular) decided to dedicate their book to Giorgio Squinzi and Adriana Spazzoli. Thanks to Mapei's help, cutting-edge products and technical assistance were constantly available for renovating the site and maintaining the constructions that came to light.**

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NEW SOLUTIONS FOR CLEANING AND DISINFECTING HANDS AND SMALL SURFACES



At workplaces and building sites, cleaning and disinfecting work tools and premises is now essential for resuming or continuing any kind of activity

## Mapei launches hand gels

Easy to use and effective, hand gels are an ideal alternative for cleaning your hands when you cannot wash them with soap and water. Over the last few months, due to the Covid-19 epidemic, washing our hands properly and disinfecting the surfaces we come into contact with on a daily basis has been the first step in preventing the virus from spreading. At workplaces and building sites, cleaning and disinfecting work tools and premises is now essential for resuming or continuing any kind of activity.

Last April, the Italian Ministry of Infrastructures and Transport issued a special protocol about measures for preventing Covid-19 from spreading across building sites. It provided guidelines for making any precautionary measures adopted even more effective.

Cleaning and disinfecting spaces is vital: employers must clean locker rooms, communal areas and machinery on building sites on a daily basis and provide a specific detergent for cleaning personal work tools. The protocol also specifies that cleaning products must conform to the Italian Ministry of Health's

guidelines, which, in turn, comply with WHO indications (<https://www.who.int/gpsc/5may/GuidetoLocalProduction.pdf>)

### Hand gels by Mapei

Mapei has always been committed to safeguarding the health and safety of people and of those who work in the building industry and has now added MAPESEPT GEL and MAPESEPT LIQUID to its product portfolio: two solutions for cleaning and removing all potentially harmful substances from hands and surfaces both quickly and effectively. These two sanitizing products have been developed to meet the growing market demand for cleaning and sanitizing products following the outbreak of the Covid-19 epidemic. Both products may be used whenever you need to sanitize hands and surfaces without the need to rinse them afterwards: both at home and outside the home, when working on building sites, in the offices, etc., in compliance with the guidelines of the Italian Ministry of Health. MAPESEPT LIQUID is also recommended for use in domestic and professional settings for cleaning

small surfaces resistant to alcohol, such as ceramic kitchen countertops, tables, ceramic floors, desk-top, etc.

Thanks to their special formula and emollient properties, MAPESEPT GEL & MAPESEPT LIQUID sanitize the skin of the hands and prevent it from cracking. They are made from more than 65% of ethyl alcohol, oxygenated water, glycerine and lemon fragrance according to a formula recommended by the WHO. No water is required and there is no need to rinse off after use.

Both products are available from leading distributors of building products. MAPESEPT GEL is available in carton boxes of 6 x 1000 ml plastic bottles with a screw-cap and 6 practical nozzles, while MAPESEPT LIQUID is available in 5 litre plastic containers.

FIND OUT MORE!



# MAPEI: BEST PERFORMER IN THE CIRCULAR ECONOMY

THE COMPANY WAS REWARDED FOR ITS ADMIXTURES FOR CREATING NEW BITUMINOUS CONGLOMERATES



**FROM LEFT ON.** Mapei has developed new admixtures for creating new bituminous conglomerates that allow substantial amounts of road asphalt to be recycled.

For a long time now Mapei has been focusing on Sustainability as a vital driver alongside the three pillars of its corporate strategy: Research & Development, Specialisation and Internationalisation.

For Mapei sustainability means products with a high durability and with low environmental impact that can raise comfort standards while reducing the amount of energy dispersion in buildings. It also means using recycled material, recovering and reusing waste, using renewable energy sources in manufacturing processes, and preferring other means of transport to road vehicles. Mapei's ongoing commitment to manufacturing products that are environmentally friendly resulted in the company winning the Best Performer in the Circular Economy 2019/2020 award, devised by Confindustria, the Confederation of the Italian manufacturing and service companies, with the backing of 4.Manager (an association set up by Confindustria to help managers and business people to develop). 210 companies took part in the second edition of a prize aimed at recognising the value of projects by associate companies promoting sustainable behaviour.

#### Admixtures for bituminous conglomerates

Mapei was rewarded for its admixtures for creating new bituminous conglomerates (MAPEI ACF-L1, ACF-L2 and ACF-L3) that allow substantial amounts of road asphalt to be recycled.

Mapei has recently developed a line of products for bituminous pavements: this is a new line developed by its

R&D laboratories in Milan and is beginning to grow in other subsidiaries of the Group.

Referring specifically to ACFs (Functional Chemical Admixtures), Mapei initially focused its efforts on creating high-performance chemical formulations designed to restore the fraction lost in the old oxidised bitumen in RAP (Recycled Asphalt Pavement), so more of it can be used in various layers of bituminous conglomerate.

Its attention then shifted to studying solutions guaranteeing the same performances as the previously developed ACFs but with a careful eye for aspects related to environmental sustainability and higher user safety, making these products much less hazardous.

The obvious environmental benefits deriving from the use of ACFs were evaluated by the LCA (Life Cycle Assessment) methodology, comparing the environmental impacts from a conventional bituminous conglomerate with those of a bitumen designed using ACFs and, hence, a greater amount of recycled material.

LCA methodology allowed to compare the environmental impacts caused by manufacturing asphalt containing only pure material, with an asphalt containing 15% RAP (recycled asphalt pavement) and another one with a 40% RAP: ACF admixtures promote the use of high percentages of RAP.

#### The environmental study

The environmental study encompassed every phase in the lifecycle of asphalt starting from the impact of raw materials, their transportation, the manufacturing

process, and the use of asphalt for building local roads, secondary/main urban roads and motorways.

Several environmental impacts are considered: from the familiar global warming caused by greenhouse gas emissions (Global Warming Potential, also known as Carbon Footprint) to impacts like eutrophication (anomalous growth of aquatic organisms, such as algae, due to a decrease in the density of aquatic fauna), depletion of the ozone layer, conversion of pollutants into acids (eventually resulting in acid rain), depletion of natural resources, and others.

The calculations carried out by the Mapei Environmental Sustainability Department showed that using asphalt containing only virgin raw materials resulted in 17% savings in CO<sub>2</sub> compared to asphalt containing 15% RAP. CO<sub>2</sub> emissions could be reduced by up to 30% in the case of asphalt with 40% RAP, thanks to the use of ACF Admixtures.

For the construction of a 1 km section of three-lane motorway within the framework of a circular economy, CO<sub>2</sub> savings are quite considerable compared to standard methods, equivalent to:

- 100,732 kg CO<sub>2</sub> for the circular economy solution with 15% RAP, which corresponds to an annual absorption of approximately 1300 plants or the equivalent to the CO<sub>2</sub> emissions from a car travelling over a distance of 872,894 km (equivalent to 1,505 journeys from Milan to Rome).
- 187,354 kg CO<sub>2</sub> for the circular economy solution with 40% RAP, which corresponds to an annual absorption of approximately 2417 plants or the equivalent to the CO<sub>2</sub> emissions from a car travelling over a distance of 1,623,518 km (equivalent to 2,799 journeys from Milan to Rome).

The circularity study promoted by the use of ACF admixtures is confirmed by another project carried out by As-solombarda's (the Association of the Lombardy-based companies) Green Economy Network in conjunction with the IEFES (Bocconi University's Institute of Economics of Energy Sources) GEO (Green Economy Observatory): the C. E. R. C. A. Project (Circular Economy as a Competitive Resource for Businesses). This project is aimed at identifying and measuring the circular economy approach implemented by businesses.

**Mikaela Decio.** Corporate Environmental Sustainability, Mapei Group  
**Gilberto Del Zoppo.** R&D Admixtures for concrete, Mapei SpA (Italy)



#### GREEN DEAL IN THE AGE OF COVID-19

On Friday 5<sup>th</sup> June 2020, Bocconi University's Green Economy Observatory organised an online workshop on the impact the ongoing health crisis is having on the Green Deal, the plan devised by the European Commission to make the economy more sustainable and tackle climate change.

At the beginning of 2014 Bocconi University set up a new Green Economy Observatory (GEO) as part of IEFES - Bocconi University. The Green Economy Observatory carries out research and in-depth studies to examine the main issues of debate on the green economy, creating a platform of interaction with leading players in politics and business. The Observatory includes a Policy Table aimed at analyzing institutional approaches and policies for developing the Green Economy and a Management Table aimed at analyzing and promoting business strategies.

Mapei has been an active member of the GEO Observatory since its foundation in 2014 and took part in the above-mentioned workshop by contributing to the roundtable on management entitled: "Restarting after COVID-19".

The talk given by Mikaela Decio pointed out how important sustainability and the circular economy are to Mapei as key corporate drivers.

Assessing the lifecycle of products (using the LCA methodology), subsequently certified and promoted by means of EPDs (Environmental Product Declarations), is a commitment to transparency in relation to stakeholders and also a pledge to reduce the environmental impacts caused by the products themselves. The company's commitment to research and development in terms of sustainability is expressed into products with low impact on both the environment and the health of end users, and products that do not affect the quality of indoor air.

So far Mapei manufactures over 140 products covered by specific EPDs, over 250 products covered by industry-wide EPDs developed by FEICA (Association of the European Adhesive & Sealant Industry) and EFCA (European Federation of Concrete Admixtures Associations), and over 300 products certified for very low emissions of volatile organic compounds (VOC).

# Cervia Garden City 2020



THE THEME OF THIS YEAR'S EVENT IS THE RAINBOW, A SYMBOL OF REBIRTH AND HOPE. A ROSE IN REMEMBRANCE OF ADRIANA SPAZZOLI IN TREFFZ PARK

"Cervia Garden City – May in Bloom", Europe's biggest outdoor flower show, once again sees Cervia (central Italy) blossom this year, a unique city in terms of its beauty, welcoming warmth and meticulously cared for greenery. For fourteen years Mapei has been enthusiastically supporting an event that has now reached its 48<sup>th</sup> edition, which, of course, is like no other before it: the cities, associations and companies invited to take part could not create their own flower installations this time. Nevertheless, lots of local growers and producers agreed to take part by supplying flowers and plants to show their great fondness and love of Cervia. The 60 gardens created by those taking part in last year's edition were carefully restored and information panels were put in place to describe the floral works and promote the project in terms of close ties with the community, business partnerships and

human relations. As regards ties with the community and human relations, Cervia Garden City decided to pay tribute to Adriana Spazzoli this year, the Mapei Group's former Director of Operational Marketing and Communication, who passed away last November, dedicating a garden to her in Treffz Park. Adriana Spazzoli was extremely fond of Cervia and a passionate supporter of the event. Cinco de Mayo roses with delicate red and yellow flowers have been planted in the garden dedicated to her. The theme of this year's event is "The Rainbow", a symbol of rebirth and hope, as the city mayor, Massimo Medri, and Commissioner for Landscape and Greenery, Patrizia Petrucci, both noted: "Cervia Garden City has always tried to send out a message of joy and hope through flowers. That is why the event is focused around "the rainbow", an explosion of colours

that blossom after the darkness of a storm and create a bridge joining us together as a symbol of hope and rebirth". The event, which is held in the towns of Cervia, Milano Marittima, Pinarella and Tagliata through to the end of September, also encompasses other events including "Blossoming Corners", a project involving the local community to decorate the balconies, gardens and corners of local houses,

and an outdoor photography exhibition entitled "Rebirth of the Pine Forest" set inside a pine forest that was destroyed by a typhoon in July 2019. Three "Mapei gardens" have been set up in Milano Marittima for this year's edition: two inside Treffz Park and one in the Cadorna Roundabout, where a Mapei panel will also be installed to promote its range of solutions for urban areas called URBAN SYSTEMS.



## Casa Adriana, a tribute to a special woman

A special community for mothers and children opened by CasArché in the Quarto Oggiaro neighbourhood of Milan has been dedicated to Adriana Spazzoli (see photo below), the Mapei Group's Operational Marketing Director until last November. This is a way of paying tribute to and thanking a woman who supported the association for many years, both on a personal level and through the entire company. Adriana Spazzoli and her husband Giorgio Squinzi were always particularly interested in these families and shared and supported Father Giuseppe Bettoni's dream of helping and supporting them. Father Giuseppe originally launched the project when he set up Arché in 1991 as a response to the HIV emergency among children. The foundation now helps vulnerable children and families to become independent on a social, housing and work level by providing all the necessary services and support. These services include this housing facility whose guests get the chance to experiment with a closer and more interactive lifestyle to foster cooperation between the "strong and weak parts" of both individuals and society as a whole. Casa Adriana can accommodate up to nine mothers and their children, who find themselves particularly in need. With the support of Social Services and an education team, the mothers and children are guided along the path towards psychological, social and educational rehabilitation. Mapei has been supporting the Arché Foundation for various years, providing technical consultancy and supplying products to extend and renovate the various buildings. In 2016 the company donated various products to modernise and convert Casa Adriana (that used to be a nursery school) into an education community. The official naming ceremony was supposed to take place on Saturday 9<sup>th</sup> May, but it has been postponed until the autumn due to the health crisis. In any case, Casa Adriana is already up and running in the name of hospitality and inclusion.



## The unifying thread

Gomitolorosa onlus is an association that promotes the knitting industry to support various health-care campaigns and help people most in need. Everything it does is environmentally friendly. The association recycles excess wool to help protect the environment and preserve local types of wool, which it rolls into balls of 14 different colours matched with selected diseases. This year Mapei is again supporting Gomitolorosa by lending a hand with

the "Il Fiocco Viola" (Violet Ribbon) project for research into pancreatic cancer. In this project, the association will provide 2000 violet-coloured balls of wool for making scarves that will be handed over to the "Nastro Viola Association - for the battle against pancreatic cancer" to be donated to patients in the oncology departments of hospitals in Verona, Milan and Rome, which are most committed to fighting this disease in Italy.



SOLIDARITY, WELL-BEING, ENVIRONMENTAL FRIENDLINESS





# We are on our way to our eighth season in the Italian Serie A

DE ZERBI: "SASSUOLO CAN GO TOE-TO-TOE AGAINST THE BIG CLUBS"

"The black-and-green goal machine", "Sassuolo, goals galore", "The entertainers": the sports press has come up with all kinds of headlines to praise Sassuolo. The football club owned by Mapei will be playing in the Italian Serie A for the eighth season in a row and that is a record for teams from smaller cities since the Italian league was reformed. Next season Sassuolo's team manager will once again be Roberto De Zerbi, who has extended his contract by another year. "I am delighted to have renewed my contract - so the manager (born in 1979) told us - and it was the only thing I ever had in mind. As the club had already made quite clear, there was never any doubt that I would be staying on. Let's carry on together with the same enthusiasm". Mr De Zerbi knows exactly what he wants: "I am staying on because Sassuolo can get even better under my leadership. The club and I must decide whether we should keep our sights set high or accept that we are not quite ready for such ambitions. In any case, at the end of the 2019-20 season, we have shown that we deserve to be playing against the big teams".

**You have played every three days during this post-lockdown mini end-of-season tournament. Was that a good or bad thing for a team like Sassuolo with so many young players?**

"I think we were right to rotate the entire squad, taking into account and acknowledging the importance of all our players. After all, we have always claimed to have a big squad of quality players at our disposal. Everybody was up to the task, handling all the implications of the inevitable injuries we had to deal with. Resuming play after a three-month break due to the "Covid crisis" was harder than starting a new season after an ordinary 45-day summer rest. We had to condense three

months' training into 45 days in May-June".

**Of all the games you played in February and after the post-lockdown resumption, which were you most pleased about as you left the pitch?**

"The match we won against Roma, we played well and were well prepared. Another game when we put on a good show, except for the odd mistake here and there, was the away match against Atalanta. Even though we lost 4-1, we played open, attacking football and the result is extremely misleading".

**In light of what has happened on the pitch before and after the Covid emergency, who do you think deserves a special award for being the best and most consistent player in the 2019-20 season?**

"Obviously, those who play most inevitably catch the eye. But I always think about the players who do not get as many opportunities to show what they can do. I am thinking, for example, about our striker Raspadori, who has not had many chances to play. Up front, there has been so much competition due to the number of excellent strikers we have in our squad. I am convinced that, if Raspadori had had the chance to play more often, he would have performed to a very high level".



**TOP OF PAGE.** Müldür in action against Fiorentina and, clockwise, Chiriches and Defrel.

**Who surprised you most?**

"A number of players did. I was surprised by the way Chiriches really commanded the defence. Sometimes we had to do without Vlad due to injuries and we really missed him. Defrel was another regular in the sick bay throughout the season and was only available for short periods. After the Covid break he really got going, scoring goals and contributing really well. Müldür has also shown he is an extremely important player, proving that we were right to buy him in summer 2019".

**Sassuolo drew away from home against Juventus, AC Milan and Inter Milan in the 2019-20 season. What does that tell us?**

"That Sassuolo has come a long way and that next season we might even be able to think about winning at Juventus Stadium and San Siro Stadium, if we keep on improving. The draws away to Inter Milan, AC Milan and Juventus were well deserved and with a little more self-belief and experience we might have come away with even more. That is what we will try to do next season".

**After 29 of its 38 league games, three Sassuolo players (Caputo, Berardi and Boga) were already in double figures in terms of goalscoring: does that mean you are an attacking team? Does that mean that the best form of defence is always to attack?**

"No, it means that by that stage of the season Djuricic and Defrel could also have been in double figures. Caputo proved once again he is a real goal-scorer and Berardi



**We showed at the end of the season that we deserve to be among the big teams. We need to improve in defence and not concede silly goals.**

is back where he was a few years ago, although to tell the truth he deserved to be in double figures last season. As far as Boga is concerned, he should always score at least 15 every season".

**Lots of leading managers think it is hard to play against Sassuolo. Be honest, do you take that as a huge compliment?**

"Of course, and everybody should be proud of that: me, the club and our fans. Sassuolo has its own way of playing, we are a brave team ready to take on anybody. We are always willing to go toe-to-toe against even the best teams. Sassuolo has some quality players and that is what makes the difference".

**At certain times of the season Sassuolo has conceded lots of goals. For example, during the first three matches after the lockdown, it conceded 10. Is that**

**something you can improve on?**

"We have to. If we want to improve, we cannot afford to concede certain silly goals".

**Needless to say, the big teams are lining up to try and sign Sassuolo's talented young players. Boga and Locatelli are amongst the main targets.**

"Boga, Locatelli and other talented young players should stay at Sassuolo for another season. Remaining at the club for another year will help them make their mark when they move on to a top team. Leaving a year too soon might mean they are not ready or quite good enough yet to make a real impact at a big club".

# Trek-Segafredo's post-lockdown testing at Mapei Sport

TESTING TO FIND OUT HOW CHANGES TO THE RACING SCHEDULE HAD AFFECTED THE RIDERS' FITNESS

The interruption caused by issues related to Covid-19 has forced the cyclists from the Trek-Segafredo team to change their training programme. The brothers Vincenzo and Antonio Nibali, Gianluca Brambilla, Giulio Ciccone, Nicola Conci, Jacopo Mosca, Matteo Moschetti and the women riders Elisa Longo Borghini and Letizia Paternoster or, in other words, all the Italian members of Trek-Segafredo, turned up at Mapei Sport Center in Olgiate Olona (Province of Varese, Northern Italy), headed by Dr. Claudio Pecci, 50 days before the August classics as if they were about to undergo pre-season fitness testing. They were accompanied by Trek-Segafredo's General Manager, Luca Guercilena, and their fitness trainer, Paolo Slongo, representing the American pro racing team. "The test results of Nibali, Longo Borghini and other riders - so Andrea Morelli told us, the head of both the Mapei Sport's Head of the Movement Analysis Laboratory and Cycling Sector - show they trained well during the lockdown".

There was plenty of interest at Mapei Sport in finding out (for scientific purposes) how changes to the racing schedule had affected the riders' fitness. "We carried out an incremental exercise to work out their maximum oxygen consumption and the ventilatory threshold - according to Mr Morelli, who drew on the expertise of Matteo Azzolini and Massimo Induni when testing the riders - and also measured their lactate capacity to find out useful information about their lactate capacity and confirm



**FROM TOP.** Vincenzo Nibali during his test at Mapei Sport with his longtime fitness trainer Paolo Slongo. Andrea Morelli, Mapei Sport's head of cycling, with Elisa Longo Borghini during the warm up for a VO<sub>2</sub>max test.

**Tests carried out at the Mapei Sport Center are supplemented by road tests for complete, state-of-the-art performance testing**

their lactate thresholds. This information will serve as a benchmark for subsequent road tests".

"Thanks to the tests - so Mr Morelli added - we could assess their fitness level after the lockdown and also gather useful information related to such a strange and unprecedented period".

Trek-Segafredo has been working with the Mapei Sport Center since 2014. This has involved plenty of laboratory testing and scientific support for road tests carried out on the world champion, Mads Pedersen, and other foreign riders during training camps. Mapei Sport is also directly responsible for training riders of the calibre of Matteo Moschetti, Jacopo Mosca and Michel Ries.

"It is widely believed and quite undeniable that standard laboratory testing produces completely reliable results - so Josu Larrazabal pointed out, Trek-Segafredo's performance manager - and being able to rely on the support of a cutting-edge facility like Mapei Sport is vitally important. Mapei Sport is the best consultancy Center in the world of cycling, due to the wealth of experience it has gained over the years.

Assessment tests are part of our partnership but there is much more to it than that. Mapei Sport provides scientific support and helps us deal with any problems afflicting our riders. This is particularly important when pathologies arise whose nature is not immediately obvious. They can shine light in the darkness. This is invaluable to us, as is the mutual trust that have built up over years working together".

# World Class Cycling. What a magical 1995!

25 YEARS AGO EVERYBODY CALLED THE MAPEI TEAM THE "BATTLESHIP"

1995 was the best year in the glorious history of Mapei cycling. The team with the cube-patterned jersey won a total of 654 races between 18<sup>th</sup> May 1993 and the end of the 2002 season; 1995 was the most successful year of all. The team, then called Mapei-GB, won the Tour of Italy and Tour of Switzerland thanks to Tony Rominger, the UCI Road World Championships in Duitama (Colombia) with the Spanish rider Abraham Olano, the Belgian Johan Museeuw won the Laigueglia Trophy, and Frank Vandenbrouke (Belgium) won the Paris-Brussels race.

As regards the 1995 World Cup races, Franco Ballerini dominated the Paris-Roubaix and Museeuw conquered the Tour of Flanders, also winning the Zürich Grand Prix.

Museeuw's wins saw him crowned the overall winner of the World Cup. And Mapei-GB also finished top of the team standings in the World Cup and International Cycling Union world rankings. "Team rankings are very important to us - so Adriana Spazzoli, then Director of Mapei Group's Operational Marketing and Communication, often noted - because they epitomise the Mapei Group's focus on team spirit". Most importantly, Mapei-GB revolutionised cycling in 1995 in particular: this change in approach was not just a matter of winning races. "There is no real technical difference between the Mapei team back then and today's big teams - so Andrea Tafi told us, one of Mapei's top riders from 1994 to 2002. "Nevertheless, I'd like to point out that our team budget in 1995 was the equivalent of half of the budget of today's top teams. If that Mapei cycling team was racing today, with the organisation and budget of current squads, it would achieve even better results than the top teams". But it was not just a question of money. "Mr. Giorgio Squinzi - so Tafi went on to say - made us feel like one big family. There were other really strong teams but, driven along by Mr Squinzi, we managed to give that something extra".

Rominger won the overall classification of the Tour of Italy ahead of Berzin and Ugrumov, both from the Gewiss team. As well as being the overall winner (pink jersey) on time, Rominger also won the points (mauve) jersey and (blue) intermediate sprints jersey, as well as four stages. Mapei's corporate slogan back then was "Winning together", something that was highlighted to perfection by the riders in the cube-pattern jerseys, for example, in the final stage of the Tour of Italy that finished in Gressonay.

**Mr. Squinzi made us feel like one big family. There were other top teams but, urged on by Mr. Squinzi, we managed to give something extra**

"Rominger was in the pink jersey and the Gewiss team decided to attack us at a feeding station. That was not fair play: there is an unwritten rule that you never attack at a feeding station, but the Gewiss team did. It was a tough stage and Rominger was struggling. The whole Mapei

team got behind him and he managed to hold onto the lead". That evening, the Swiss rider told his teammates: "I do not know whether I will be able to keep up with the climbers on the double climb up to Cuvignone Pass". All the Mapei lads gathered around Rominger and told him: "We will help you, you can do it. We will make sure you are in the pink jersey when we get to Milan". And they did.



1995. Tony Rominger with his pink jersey at the finish line of the Loreto stage during the Italy Tour.



1995. The winner of the World Cup, Johan Museeuw, and the winner of the UCI Road World Championships, Abraham Olano, with Ernesto Colnago and Giorgio Squinzi.

# NEWS FROM THE MAPEI WORLD

EVENTS, PROJECTS AND OTHER NEWS FROM THE GROUP'S SUBSIDIARIES

## USA: FITWEL CERTIFICATION FOR MAPEI CORPORATION: A SAFE WORKPLACE

The Deerfield Beach headquarters of Mapei Corporation, the Group's U.S. subsidiary, was recently awarded Fitwel certification. This certification was created by the U.S. Centers for Disease Control and Prevention (CDC) together with the General Services Administration (GSA) and the Center for Active Design (CfAD) to promote healthy workplaces for employees. Mapei Corp. is the first U.S. manufacturing company in the building industry to receive this certification, thanks to various measures adopted to support physical-mental health and social interaction between its workers. "This is just the beginning," according to Luigi Di Geso, Mapei Corporation's President and CEO, "we plan to implement new measures to ensure this certification is renewed in three years' time".



## SOUTH AFRICA: SUPPORTING STRUGGLING MOTHERS AND CHILDREN

Mapei South Africa was recently involved in renovation work on the shelter belonging to the non-profit association from Johannesburg called "Bienvenu Shelter", which takes care of refugee mothers and children, providing them with food, accommodation, education, legal/medical aid, and clothing. The Group's South African subsidiary helped upgrade the original parquet floors by installing new ceramic floors in the guest rooms, corridors, volunteers' rooms, offices, reception and chapel. Mapei South Africa also donated products for installing ceramic tiles and preparing substrates, such as primers, adhesives and grouts.



## SWITZERLAND: SAVE CONCRETE, SAVE LIVES!

Mapei Suisse, the Group's Swiss subsidiary, launched a project to help professionals of building and other people. It devised a special promotional campaign for DYNAMON RT POWDER, an admixture made from modified acrylic polymers (with zero formaldehyde content) that allows to restore the concrete workability without adding extra water. The campaign also included a competition to win a defibrillator and a course to teach people what life-saving procedures they should follow if somebody has a heart attack. The Marti Tunnelbau AG team (see the picture below), which won the competition, now knows how to save lives...and concrete.



## GERMANY: TOP HOTEL STAR AWARD FOR SHOWER SYSTEM 4 LVT

SHOWER SYSTEM 4 LVT, a complete system for installing LVT in showers, bathrooms, and damp surroundings in general, has received the "Top Hotel Star Award", which "Top Hotel" and "Hotel+Technik", specialised German publications for the hotel industry, dedicate to excellence in this sector. After a jury of experts had selected 32 candidates in 12 categories, it was due to the readers of the publications to choose the winners.

The SHOWER SYSTEM 4 LVT was awarded second prize in the "construction materials" category for offering a complete solution that provides hygiene, comfort, functionality and design for LVT in showers, spas, wellness centres and saunas in hotels, as well as complying with stringent German standards covering the installation of this type of material.





## Mapei website rewarded as Website of the Year

PRIZE AWARDED BY THE PROGRESS SITEFINITY PLATFORM FOR ITS ARCHITECTURE, CONTENT, AND USER-FRIENDLY NAVIGATION

The Mapei website ([mapei.com](http://mapei.com)) has been awarded the Website of the Year prize by Progress Sitefinity, an international Web Content Management System (CMS). The Mapei Group and Mapei SpA's Digital Team have been rewarded for completely upgrading the company's website to an international standard in just a few years. It now manages 59 websites worldwide in 62 different languages for a total of 240,000 webpages attracting over 550,000 unique users each month.

The project for the new websites, which began in 2017 with the launching of the Italian holding company's website, has been developed and extended to cover all the Group's subsidiaries and eventually terminated in the launch of the final three websites of North American subsidiaries in May 2020.

### Excellent user experience

[mapei.com](http://mapei.com) won the "multisite" category, thanks to its architecture, content, user-friendly navigation, and innovative use of the functions offered by the platform. In addition to the Mapei website's elaborate architecture, it was also praised for the quality of the content it offers (technical and specific contents for the general public), numerous tools (developed using the means provided by the platform), and its design and navigation capacity, optimised to be intuitively responsive. But that is not all, [mapei.com](http://mapei.com) was also rewarded for the complexity and layout of its Italian master website and the local websites of the Mapei Group's subsidiaries.

"The next steps we take will be focused on developing websites for subsidiaries of other brands belonging to the Group, such as Vinavil, Vaga, Adesital and Polyglass, for a total of 10 more websites with their own distinctive features and complexity, so Stefano Ranghieri announced, the Group's Operational Marketing and Communication Director.

### A two-stage competition

The competition, organised for the first time in 2011, rewards websites developed using the Progress Sitefinity platform that stand out for their user experience and innovative use of the functions available on the platform. The prize is divided into two stages. In the first stage, candidates are selected through the platform based around six guidelines: design, content, layout and navigation, innovation, complexity, and relevance. In the second stage, the general public selects the winners in the various categories.

**THE QUALITY OF THE CONTENT - TECHNICAL AND SPECIFIC FOR PEOPLE WORKING IN THE BUILDING INDUSTRY - AND NUMEROUS TOOLS PROVIDED BY THE WEBSITE ARE VERY POPULAR WITH USERS**

CALCULATION SOFTWARE FOR PEOPLE WORKING IN THE BUILDING INDUSTRY AVAILABLE IN ENGLISH FROM [MAPEI.IT](http://MAPEI.IT)

Support for designers and installers



Mapei offers software programs that are useful calculation tools and contain the latest updates, developed for experts from the sector who need to verify design work directly on site at [mapei.it](http://mapei.it).

### Mapei FRCM Software Design

Mapei Software Design is a software based on ACI 549-4R-13 standard for the structural strengthening of masonry by FRCM (Fibre Reinforced Cementitious Matrix) System, consisting of A.R. glass or basalt fibre meshes and inorganic matrix (cementitious or cement-free mortar).

### Data Mapesilent

This is a software program used to verify the acoustic characteristics of buildings and calculate the thermal transmittance of partition walls. The program also allows you to verify if project requirements meet the specified legal limits.

### Mapei FRP Formula

Mapei FRP Formula is a software program for reinforced concrete and masonry structures strengthened with FRP composite materials with an organic matrix. The

software allows you to correctly dimension flexural and combined flexural/compressive strengthening, shear strengthening and confinement of reinforced concrete beams and calculate FRP chains.

### Mapei HPC Formula

This program is intended for use with Mapei's strengthening systems using PLANITOP HPC and PLANITOP HPC FLOOR. These are two ultra high-performance, shrinkage-compensated, free-flowing, high ductility, fibre-reinforced cementitious mortars containing stiff steel fibres. They are used to strengthen concrete structures and the extrados of compact floor slabs.

### Mapefix Software Design

This software dedicated to design anchors for construction has various calculation modules to cover all design cases: anchoring threaded bars in masonry, anchoring threaded bars in concrete and anchoring rebars in concrete and masonry. Mapefix Software Design also gives design engineers the maximum flexibility by allowing them the freedom to select numerous variables typically found in structural strengthening and anchoring.



# Sanitizing rooms starting with the walls



MAPEI ADVANCED COATING TECHNOLOGY (ACT) FOR PERFECTLY SANITIZED WALLS

## What exactly does Advanced Coating Technology (ACT) mean?

The Mapei ACT line identifies a range of **systems incorporating advanced technology** for protecting and decorating the surface of walls.

The products in this line, the result of an important research project to develop solutions for critical areas, have **certified performance properties** so they comply with the requirements of particularly severe standards.

By critical areas, where **hygiene and cleanliness are even more important**, we mean where foodstuffs are present or areas and rooms in healthcare environments.

In fact, the food and beverage industry and healthcare environments have to comply with standards that define the precise characteristics of the painting systems to be adopted.

There are two hard-wearing hygienic enamel paints in the ACT line: **MAPECOAT ACT 021** specifically developed for the food and beverage industry and **MAPECOAT ACT 196** for healthcare facilities.

## If we consider that nowadays all rooms and areas have to be sanitized, what are the characteristics of MAPECOAT ACT 196?

MAPECOAT ACT 196 is an acrylic-based enamel paint with a semi-gloss finish for internal walls containing special, **wide-spectrum protective biological agents** that contrast the deposit and proliferation of bacteria on surfaces, including those cleaned and **sanitized frequently**.

As we said before, it is the ideal enamel paint for protecting areas in healthcare facilities, that is, for all those situations that require a **high level of hygiene**.

Nowadays, words such as hygiene and cleanliness are no longer banal recommendations; they have become "life-saving" rules of law and mandatory practices in numerous environments. Which is why this particular wall enamel, which was originally developed for healthcare environments, has become **indispensable for all those internal environments where people are either present or pass through**.

So, apart from doctors' surgeries and clinics, this system is suitable for any communal area, such as sports facilities, playgrounds and wellness and spa centres, but also beauty parlours, hairdressers, hotels and the hospitality industry in general, and professional studios, as well as private homes where you wish to ensure a higher level of hygiene.

MAPECOAT ACT 196 is also resistant to particularly aggressive disinfectants, it is easy to maintain and it is highly durable. Not only that, it has also been **tested in accordance with ISO 22196** standards, which is used to determine the level of **antibacterial activity of surface coatings**.

## What is ISO 22196, what tests need to be conducted

## and what kind of guarantees does it certify?

ISO 22196 is an international standard and is the result of coming into line with the severe Japanese JIS Z 2801 standard; in fact, we are in a position to say that it currently represents **the most advanced and most widely adopted standard in healthcare facilities**.

ISO 22196 includes a series of tests called **Rapid antibacterial activity test** that are conducted as follows: test samples are prepared and painted with the product to be tested. These samples are then inoculated with different strains of bacteria and the degree and speed at which the colonies of bacteria are reduced are measured.

The tests carried out on MAPECOAT ACT have shown that **MAPECOAT ACT 196 drastically and quickly reduces microorganisms**, and the results remain unchanged even when the samples are leached for hours in water, which is carried out to simulate cleaning operations.

It is important to point out that **Mapei always uses external laboratories**, which ensures that all certified results are fully guaranteed. In this particular case, the tests carried out on MAPECOAT ACT 196 were conducted by IMSL (Industrial Microbiological Services Ltd), a prestigious UK laboratory specialised in microbiology.

## But from a practical point of view, what are the advantages of using MAPECOAT ACT 196 wall enamel?

In order to understand how important it is to use certified enamel paint for walls and ceilings, let's try and observe a typical healthcare environment; let's imagine, for example, a waiting room at a doctors' surgery. We can see that the floors, doors and furnishings in general are cleaned every day whereas the walls and ceilings are the most extensive surfaces but are taken less into consideration.

If carried out correctly, cleaning and sanitising operations eliminate most microorganisms, whose cells and spores find favourable conditions in dirt and organic residues for their survival and proliferation. In general **walls and ceilings account for more than 70% of the contact surfaces in a room**: this shows how important it is to use a tested and, therefore, guaranteed enamel paint. MAPECOAT ACT 196 has **excellent resistance to cleaning agents**, including during tests carried out using particular active chlorine detergents and alkaline degreasing products containing the main disinfecting agents.

## As far as application is concerned, do any particular procedures need to be followed?

**MAPECOAT ACT 196 is very easy to apply**; you just need to follow the usual rules and methods for applying



**Mapecoat ACT 196**  
Highly washable, semi-gloss enamel for interior walls, suitable for use in healthcare environments, resistant to bacterial attack.

enamel wall paints in general. After checking the flatness and **cohesiveness** of the substrate (which may be a new skim coat or old paintwork; the important thing is that it adheres perfectly), **apply a coat of MALECH primer or DURSILITE BASE COAT**, then complete work by applying two coats of MAPECOAT ACT 196. You can apply the enamel wall paint with either a synthetic bristle brush, a short-pile roller or **by spray**, whichever you prefer, depending on the type of finish you want and the size of area to be painted.

## Another important and much-discussed issue is sustainability: what is the position of MAPECOAT ACT 196 in this regard?

MAPECOAT ACT 196 has its own **EPD environmental certification** drafted in accordance with international standards (ISO 14025 and EN 15804) and is a **product with low emission level of VOC (volatile organic compounds)**: in fact, as far as indoor air quality is concerned, test results have put it in class A. It has everything it takes, therefore, to meet the most stringent environmental requirements (CAM and other international protocols).

MAPECOAT ACT 196 has passed all the required tests, a guarantee of its hygiene first and foremost, but also of its durability and sustainability.

**Paolo Sala**, Wall Coatings Product Manager, Mapei SpA (Italy)

FIND OUT MORE!





# Products in the spotlight

WATERPROOFING CONCRETE AND MASONRY, BONDING WITH HIGH MECHANICAL STRENGTH, REPAIRING AND PROTECTING JOINTS IN INDUSTRIAL FLOORINGS: A FEW SOLUTIONS BY MAPEI



### MAPEJOINT 100/25

It is a pre-cast joint made from composite material inserted in old, damaged or worn joints, including those with large amount of movement or subject to intense traffic in industrial settings.

Installation and hardening of the **MAPEJOINT 100/25** system is quick and joints can be put back into service in just 12 hours, thereby keeping production downtimes and interruptions to traffic flow to a minimum. The installation method for MAPEJOINT 100/25 ensures that the area around where it has been applied remains flat, which reduces the effect of impacts transmitted by vehicles moving over the joint and, as a result, damage to tyres and injury to drivers.

**FOR JOINTS SUBJECT TO INTENSE TRAFFIC**



### ULTRABOND MS RAPID

It is a deformable, thixotropic construction adhesive with a high modulus of elasticity made from sililated polymers, with low emission of VOC (EMICODE ECI Plus certified by GEV) characterised by its high initial tack ("sucker effect") and rapid final hardening. Its rapid polymerisation and compatibility with most absorbent and non-absorbent building materials, including damp ones, make **ULTRABOND MS RAPID** a practical, easy to apply product to replace or integrate traditional mechanical fasteners when constructing and assembling components and fittings used in the building and industrial sector, both in interiors and exteriors. It belongs to a special line of construction adhesives that also includes ULTRABOND SUPER GRIP and ULTRABOND PU STRONG.

**HIGH INITIAL TACK**



### PLANISEAL 88

Osmotic cementitious mortar, suitable for contact with drinking water, for waterproofing masonry and concrete structures. It is used for repairing underground masonries subject to water and moisture seepage in situations with negative pressure up to 1 atmosphere; waterproofing basins, reservoirs, concrete or masonry tanks containing drinking or sewage water. It guarantees excellent adhesion to the substrate for complete waterproofing, even in the presence of negative pressure. **PLANISEAL 88** comply with to the principles defined in EN 1504-9 and the requirements of EN 1504-2 coating (C) according to the MC and IR principles.

**SUITABLE FOR CONTACT WITH DRINKING WATER**



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