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

## Teamwork to overcome challenges

Dear readers,

"I am proud to do something together", so Renzo Piano said in an interview he gave to *Realtà Mapei International*, making reference to the construction in record time of new Genoa-San Giorgio Bridge in Genoa, less than two years after Morandi Bridge collapsed. A project that may have come about due to a tragedy but which - as the architect who designed the bridge noted - is not a miracle because in Italy "we are capable of constructing works with companies that export their skill and expertise worldwide". This project in Genoa shows that "teamwork" was vital in rebuilding such an important bridge for the city of Genoa and its hinterland. "Working as a team", even when there is not an emergency, actually provides a competitive edge in overcoming all the challenges facing a country like Italy that has lots of ground to make up compared to the rest of Europe, starting with

### A SPECIAL ABOUT THE NEW BRIDGE IN GENOA. MAPEI CONTRIBUTED BY SUPPLYING INNOVATIVE PRODUCTS AND TECHNOLOGY

its lack of infrastructure. Mapei has been a leading player in the construction of Genoa-San Giorgio Bridge supplying innovative products and providing support throughout all the building works. This issue of *Realtà Mapei International* devotes a lengthy special to this enterprise, including a review of all the projects Mapei has been involved in to construct and repair other bridges in Italy and abroad.

We have talked about "teamwork", such a familiar term for us that it has actually been the title of a section of *Realtà Mapei International* for several years that focuses on the Mapei Group's subsidiaries. This issue showcases Mapei Polska that celebrated

20 years in business in 2020 and has constantly grown in terms of both sales and investment to become a widely acknowledged leading player in the realms of materials for installing ceramics and stone materials.

It is also anniversary time for Sassuolo Football Club, which is celebrating its centenary this year and is currently one of the leading teams in one of the toughest football leagues in the world.

Sport has resumed after a lengthy break due to the lockdown caused by the Covid-19 pandemic: professional sportsmen and women are "back on track". Mapei Sport Centre is at the service of the multifarious world of sport, carrying out tests, designing training plans and generally getting athletes ready to start again in complete safety.

We will be reviewing all this in the pages that follow, without forgetting social responsibility. Enjoy your reading.



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Grégoire Defrel is a French footballer playing for Sassuolo as a forward.



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### Cover story

A sketch by Renzo Piano with just a few cleverly drawn strokes outlining the section of new San Giorgio bridge in Genoa, for which Mapei supplied its technology for building (see the articles at pages 2-23).

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# Genoa: a bridge towards the future

720 DAYS AFTER MORANDI BRIDGE COLLAPSED  
AND 476 DAYS AFTER REBUILDING WORK BEGAN,  
GENOA-SAN GIORGIO BRIDGE WAS OFFICIALLY  
OPENED







## The figures

**1,067 m** length of the bridge

**30.8 m** width of the deck

**56.20 m** height above sea level

**13 m** depth of the foundations

**18** piles

**45 m** average height of the piles

**67,000 m<sup>3</sup>** concrete used for the deck

**9,000 tonnes** of steel reinforcement

**15,000 tonnes** of steel used for the metal structures

**1,200** people working on the project

**20** sites working in parallel

### Genoa (Italy)

# RECONSTRUCTION USING MAPEI TECHNOLOGIES

MAPEI'S CONTRIBUTED BY SUPPLYING CUTTING-EDGE PRODUCTS AND THE SUPPORT OF THE COMPANY'S EXPERTS

The Genoa-San Giorgio Bridge, inaugurated on 3<sup>rd</sup> August, has replaced the Morandi Bridge, which collapsed on 14<sup>th</sup> August, 2018.

Reconstruction of the bridge, designed by Renzo Piano and built by Webuild and Fincantieri Infrastruttura, was completed in just two years, with the aim of making it a national model for the redevelopment of Italian infrastructures.

Mapei took part in this imposing work of civil engineering by supplying numerous products, including admixtures for the ready-mixed re-

inforced concrete to construct the piles, and as a consultancy service through the company's engineers and specialists, who were available round-the-clock from the very start of the project right up to placement of the last pour of concrete.

#### Characteristics of the new bridge

Compared with the Morandi Bridge, which was 1,182 m long, the Genoa-San Giorgio Bridge, at 1,067 m, is slightly shorter. Also, the new bridge does not follow exactly the same route and has been built around 20

m to the south of the old one. This decision was taken in order to shorten the schedule of works for its construction and to reduce any interference with the buildings below the bridge to a minimum.

The bridge is made up of a steel and concrete deck and a continuous truss divided into 19 spans (14 spans of 50 m, 3 spans of 100 m, 1 of 40.9 m and 1 of 26.27 m), with the whole structure supported by 18 reinforced concrete piles - 7 more than the Morandi Bridge - with an elliptical section measuring 4 m by 9.5 m.



“ We are so proud to have contributed to the construction of the new San Giorgio Bridge in Genoa. The supply of safe, certified and durable products and systems has always been our mission”.

Veronica Squinzi, CEO of the Mapei Group

Mapei supplied admixtures such as DYNAMON XTEND W400N, DYNAMON LZ 551 and MAPEFAST ULTRA for the concrete mix used to build the piles.

© Special Commissioner for Genoa reconstruction



© Special Commissioner for Genoa reconstruction

The viaduct has a curved section (overall height 4.8 m in the middle) made from a structure of steel and concrete. The total width of the road section has been increased from the previous 18 m to 30.8 m and there are two 3.75 m wide lanes running in each direction, separated by a 2.6 m wide central reservation. Each of the two carriageways also has an emergency lane, which the

old bridge didn't have, and there is a 2.5 m high anti-wind and safety barrier running along both sides of the bridge. Made from glass to mitigate the bridge's visual impact and provide an uninterrupted view of the surroundings while travelling over the bridge, the barrier is also bird-friendly thanks to a series of special markings on the surface of the glass.

**Mapei's intervention**  
Construction of the piles.  
Mapei's Admixtures for Concrete Division was involved in the project 24/7, with each day split into three 8-hour shifts. Work was carried out incessantly to ensure technical support was constantly available at the three production plants producing the concrete in Chiaravagna, Genoa Harbour and San Quirico, owned by

Calcestruzzi SpA, a division of Italcementi. The piles were constructed by placing the concrete in a continuous cycle using a special type of formwork which is attached to the structure under construction. With this technique, support for the fresh concrete is provided by the concrete placed previously. Therefore, when the formwork is raised, the mechanical

properties of the previous concrete need to be sufficient to withstand the weight of both the new concrete and the formwork. The development of the mechanical properties of cementitious conglomerate is heavily influenced by the surrounding conditions at the time of pouring, particularly the temperature. The period in which the piles were constructed, between

**A requirement, which was particularly important for the client, was to guarantee an excellent exposed surface finish after removing the formwork from the piles**

THE CHRONICLE OF A RECONSTRUCTION

14<sup>th</sup> August 2018

At 11:41 a.m. the Morandi Bridge collapses, causing 43 deaths, thousands of people having to flee their homes and leaving an entire city split in two. The bridge, designed by Riccardo Morandi, had been inaugurated in 1967.

18<sup>th</sup> December 2018

Marco Bucci, Mayor of Genoa, is nominated Special Commissioner for its reconstruction and decides to assign all works to a consortium comprising Salini Impregilo and Fincantieri, which then develops the original design donated to the city in September by Renzo Piano.

15<sup>th</sup> April 2019

The site for the reconstruction of the Polcevera Viaduct is opened and for three months operates in parallel with the team demolishing what remains of the old bridge. From that moment on, and right up until all site work is completed, around 1,200 people are involved in the work: the target is the construction of one pile per month.

28<sup>th</sup> June 2019

One carriageway of the motorway is closed, along with all roads within a radius of 300 m, and more than 3,000 people have to evacuate their homes. Demolition of piles 10 and 11 of the Morandi bridge commences, a high-risk operation followed closely by people from all around the world.

1<sup>st</sup> September 2019

Formworks start operating simultaneously on four fronts. And so starts the concept of working simultaneously rather than in sequence, a major factor in enabling work to be completed in such a short space of time.

12<sup>th</sup> February 2020

The new bridge starts to take shape: a 100 m-long steel beam is raised over pile No. 9, the one that crumbled two years previously causing the collapse of the bridge, to a height of 40 m.

2<sup>nd</sup> March 2020

The third and final 100 m central span is erected over the railway

lines. The operation is carried out with the site operating at reduced staffing levels due to the Covid-19 pandemic.

19<sup>th</sup> April 2020

The last of the 19 spans is placed in position at a height of 40 m and work on the 1,067 m-long steel and concrete deck is finally completed: the city of Genoa, at least from a visible point of view, becomes one again.

3<sup>rd</sup> August 2020

Two years after the collapse, the Genoa-San Giorgio bridge is inaugurated by the President of the Italian Republic, Sergio Mattarella.





The combination of cutting-edge admixtures, with the capacity to modify hydration reactions and the hardening rate of cementitious materials, has ensured the achievement of the expected results

© Special Commissioner for Genoa reconstruction



DYNAMON XTEND W202 N, DYNAMON LZ 551 and EXPANCRETE PLUS admixtures were supplied for the concrete poured on the deck.

© Special Commissioner for Genoa reconstruction

June 2019 and January 2020, meant that the concrete had to be poured in a range of very different temperatures.

The mix designs included the following admixtures that guaranteed that the mechanical properties between the various pours of concrete at these different temperatures remained constant:

- DYNAMON XTEND W400 N, liquid admixture for high quality concrete, specially formulated to make concrete with a low water/cement ratio and negligible loss in workability while being transported and unloaded on site.
- DYNAMON LZ 551: a multi-purpose, modified acrylic polymer-based super-plasticiser specially

developed to maintain the workability of concrete.

- MAPEFAST ULTRA, a latest-generation chloride-free liquid hardening accelerator for mortar and concrete, containing nanoparticles of complex hydrated silicates, obtained through an exclusive synthesis process, characterised by its very high specific surface area (see the dedicated article in this issue of the magazine).

The final requirement, and one that was particularly important to the client, was that the exposed concrete surfaces needed to have an excellent finish once the formwork had been removed, with as few surface defects as possible, and that it should have a uniform colour that enhances the



## Admixtures: invisible but indispensable

WE SPOKE WITH PIETRO LATTARULO, MAPEI'S ADMIXTURES FOR CONCRETE DIVISION

**What were the most difficult problems you came up against during construction of the piles and how did you overcome these problems?**

Mapei's collaboration in the project started with construction of the reinforced concrete columns supporting the bridge, which in this case feature an elliptical form and are made from concrete cast using climbing formwork. To guarantee consistency of the most significant properties and enable the piles to be constructed in a continuous cycle meant guaranteeing their mechanical properties over a specified period of time, for which we used the latest, cutting-edge Mapei admixtures with the capacity to modify the hydration process and hardening rate of cementitious materials, so as to be sure they achieved the expected levels.

**What part did Mapei play in the final surfaces of the piles?**

A particularly important requirement of the client was that the exposed surfaces needed to have an excellent finish once the formwork had been removed, with no surface defects in the concrete, and that the colour had to be uniform. The requirement was achieved to the full, thanks not only to the correct design mix for the concrete, but also to MAPEFORM W60, a form-release agent in water dispersion for concrete.

**Once the piles had been completed, it was time to cast the slab for the deck. What factors had an influence on the choice of products?**

For this phase, too, various design factors had to be taken into consideration, such as the particularly high mechanical properties required, the rate of compensated-shrinkage, which had to be maintained within specified limits, and extended workability in hot weather, because the concrete for the slab was actually placed in June, 2020.

**From the amount of products used we can get a sense of how challenging it must have been for Mapei to guarantee the right level of technical support. How did you organise your work?**

Through incredible teamwork, and by being perfectly synchronised with the manufacturer of the concrete so that the most suitable materials were employed to achieve the properties required, with our mobile laboratories stationed in the mixing plants to check the concrete and make sure the values corresponded with the results we achieved in the lab and, lastly, by constantly monitoring the site throughout its entire duration.

**It must have been a very important experience for you?**

Concrete admixtures are invisible because, from the moment they are introduced into the concrete, they no longer exist physically. However, they are indispensable to achieve the performance properties prescribed in technical specifications and to construct infrastructures that remain durable over the years. To have played such an important part in the construction of this great work brought enormous satisfaction to every department and division of our company.



“Less than two years after the collapse of the Morandi Bridge, and especially today when the memory of this tragedy is more alive than ever, the inauguration of the new bridge is a clear demonstration of how the dedication, commitment and passion people have for their work can create something exceptional and sustainable.”

Marco Squinzi, CEO of the Mapei Group

matic effect of the perfection of the structure.

The requirement specified by the client was achieved to the full, thanks not only to the correct design mix for the concrete, but also to a form-release agent that left the surfaces with a high quality finish.

After carrying out a series of mock-up tests on site, the team decided to use MAPEFORM W60, a form-release agent in water dispersion that forms a non-stick coating on formwork with a rough or smooth surface.

#### Building the deck

Once erection of the metal structure had been completed, the slab of the deck was poured using compensated-shrinkage concrete to prevent the formation of cracks being triggered during the plastic shrinkage phase. This particular phase of the work also required concrete with high mechanical properties, a

controlled rate of shrinkage within specified parameters and extended maintenance of workability in hot weather. The slab was poured in June, 2020 using a concrete mix designed to achieve high mechanical properties after a short curing cycle to facilitate surface-finishing operations.

As in the case of the piles mentioned previously, the results were achieved by using a combination of specific products:

- DYNAMON XTEND W202 N: an acrylic superplasticizer, specially formulated to make concrete with a low water/cement ratio and a good maintenance of workability.
- DYNAMON LZ 551: a multi-purpose, modified acrylic polymer-based super-plasticiser, specially developed to maintain the workability of concrete.
- EXPANCRETE PLUS: a plasticizing expansive admixture for shrinkage-compensating concrete. To

prevent excessive evaporation of the mixing water, which could then lead to surface cracking, the kerbs along the sides of the slab were treated with MAPECURE WG, a water-based, film-forming curing agent with anti-evaporation properties.

#### DYNAMON XTEND W 202N

Acrylic superplasticizer, specially formulated to make concrete with a low water/cement ratio and a good maintenance of workability.

FIND OUT MORE



#### TECHNICAL DATA

##### Genoa-San Giorgio

Bridge, Genoa (Italy)

**Construction period:** 2019-2020

**Designers:** Renzo Piano, Stefano Russo (Design Manager), Alessandro Zanguo, Alessio Montanari and Giovanni Spadolini, Renzo Piano Building Workshop

**Intervention by Mapei:** supplying products and technical assistance to formulate the mix design for the concrete

**Executive design:** Andrea Nardinocchi (Technical Director) and Andrea Perego (Project Engineer),

Italferr

**Client:** Genoa Reconstruction Commission: Marco Bucci (Special Commissioner), Piero Floriani and Ugo Ballerini (Sub-Commissioners) and Roberto Tedeschi (General Manager)

**Main contractors:** Pergenova ScpA: Webuild SpA - Fincantieri Infrastructure SpA: Alberto Maestrini (President), Nicola Mestre (CEO), Francesco Poma (Project Director), Riccardo Zen (Vice Project Director), Umberto Russo (Construction Manager),

Luigi Russo (Technical Manager), Stefano Mosconi (Site Director), Carmine D'Auria (Safety Manager), Gianpiero Le Pera (Quality and Environmental Control Manager) and Renzo Rossi (Site Manager)

**Site Management:** Rina Consulting SpA: Roberto Carpaneto (Project Director), Andrea Tomarchio (Design Manager), Carlo Vardanega (Technical Director), Mario Bordi (Technical Manager) and Alessandro Aliotta (Construction Supervisor)

#### Mapei distributor:

Calcestruzzi SpA

#### Mapei coordinators:

Admixtures for Concrete Division, Technical Services, Mapei SpA (Italy)

#### MAPEI PRODUCTS

**Admixtures for concrete:** Dynamon XTend W400 N, Dynamon XTend W202 N, Dynamon LZ 551, Expancrete Plus, Mapecure WG, Mapeform W60, Mapefast Ultra

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

# With sound know-how, then everything is possible

INTERVIEW WITH BRUNO ZAMORANI, MAJOR PROJECTS DIVISION, MAPEI SpA

**A construction site that is a concentration of technologies and different areas of expertise to construct an infrastructure that has been built to last.**

**What did it mean to you to follow a site of this type?**

**And what was the most complex problem you had to overcome?**

As a citizen of Genoa, I can honestly say that this site was a deeply moving experience and my attention and dedication went beyond what I would normally apply to a traditional site.

For both myself and my colleagues who worked on the site it was undoubtedly a challenging job, in that the schedule was extremely tight and the pace of the site was frenetic, with teams working 24/7. This meant we had to be available outside normal working hours; they needed us to be there and we were always present with great enthusiasm, for Genoa and to give the best possible image of our Company, on what has become an historic site and, as such, an extremely visible one.

As far as the biggest problem is concerned, I would have to say that coordinating the various activities was extremely complex because we had to be aware of everything that was going on in real time, of what our colleagues were doing and of what the numerous other different workers were doing.

In so doing, we all had a perfectly clear picture of how the various phases of the site were evolving at any given time.

**From Renzo Piano to Marco Bucci, Mayor of Genoa and Special Commissioner, everybody stressed the importance of teamwork in order to complete the bridge. Who did you interface with on site and how was your relationship with them?**

In my role, I dealt mainly with those in charge of quality aspects and with the main contractor's technical personnel, and we often met to discuss solutions to overcome the various problems as and when they arose. The discussions I had with Renzo Piano to define certain architectural and aesthetic aspects of the bridge were particularly important and rewarding. I believe that the opportunity to collaborate with this great architect gave us all a further drive to do our best, proud in the knowledge to have proven that we were up to the challenge. I totally agree with what Renzo Piano and Marco Bucci said: teamwork on this particular site was one of the reasons behind the results we achieved and has shown once again, as if there were any need, that by pursuing a common objective you can achieve great results.

**The various work phases overlapped partially instead of being carried out in sequence. Was this something new or have Mapei technicians already worked in a similar situation?**

On many of the sites we generally follow, the more delicate phases have to overlap to a certain extent. I think this modus operandi has become quite common in the



Bruno Zamorani with Renzo Piano.

construction world, where every project is carried out at a particularly frenetic pace. The fact that the bridge was completed in record time shows that, if there is sound know-how behind everything, then everything is possible.

**How did the period of lockdown due to the Covid-19 pandemic affect your work on site?**

The period of lockdown was a further disruption for health and safety checks and for the attention to personal safety, but the contractor, suppliers and sub-contractors certainly showed that they were able to adapt straight away as and when the situation changed.

And Mapei also showed, once again, that it is an extremely reliable partner, working non-stop to supply both the materials needed for the site and the technical support to go with them.



## Genoa (Italy)

SAN GIORGIO BRIDGE:  
THE SPIRAL RAMP

REPAIRING, STRENGTHENING AND WATERPROOFING THE SPIRAL RAMP THAT CONNECTS THE BRIDGE TO THE A7 MOTORWAY

An access ramp connects the San Giorgio Bridge to the A7 Motorway on the eastern side. This spiral viaduct provides access for traffic coming from the bridge onto the motorway that runs towards the lower Piedmont and Lombardy regions. Repair and strengthening work was carried out on all parts of the viaduct and various Mapei products were used for repairing, strengthening and waterproofing its elements.

**Concrete repair and strengthening**

MAPEFER 1K cementitious mortar was applied on the steel reinforcement to prevent corrosion and MAPEGROUT EASY FLOW one-component, fibre-reinforced thixotropic mortar was used to repair the concrete structures. In those areas where a higher level of ductility was required, the team decided to opt for MAPEGROUT EASY FLOW GF, hi-flow cementitious mortar reinforced with inorganic fibres.

The hi-flow, fibre-reinforced, com-

pensated-shrinkage mortars MAPEGROUT HI-FLOW B2 and MAPEGROUT GF BETONCINO B1 were used for repairing concrete.

MAPELASTIC GUARD, a two-component, elastic cementitious mortar, was used for waterproofing the concrete surfaces.

The following products also came into use: MAPEGROUT LM2K, thixotropic, fibre-reinforced, cementitious mortar for concrete repair; ADESILEX PG1, thixotropic epoxy adhesive for structural bonding; EPOJET, superfluid epoxy resin for injections and anchoring, and MAPEFIX EP 585, pure epoxy resin-based chemical anchor for structural loads.

**Waterproofing the deck**

The deck of the access ramp was waterproofed by applying PURTOP 400 M SYSTEM DECK, a complete waterproofing system which is CE marked in compliance with ETAG 033 guidelines. PRIMER SN two-component, fillerized epoxy primer

was used to treat the concrete substrate, before broadcasting QUARTZ 0.5. Then, PURTOP 400 M hybrid polyurea membrane was applied to waterproof the surfaces, followed by the application of PURTOP PRIMER BLACK, a solvent-based primer that improves adhesion of asphalt surfaces waterproofed with products from the PURTOP line.

**Finishing the surfaces**

The surfaces were finished off by applying MAPECOAT E23, an epoxy primer used to protect concrete before applying polyurethane finishing products, MAPECOAT PU33, a polyurethane resin-based, flexible coating for protecting concrete, MALECH, an acrylic, water-based primer used to even out surfaces and promote adhesion, and ELASTOCOLOR PAINT, an elastomeric paint for the crack-bridging protection of internal and external surfaces, with permanent elasticity and a high level of resistance to chemicals.



**ABOVE.** Repair work was carried out on both the intrados and the extrados of the bridge deck. Various products by Mapei were used for the job, including MAPEGROUT EASY FLOW fibre-reinforced thixotropic mortar and the hi-flow mortars MAPEGROUT GF BETONCINO B1 and MAPEGROUT HI-FLOW B2.

**PURTOP 400 M**

Two-component, solvent-free, hybrid polyurea membrane applied by spray using a high-pressure, bi-mixer type pump to form waterproof coatings on roofs and bridge decks directly on site.

FIND OUT MORE

**TECHNICAL DATA**

**Access ramp to San Giorgio bridge,** Genoa, Italy

**Period of intervention:** 2019-2020

**Intervention by Mapei:** supplying products for concrete repair, structural strengthening, waterproofing and

finishing surfaces

**Contractors:** Pavimental, Mosconi, LP Costruzioni, Tecnomanto

**Mapei coordinators:** Dino Vasquez, Gianpiero Peluso, Corrado Villa Presutti, Roberto Pasquali, Federico Regoli, Corrado Castiglioni, and Roberto Checchi, Mapei SpA (Italy)

**MAPEI PRODUCTS**

**Concrete repair and structural strengthening:** Adesilex PG1, Epojet, Mapefer 1K, Mapegrout Hi-Flow B2, Mapegrout Easy Flow GF, Mapegrout Easy Flow, Mapegrout GF Betoncino B1, Mapegrout LM2K

**Chemical anchoring:**

Mapefix EP 585

**Waterproofing:** Mapelastic Guard, Primer SN, Purtop 400 M, Purtop Primer Black

**Coatings:** Elastocolor Paint, Mapecoat E23, Mapecoat, PU33, Malech

For further information see [www.mapei.com](http://www.mapei.com)



# Innovative technology for sustainable concrete

MAPEFAST ULTRA: THE NEW ADMIXTURE BY MAPEI THAT ENABLED THE GENOA-SAN GIORGIO BRIDGE TO BE CONSTRUCTED IN RECORD TIME

Sustainability was the guiding principle that characterised the construction of the new Genoa-San Giorgio Bridge. In particular, the concrete used for the bridge was a CEM III/A cement, a binder where 40 % of the clinker is replaced by blast-furnace slag, a by-product of the steel making process. This type of cement is characterised by low CO<sub>2</sub> emissions (around 500 kg of CO<sub>2</sub>/Tonne, as opposed to around 900 kg of CO<sub>2</sub>/Tonne with traditional Portland cement) and the recognized ability for producing strong and durable concrete, resistant to the aggressive atmospheric agents, such as the concrete designed for the construction of the bridge (exposure class XA1 according to EN 206).

The second characterising feature of the project was that the new bridge, a key infrastructure for boosting the economic recovery of Genoa, had to be completed in as short a time as possible. In fact, from 25<sup>th</sup> June 2019, the date the first concrete was placed for the erection of pile 9, to 3<sup>rd</sup> August 2020 when the bridge was inaugurated, it took just 13 months, a record if we consider the complexity and the size of the structure.

The most imposing elements of the bridge are the 18 piles, concrete giants 40 m tall, which support the bridge deck. Their external dimensions (9.50 by 4 m) are constant along their entire vertical profile in order to guarantee the cohesive perspective of the structure and to make their construction quicker, thanks also to the use of the same type of external, modular climbing formwork. The piles have an elliptical form which allows light to flow over their surface to help mitigate their visual impact on the urban landscape.

However, despite these precautions it would never have been possible to complete the bridge within the scheduled time without the use of MAPEFAST ULTRA, an innovative accelerating admixture developed in the Mapei Research & Development laboratories in collaboration with the CIRCe Research Centre of the Department of Geosciences at the University of Padua.

This is because CEM III/A is a slow

hardening binder and would have been unable to develop the required mechanical strength to proceed quickly with the erection of the piles, particularly in wintertime when the low temperature slows down the hydration of the cement. In fact, the Pozzolanic reaction of the slag, which accounts for 40% of this particular type of binder, is not triggered immediately, but gives significant contribution to mechanical strength only

Type of cement	CEM III/A 42.5N
Dosage of cement	400 kg/m <sup>3</sup>
Filler	70 kg/m <sup>3</sup>
Dynamon Xtend W400N	0.75% on weight of cement
Dynamon EW	0.5 % on weight of cement
Mapefast Ultra	2.66 % on weight of cement
Consistency class	S5 (slump > 210 mm)
Maximum diameter of aggregate	16 mm

TABLE 1. Composition of the concrete used to construct the piles for the new Genoa-San Giorgio Bridge.

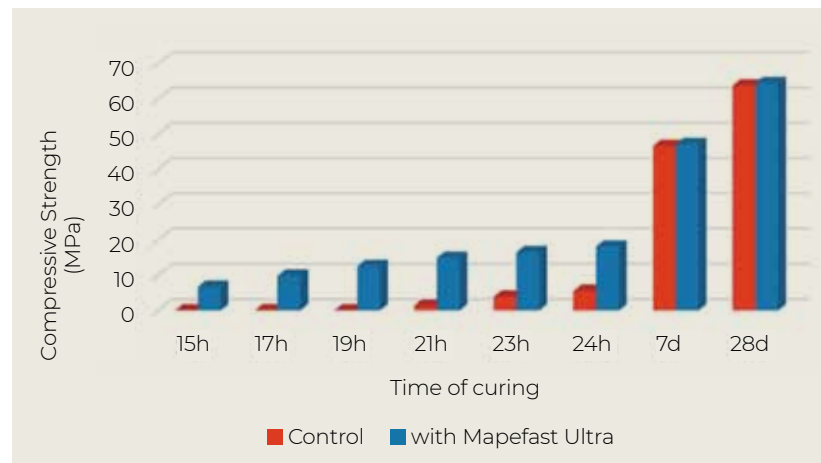


FIGURE 1. Comparison between the development of compressive strength in samples of concrete made from the same "mix design" developed for the piles of the new Genoa-San Giorgio Bridge, with and without MAPEFAST ULTRA.

after several weeks from the placement of the concrete.

Thanks to the use of MAPEFAST ULTRA however, it was possible to remove the formwork, even in the middle of winter, just 16 hours after placing the concrete and to proceed with construction of the piles at the extraordinary rate of 3 piles per month.

MAPEFAST ULTRA was added along with the other components during the normal cycle of the concrete production. To ensure the concrete retained the S5 consistency class (slump > 210 mm) while being transported from the mixing plant to the jobsite, a combination of DYNAMON XTEND W400N and DYNAMON EW superplasticizers was also used. Table 1 shows the composition of the concrete used to construct the bridge piles.

The development of compressive strength of concrete specimens made with the "mix-design" of the bridge piles (blue bar) is shown in Figure 1, in comparison with the same mix without MAPEFAST ULTRA used as a control (red bars). This figure clearly shows the outstanding contribution of MAPEFAST ULTRA in developing early compressive strength. The laboratory samples were cured by simulating a thermal cycle typical of the Ligurian coast, whereby the initial temperature inside the concrete placed for the pile was 15 °C and the final temperature, after curing, was 34 °C. The graph indicates that, after 19 hours of curing, the compressive strength of the samples containing MAPEFAST ULTRA was higher than 12 MPa, whereas the value for the reference concrete was still null and, even after 24 hours, the compressive strength without MAPEFAST ULTRA would still have been insufficient for the formwork to be removed. Based on these laboratory results, MAPEFAST ULTRA was used for the erection of all the bridge piles, thereby enabling the bridge to be constructed within the time scheduled. The graph also shows that, unlike traditional accelerating admixtures,



ABOVE. MAPEFAST ULTRA was developed and tested in the Mapei Research & Development Laboratory in collaboration with the CIRCe Center of the Padua University.

MAPEFAST ULTRA has no negative effect on the long-term compressive strength of concrete. This behaviour is due to its special reaction mechanism, based on the effect of nano-seeded nucleation of the transition metal silicate hydrates, which represent the active component of the admixture. This effect is associated with a different hydration mechanism, which passes from heterogeneous nucleation to homogeneous nucleation, and has a positive effect on the microstructure of the hydrated cement paste, making it less porous and less permeable to water and aggressive agents.

For the research work carried out on the development and industrialization of MAPEFAST ULTRA, in 2018 the Industrial Chemistry Division of the Italian Chemistry Society awarded Mapei and the CIRCe Research Centre of the University of Padua the Giacomo Levi Gold Medal for the best joint industrial-academic research work to reach the industrial production phase (see *Realtà Mapei Internazionale* no. 72).

The important role played by MAPEFAST ULTRA in the construction of the new Genoa-San Giorgio Bridge confirms the importance of

collaboration between industry and the scientific community when developing innovative technology and is testimony of Mapei's commitment to actively promoting and encouraging the transition towards sustainability in the construction sector and increasing awareness of the principles of a circular economy.

Giorgio Ferrari. R&D Laboratories, Mapei SpA (Italy)

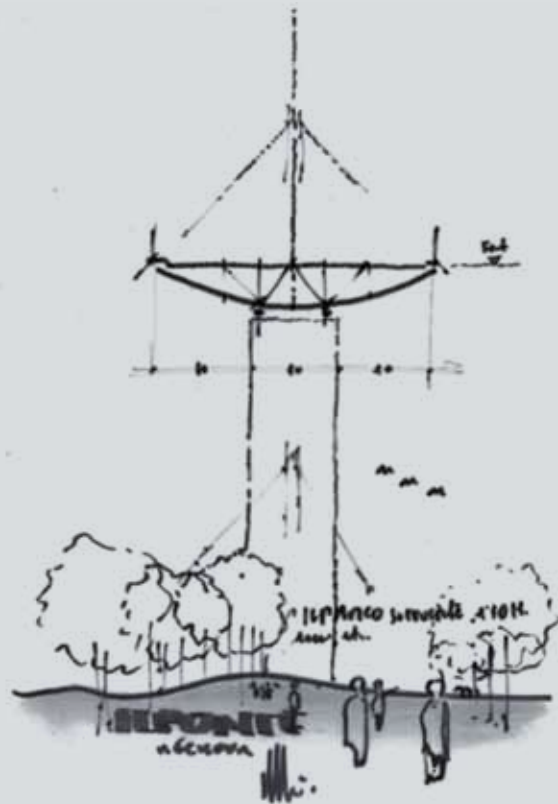
Gilberto Artioli. CIRCe Research Centre, University of Padua (Italy)

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### THE PARTNERSHIP BETWEEN MAPEI AND RENZO PIANO

Mapei has been involved in a successful working partnership with Renzo Piano for several years now that has led to the creation of such important projects as Emergency's hospital in Entebbe, Uganda, which is currently being completed (see *Realtà Mapei International* no.63 and 70).

This facility has been constructed using the traditional rammed earth technique: a mixture of soil, sand, gravel and water packed in wooden formworks. Mapei products helped make the construction, stable, safe and built-to-last. It is also worth mentioning Botín Cultural Centre in Santander (Spain, see *Realtà Mapei International* no. 71), and Braço de Prata housing complex in Lisbon (Portugal), both designed by the architect Renzo Piano with Mapei supplying numerous products.



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# The pride in doing something together

RENZO PIANO TELLS US ABOUT THE BRIDGE HE DESIGNED FOR GENOA TO REPLACE THE VIADUCT OVER THE RIVER POLCEVERA

*Born in Genoa, Italy in 1937, after receiving his high school diploma, Renzo Piano went on to graduate from Milan Polytechnic in 1964. He then opened a design studio in London with Richard Rogers where they designed the Pompidou National Art and Cultural Centre in Paris, also known as the Beaubourg. In 1981 he inaugurated the Renzo Piano Building Workshop (RPBW), which has offices in Genoa, Paris and New York, and in 1989 he was awarded the prestigious Pritzker Architecture Prize. His project portfolio includes the Kansai International Airport in Osaka, the Jean-Marie Tjibaou Cultural Centre in New Caledonia, the head offices of the New York Times in New York and of the Italian newspaper Il Sole24 Ore in Milan, the Auditorium Parco della Musica in Rome, the Muse Science Museum in Trento (Northern Italy), the Stavros Niarchos Foundation Cultural Center in Athens and the Paris Court of Law. In 2013 he was nominated Senator for Life by the Italian President at the time, Giorgio Napolitano.*

### Thank you for answering a few questions about the construction of the new bridge in Genoa, in which Mapei has also taken part.

Before we start, I would like to say something. I know Mapei perfectly well and I have worked with them on many projects, including the hospital we are building for Emergency (an UN-recognized international non-governmental organization) in Uganda (see *Realtà Mapei International* no. 63), which unfortunately has had its official opening ceremony put back to probably the end of the year. Together with Mapei we have carried out some great work in Uganda, where we have worked directly on the clay being used to build it, gone down to Lake Victoria to collect samples, taken them to the laboratory, tested them and worked on them together. I followed the design and the construction of the hospital from up close with Gino Strada, the founder of Emergency. Now, because of the lockdown, work has been forced to slow down. I find it really interesting to talk about the hospital and the work that has been carried out on the materials. And I would like to point out that, right from the very start of this project, Giorgio Squinzi (former CEO of the Group) and the Mapei staff focused their efforts on the work carried out in the laboratory. Every time I meet

someone from Mapei we end up talking about research into materials, which is something I really like discussing. It's a great way to work.

### What went through your mind when the Mayor of Genoa, Marco Bucci, asked you to intervene in the hours immediately following the collapse of the Polcevera Viaduct?

At times like that it isn't easy to think straight: I was really saddened by what had happened. On the 14<sup>th</sup> of August I was following a project in Switzerland and I was absolutely stunned. The next day I spoke with the Mayor and this sense of suffering hung over us, and then this feeling was something that seemed to be always hanging over the site. This tragedy has always been on our minds and has never been forgotten, but all the helpers – and I use this word in its widest sense to include everybody, from designers to chemical engineers to general labourers – have a certain characteristic, and that is, they know how to react. And without ever forgetting that this project was borne out of tragedy and suffering, we have all tried our best to imagine what could be done. What is more, a bridge that collapses is a terrible thing, and in this particular case it was the cause of 43 deaths, 500 people were forced to abandon their homes and a city was split into two. When a bridge collapses it can also make people feel as if their own world is falling apart, because a bridge should never collapse.

When the Mayor called me that day, my first thought wasn't to come up with a project or a design; it was to try and lend a hand and see what could be done straight away, taking into consideration that the viaduct was 50 m above ground level, which by itself is something to be taken really seriously. We then slowly worked towards the idea of finding a solution that could be achieved quickly, which is why we immediately thought about how to divide the entire site into two large but separate sites. One of the sites would take care of logistics, that is, the builders and demolition teams which started working straight away, to create the new foundations and the 50 m high piles. Working in parallel would be the site where the shipbuilders were operating. And while all this was going on, the Magistrates had to carry out their investigation. So, as you can see, it was a very, very complex



operation, but I have to say that, thanks to the effort and will of everybody, everybody, everybody (Renzo Piano repeated the word three times with so much conviction, Ed.) we managed to do it. And from the first to the last person on site, from the Commissioners to the general labourers, everybody worked in chorus, something which often happens when working on site. This was a site where it was clear, right from the very start, that you were participating – with enormous pride – in a grand feat of engineering, in every sense. And with this spirit, where people came together around a project involving so many different skill-sets, including the expertise in chemistry of Mapei technicians, it really was a magnificent effort. I want to emphasise in the strongest terms that this wasn't a miracle. In Italy we have the ability and capacity to carry out such feats of engineering through companies that export their skill and expertise all around the world. But, all too often, these skills only seem to emerge during an emergency, and I find this very sad.

**Did you ever consider, even at the beginning of the operation, to try and conserve at least part of the bridge?**

Absolutely, this was also one of the hypotheses we looked at, but it was put to one side. Firstly, the magistrates would have had to put a stop to everything for one or two years, or even more, which is exactly what happened. Then again, the magistrates have to do everything in their own time and the bridge had to be left as it was so they could carry out their investigation into what was truly a disaster. Then another problem arose: it was difficult to establish how much of the structure left standing was safe. We thought about it and talked about it for ages, but to hook up to the old structure was technically impossible. I really loved that bridge; it was a part of the period of optimism and, as a young architect, I always looked at it with great respect. But mistakes may have been made when it was constructed, we really couldn't tell at that moment. When we thought about the possibility of mending the bridge – something I like to picture in my mind – well, it wasn't absolutely impossible. A number of years ago, along with Mapei, we carried out a study on the Flaminio Stadium in Rome, designed by the Pier Luigi Nervi design studio, using only thin layers of concrete and only a minimum amount of concrete cover around the rebar. In that specific case it was more like a restoration job, like mending the stadium, by intervening only on the structures to consolidate them and protect the rebar. In the case of the Morandi bridge, however, something tragic

**It was clear, right from the very start, that you were participating in a grand feat of engineering. Working on a project involving so many different skill-sets, including the expertise in chemistry of Mapei technicians, really was a magnificent effort.**

had occurred, which from a justice standpoint still hasn't been resolved. So, as far as the approach was concerned, we were right to have at least thought about it. The route of the new bridge has also been modified slightly, in order to be able to make new foundations without interfering with the old ones.

**There has always been a constant dialogue with the city as your designs gradually develop. Did you follow the same pattern with the new bridge? And what idea of the city were you confronted with?**

What we have designed and built is an urban bridge that is almost asking for the city's permission to pass through it. An urban bridge that has planted its supports, every 50 m, where it can, in a densely populated part of the city. This is also because a span of 50 m is an intelligent span when it comes to construct the steel deck. This span of 50 m for the new bridge was adopted 15 times and then, when it reaches the Polcevera area and the area around the station, the span is doubled, and the length becomes 100 m. An urban bridge that doesn't cross a valley with untamed vegetation, but one that passes through a valley where people live, that is inhabited, and brimming with activity. Like a large white ship sailing across a valley, with its curved form, seen from below, that seems to be playing with the light. At

first glance it seems very thin, a lot thinner than it really is, because a good 18,000 tonnes of steel were used for the bridge.

There is, however, a relationship with its surroundings. This is a motorway bridge which should one day become an urban bridge from a legal standpoint because, if the Gronda motorway is constructed, it will be declassified and become an urban structure. The bridge also has lighting, something motorway

bridges don't have.

I would like to stress that I am a designer and I have made my contribution, but here there was the contribution of thousands of specialists and there was a very intelligent approach from a logistics and organisational point of view, which is why it took only one year to build a bridge. Something not to be taken for granted. I built another bridge in Ushibuka in the south of Japan. A bridge one kilometre long, just like this one, and it took us three years. A bridge is a long, complex structure and it usually takes around 3 to 4 years to build. So, to build a bridge in one year required a highly sophisticated logistics organisation and building site and highly organised team work.

**Can you give us a brief overview of the construction phases of the bridge, starting from the work car-**



ABOVE. Renzo Piano visiting the sites of the Genoa-San Giorgio bridge.

**ried out on site which never stopped, in spite of the difficulties you had to overcome because of such a complex situation?**

That is a very good point. During the lockdown, work on site, which was considered to be of primary importance, never stopped. At a certain point a member of the team became Covid-19 infected. He was immediately identified, along with the people he had come into contact with, and they were placed in quarantine. And the site carried on working. From an organisational point of view, it was a very delicate job, like fitting together all the pieces of a jigsaw puzzle: basically, we had to demolish the old bridge to get ready for the new one. Then, we had to start laying the foundations for the new bridge while the old bridge was still standing! So, all the logistics sides had to be prepared and also all the piling for the new foundations that wouldn't go on the old foundations because they had a completely different span, and there is even a slight difference in the route it takes around the bend to the west along the right-hand bank. So all these operations had to be organised and, in the meantime, work started on the steelwork for the bridge in two large Fincantieri sites, using steel brought in from Taranto (Southern Italy) at just the right thickness. It was like a jigsaw puzzle: if all the work had been carried out in sequence, a project of this type would have taken 3 to 5 years. Here, on the other hand, everything was arranged and fitted together at the same time thanks to an incredible team effort!

The word I prefer using for the new bridge is "rapidity". The bridge was built very rapidly, but not hastily, because, as they say, haste makes waste. I was particularly struck by the way the work was coordinated, and also by

everybody's enthusiasm and their pride in doing something together with a common interest. During my visits to site, which is something I always enjoy, I was always particularly struck by the team spirit.

**An entire section of the urban fabric of Genoa will also be getting a new look, thanks to the redevelopment of an area of 80 hectares which has been tendered out to a group comprising Stefano Boeri, Metrogramma Milano and Inside Outside founded by Petra Blaisse. Were you also hoping for a solution of this type?**

I am often in touch with Stefano Boeri; a tender was issued, and it is a group effort involving architects, landscape architects and botanists. It's a lovely project, we call it a "park" in an urbanistic sense, but in reality, it will be a space that will be lived and inhabited by people. The bridge is 50 m above the level of the river and has this curved form which allows the light to filter down; it is not a bridge that remains in the dark underneath where nothing manages to grow.

**On 30<sup>th</sup> June this year you received an award in honour of your career, "For the professional and civil commitment that has distinguished and continues to distinguish your architectural output".**

If an architect never asked himself why he does what he does, it would be very worrying. Architecture is the art of constructing spaces for people, so it has a clear social and collective function. And then let's not forget that "politics" comes from the Greek word *polis*, which is the art of administering cities. Which means architecture is the art of construct cities.



# Like the hull of a ship sleek, luminous, “intelligent”

THE IDEA TO USE THE GEOMETRICAL FORM OF AN ELLIPSE AND CHOOSE CERTAIN TYPES OF MATERIALS WAS AIMED AT INSERTING THE BRIDGE INTO A COMPLEX AND IRREGULAR URBAN FABRIC

*“The new bridge will have to be simple and basic, but certainly not banal. It will look like a ship moored in the valley; a bridge in light-coloured, luminous steel. During the daytime it will reflect the sunlight and absorb solar energy and then release it again during the night. The bridge will be simple and restrained, a reflection of the character of the people of Genoa”.*

Renzo Piano

The new bridge over the River Polcevera is a key hub for the road and transport system in and around Genoa, for the Liguria Region in general and for the whole of Italy. The new viaduct, which crosses the built-up area of Val Polcevera, has all the characteristics of an “urban bridge”. This role had an influence on its design, which took into consideration not only the infrastructure itself, but also the way it would interact with its surroundings.

The new bridge is supported on the ground by means of a series of slender, reinforced concrete piles with an elliptical section measuring 4 m by 9.5 m which allows the light to “slide” over its surface, helping to mitigate the visual impact of the new piles on this urban context.

The bridge is supported by 18 piles with a constant span of 50 m, apart from the piles for three central spans passing over the River Polcevera and the area around the railway lines, which have a span of 100 m. The arrangement and lay-out for the piles was chosen for architectural reasons in that, by using a larger number of

piles but with such a slender profile, they would blend in better with such an irregular urban backdrop.

From a structural and anti-seismic point of view, the deck is “isolated” from the piles by means of a series of support pads that allow the bridge to “breathe” without affecting its stability and strength. Adopting this particular strategy has enabled the structures and sub-structures to be optimised, particularly the foundations, thereby limiting their dimensions in such a highly built-up area.

From an architectural point of view the form of the deck, similar to that of a ship’s hull, is particularly important, in that the way the section gradually reduces towards the

ends of the bridge helps mitigate the visual impact of the new infrastructure.

Also, the use of a light shade of paint for the steel features gives the bridge a more luminous appearance and helps it blend into the landscape.

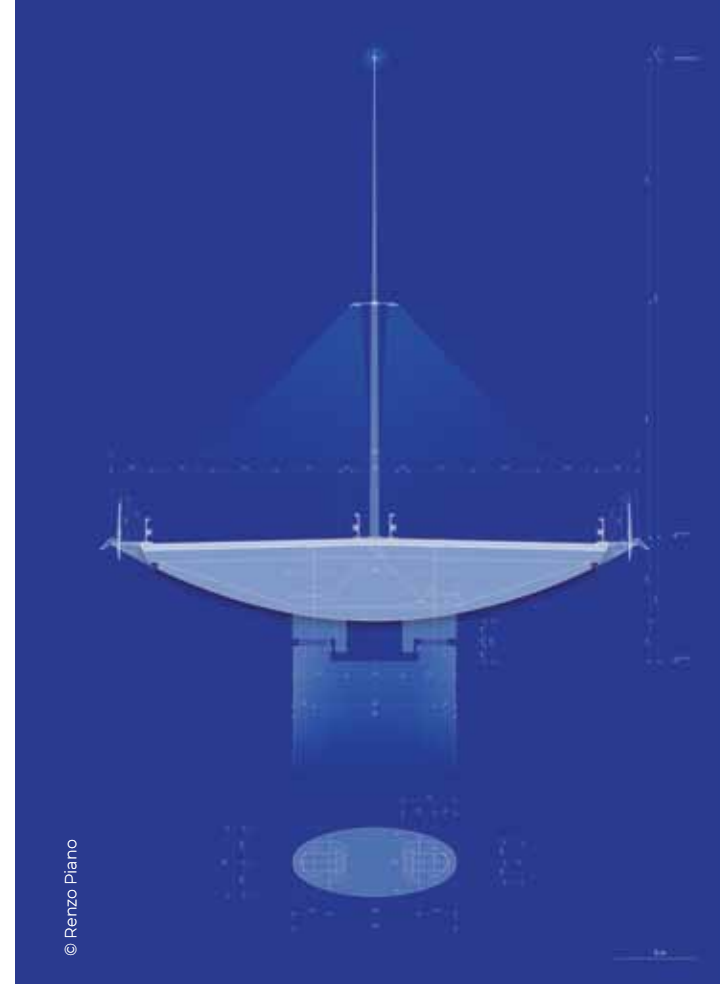
The viaduct has a curved section made from a structure of steel and concrete which reaches a height of 4.8 m in the middle. The steel part of the deck consists of three transversal ashlars made from sheet steel in different thicknesses for a total width of 26 m, which helped make construction and assembly of several spans in sequence easier and quicker. The internal part of the structure is made up of steel diaphragms, enabling the performance properties of the materials employed to be optimised in relation to the speed the various parts were built and assembled. A slab made from precast, reinforced concrete elements, and then concrete cast in-situ, completes the deck.

The support pads for the deck mounted on the piles are the points where the loads acting on the structure merge, after which they are transmitted down to the foundations and, as a result, into the ground. Their particular shape is designed to contain and integrate both the support disks and the anti-seismic restraints, making them one of the distinguishing features of the entire project from a structural and formal point of view.

The section where the supports are positioned has a gradual taper from the deck down to the head of the piles, thereby separating the two elements and creating a gap which highlights the point of contact and strengthens the visual continuity of the main chassis of the bridge.

The end of the deck, with pedestrian access for maintenance work, is designed to make that particular section of the viaduct more streamlined and barely noticeable. In this point, the structure of the bridge is highlighted by a series of steel bracing “ribs” every 1.50 m. Specially shaped to follow the camber of the deck, they follow the flow of all the other elements and features along the sides. Above the ribs there are walkways covered with metal grating, which allows light to filter through and

**The bridge is an “intelligent” structure that supplies data about the behaviour of its various components and information on its condition when in service through a network of innovative internal sensors**



© Renzo Piano

increase the sense of lightness along the sides of the bridge. Running along each side of the bridge is a 2.5 m high anti-wind and safety barrier, made from glass which is transparent and offers an uninterrupted view of the surroundings. This allows those travelling along the bridge to have a panoramic view of the area around the bridge, while further mitigating the impact of the bridge on the valley for those viewing it from the city. Another characteristic feature of the bridge is the photovoltaic panels positioned at the side of the deck along its entire length. Energy from the sunlight is captured by the panels and then used to power all the bridge’s systems during the day and at night, such as the lighting system, sensors and other systems. Adopting this type of technology is also a way of acknowledging the vocation of the manufacturing companies located in Val Polcevera, and in so doing the bridge itself has become a self-sufficient “production plant”.

Another key feature of the project is the antennas along the central axis of the deck between the two carriage ways. The antennas will also be used to mount a lighting system to illuminate the carriageway. Following a dedicated study on the reflectors inside the light housings, the lights themselves have been designed and optimised to guarantee their performance in terms of illumination and efficiency and to minimise the amount of maintenance they require.

**The use of a light shade of paint for the steel features gives the bridge a more luminous appearance and helps it blend into the landscape**

Within the framework of this “urban bridge” approach, there was also the desire to increase the impact of the bridge at night by installing a special lighting system that would emphasise the regularity of the features along the sides of the bridge and the support system for the deck on the bridge piles.

The bridge is designed to be “intelligent” and is able to autonomously provide data about the behaviour of all the components of the bridge, as well as information about its service conditions, through a complex network of sensors mounted inside the bridge, such as accelerometers, extensometers, speedometers, inclinometers and special instruments to measure expansion in joints and differential displacement. These instruments will be used to create a database that can be constantly studied and monitored, and then again at a later date to design similar types of infrastructure.

The glass barriers and photovoltaic panels will be cleaned and maintained by robots mounted on motorised carriages running on rails along the side of the bridge. The robots will also inspect the outside of the deck by means of telescopic arms with high-resolution cameras and sensors to monitor the condition and deformation of the surfaces, the thickness of the paint and the condition of the welds, and all this information will be integrated with the data from the sensors inside the bridge.

The need to reconnect the existing slip-roads at the western end of the bridge, the Coronata tunnels and the exit roads leading to the A7 motorway at the southern end dictated the layout of the carriageways on the new bridge and the new access ramp to the end. Unlike the Morandi Bridge, each carriage-way of the new bridge has an emergency lane to guarantee the safety of drivers and to provide access for maintenance crews to carry out work on the bridge without having to close any of the normal lanes.

Following the enormous tragedy caused by the partial collapse of the Morandi Bridge, apart from reconstructing and opening the new bridge, right from the very start there was a wider-reaching goal: to construct a bridge that would become the real driver behind the transformation of the entire Val Polcevera area. Construction of the bridge will be followed by other public tenders aimed at launching a number of urban, social and environmental development and regeneration projects. One project in particular is for a new public park that will become a memorial to honour the victims of the collapse and to restore the fragile natural ecosystem of Val Polcevera.

*Our thanks go to the Renzo Piano Building Workshop for their kind permission to publish this article.*



## Saint Petersburg (Russian Federation) A118 RING ROAD

HIGH-QUALITY MORTARS FOR CONCRETE REPAIR FOR A KEY INFRASTRUCTURE IN THE RUSSIAN ROAD SYSTEM

The A118 Ring Road around the city of St. Petersburg is a public highway serving the city and the Leningrad region. It is about 117 km long and connects all the main highways going from the center of St. Petersburg in the direction of Moscow, Murmansk, Helsinki, Kiev and Tallinn. Its construction began in 1998 and was built in several stages, with each newly introduced section diverting traffic from the city, which was suffering from traffic congestion. One of the most problematic sections of the Ring Road was the construction of a cable-stayed bridge over the River Neva, the Bolshoy Obukhovskiy Bridge. 16 design companies, including Danish and Finnish ones, took part in the design work. The construction was divided into two stages

and completed in October 2007, with the construction of the right half of the bridge with 4 traffic lanes and overpasses on both banks. This new cable-stayed bridge across the River Neva is now one of the symbols of St. Petersburg.

### Quality products for maintenance

Mapei products were used for routine maintenance work at the A118 Ring Road during an intervention that took place between 2013 and 2020. Concrete repair mortars such as MAPEGROUT THIXOTROPIC and MAPEGROUT 430 were chosen for repairing and restoring the supports and beams of the main structures. Mixed with water, MAPEGROUT THIXOTROPIC becomes an easily workable mortar with high thixotro-



The Bolshoy Obukhovskiy Bridge is a cable-stayed bridge over the River Neva. It is part of the A118 Ring Road, a public highway serving the city of St. Petersburg and the Leningrad region. Mapei products for concrete repair and chemical anchoring were used for its maintenance in 2013-2020.

pic properties that can be applied on vertical surfaces without sagging even in great thicknesses and with no need for formwork. When hardened, the product features high mechanical strength and resistance to abrasion.

MONOFINISH, one-component, normal setting cementitious mortar for smoothing concrete and cementitious renders, was applied on the repaired surfaces for final leveling. When mixed with water, the product forms a soft paste that is easy to apply even on vertical surfaces in thicknesses up to 2 to 3 mm in a single coat. Because of its high synthetic resin

content, MONOFINISH bonds extremely well to all concrete surfaces, and forms a compact, strong adhesive layer when hardened.

As for repairing the areas around the road expansion joints, Mapei technicians suggested to use ARB-10F\* non-shrinking rapid-hardening concrete mix, which is manufactured and distributed on the Russian market by AO Mapei, the Russian subsidiary of the Group.

Besides, MAPEFIX VE SF, styrene-free vinyl ester adhesive, and MAPEFIX EP 385/585, pure epoxy, resin-based adhesives, were used for chemically anchoring metal bars in holes.

### Problems and solutions

The Russian authorities for highways and roads required high quality products for maintaining and repairing several elements of the bridge. Therefore, several solutions from the Mapei range for concrete repair were used: MAPEGROUT THIXOTROPIC and MAPEGROUT 430 high performance mortars, the finishing product MAPEFINISH and the sealants MAPEFIX VE SF and MAPEFIX EP 385/585 for chemical anchors.



### TECHNICAL DATA

**A118 Ring Road**, Saint Petersburg (Russian Federation)  
**Period of construction:** 1997-2007  
**Period of renovation:** 2013-2020  
**Period of the Mapei intervention:** 2013-2020  
**Client:** North-West Federal

Highways Department, Russian Federation Road Authority  
**Main contractor:** LLC EuroTransStroy  
**Mapei distributor:** LLC SIM STROY  
**Mapei coordinator:** Ivan Vikhristenko, AO Mapei (Russia)

### MAPEI PRODUCTS

**Concrete repair:** Mapegrout Thixotropic, Mapegrout 430, Monofinish  
**Repairing areas around the joints:** ARB-10F\*  
**Chemical anchoring:** Mapefix VE SF, Mapefix EP 385, Mapefix EP 585

### MAPEGROUT THIXOTROPIC

Shrinkage-compensated fibre-reinforced mortar for concrete repair

FIND OUT MORE



\*This product is manufactured and distributed on the Russian market by AO Mapei (Russia)

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





## Vilnius (Lithuania) LENTVARIS RAILWAY BRIDGE

A COMPLETE SYSTEM FOR STRENGTHENING,  
REPAIRING AND PROTECTING THE COLUMNS

This railway bridge was built in 1924 and was lately in need of repair. When considering the retrofitting of its masonry columns, the Lithuanian Railways requested a system able to improve the bearing capacity and the stability of the columns with minimal intervention and change of the cross-section.

Besides, the appearance of the columns had to be kept as similar as possible to the original one, since the structure is considered of architectural and historical value.

### Strengthening and repairing

The substrates were first smoothed with PLANITOP SMOOTH & REPAIR R4, a structural, R4-class, rapid-setting, shrinkage-compensated, thixotropic, fibre-reinforced, cementitious mortar, which is applied in a single layer from 3 to 40 mm thick for repairing and smoothing concrete. The product not only ensured a sound and structurally stable surface for further installation of FRP materials, but also reduced the waiting time before applying

the epoxy adhesives belonging to the FRP-based system for structural strengthening.

This system involved a combination of CARBOPLATE E200, pultruded plates made from high strength, medium-modulus carbon fibres, and MAPEWRAP C-UNI-AX 600 carbon fibre fabrics for strengthening the columns.

Additional products supplied by Mapei for concrete repair included MAPEFER 1K, corrosion-inhibiting cement mortar for the protection of reinforcing rods; MAPEGROUT SV, fast-setting and hardening compensated-shrinkage, easy-flow mortar for repairing concrete; MAPEFIX VE SF, chemical styrene-free vinyl ester anchor for structural loads and construction bars in concrete.

Finally, the repaired surfaces were given a final aesthetic touch and protection by using ELASTOCOLOR PAINT, an acrylic resin-based paint in water dispersion which forms a flexible finishing coat impermeable to water and aggressive agents in the atmosphere.

### 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.

FIND OUT MORE



### IN THESE PAGES.

Mapei was able to provide products for concrete repair, structural strengthening and final protection of the concrete surfaces of the columns.

### TECHNICAL DATA

**Year of construction:** 1924  
**Period of the Mapei intervention:** 2018-2019  
**Design:** JSC "Plentprojektas"  
**Client:** Lithuanian National Railways  
**Contractor for strengthening:** JSC

"Švykai"

**Mapei distributor:** JSC "Velve M.S.T" Lithuania  
**Mapei coordinator:** Trond Helgedagsrud, Mapei AS (Norway), and Giulio Morandini, Mapei SpA (Italy)  
**Photos:** Artūras Ručinskas

### MAPEI PRODUCTS

MapeWrap Primer 1, Carboplate E200, MapeWrap C-UNI AX 600, MapeWrap I2, Adesilex PG2, Planitop Smooth & Repair R4, Mapegrout SV, Mapefill N-LH\*, Malech, Mapefix VE SF, Elastocolor Paint

\*This product is manufactured for the local market by Mapei AS, the Norwegian subsidiary of the Group.

For further information on products see [mapei.com](http://mapei.com) and [mapei.no](http://mapei.no)





## Cosenza (Italy)

# SAN FRANCESCO DI PAOLA BRIDGE

FROM CONCRETE ADMIXTURES TO COATINGS FOR THIS STRUCTURE DESIGNED BY SANTIAGO CALATRAVA, A NEW LANDMARK FOR THE CALABRIA REGION

Hailed as the tallest cable-stayed bridge in Europe, 26<sup>th</sup> January 2018 marked the inauguration this new bridge in Cosenza (southern Italy) designed by the architect and engineer Santiago Calatrava, originally from Valencia (Spain) and now a naturalized Swiss citizen. The bridge was named after San Francesco di Paola, patron saint of the Calabria Region, and it is one of the most important infrastructures constructed in southern Italy in recent years. It connects two parts of the city which, until then, had always been separated

by the River Crati. Santiago Calatrava came up with a cable-stayed bridge supported by a single, 104-m tall inclined pillar weighing 800 tonnes, which reaches up to the highest point of the bridge. The materials used were those typically favoured by the Valencian architect-engineer for his designs: steel, concrete and natural stone. The bridge deck, which is made entirely from steel, is 140 m long and 24 m wide and is open to both vehicles and pedestrians. The feature which characterises this structure,

however, and is visible from various parts of the city, is the single, inclined pillar bearing the weight of all the steel cables and the bridge deck. Calatrava's design for this element has a box-like, almost square section with rounded corners, with the top part of the pillar slightly inclined towards the inside of the bridge. A solution which emphasises the direction in which the cables are pulling, a design choice which is intended to highlight the bond between the structure and the city and direct your gaze towards the city of Cosenza

itself.

The form of the bridge is similar to that of a giant harp, a symbol of harmony, and is a trusted design the Valencian architect-engineer has already successfully used in Seville (Spain) in 1992 and in California in 2004.

### Admixtures from a great family

Like a harp that plays the sweet notes of technology and innovation: to construct this bridge, the best solutions offered by Mapei took the field, including super-plasticising

admixtures and special mortars to anchor steelwork, skim surfaces and finish off the load-bearing structures.

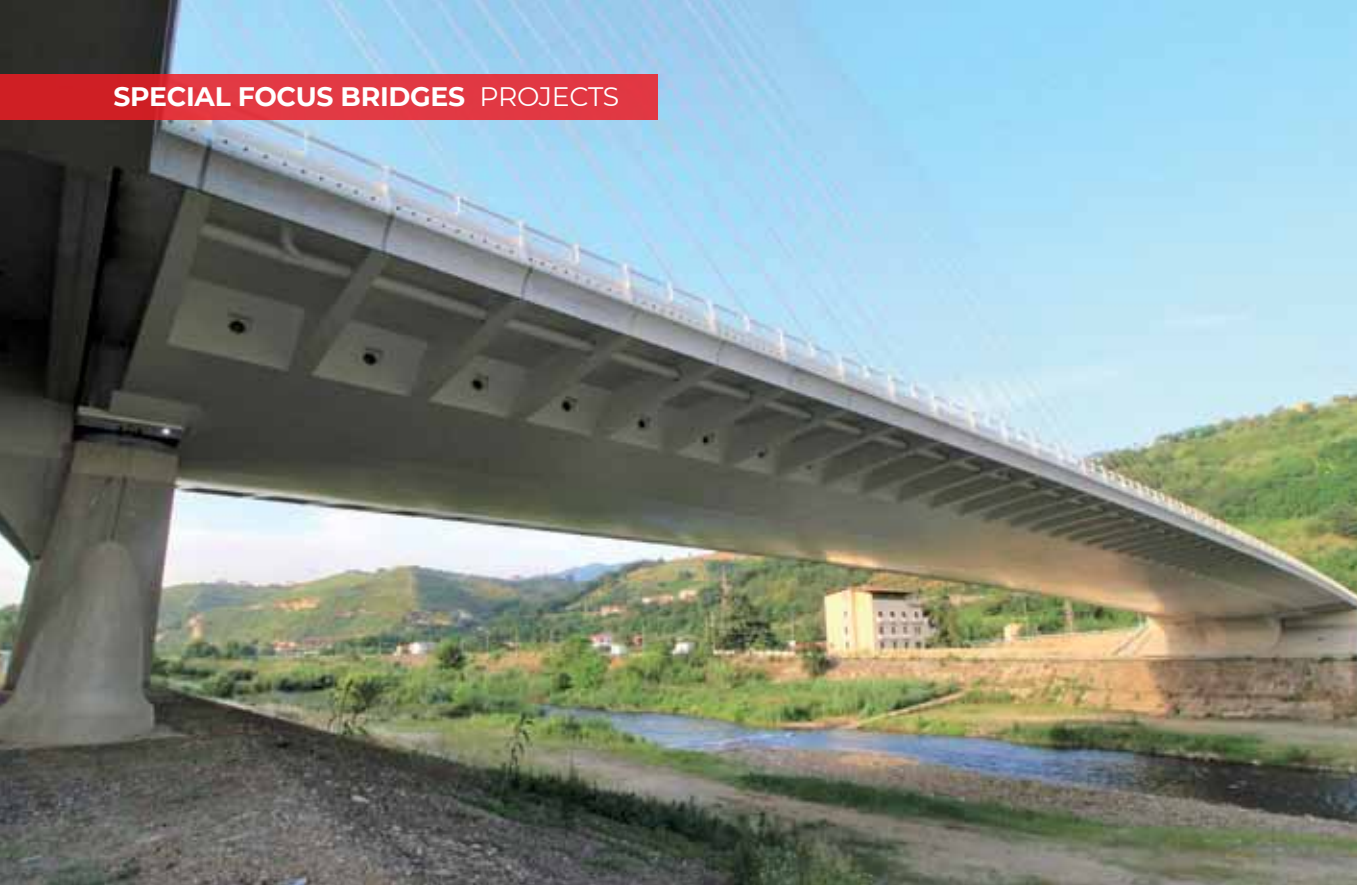
The main contractor for the bridge was Cimolai SpA, and right from the start Mapei played an important part in the mix design of the concrete used to construct the two abutments, the main pillar and all the ancillary work for these parts of the bridge. Going more into detail, DYNAMON SX 42, which is part of the DYNAMON family of admixtures, was used extensively. This product is a formaldehyde-free, super-plasticising solution of acrylic polymers which is highly effective in dispersing cement granules, and also contains secondary components which considerably improve the cohesion and pumpability of concrete. MAPEFILL high-flow, non-shrink cementitious grout was used later on during construction of the bridge to anchor the uprights for the protection barriers in place.

Once the enormous ashlar caisson for the bridge had been built, a series of tests were carried out on site to find the most suitable system to protect the concrete. Tried and test-

### Problems and solutions

This big project required the use of high performance admixtures for concrete, able to ensure the durability of the structure. This is the reason why DYNAMON SX 42 was used extensively. This is a formaldehyde-free, super-plasticising solution of acrylic polymers which is highly effective in dispersing cement granules, and also contains secondary components which considerably improve the cohesion and pumpability of concrete.





ed systems proposed by Mapei were also chosen in this case, and work continued by applying MAPEFER two-component, anti-corrosion cementitious mortar to protect the steel reinforcement.

Small areas of the bridge were reintegrated with MAPEGROUT LM 2K two-component, thixotropic, fibre-reinforced, cementitious mortar or else with MAPEGROUT T40, medium strength, shrinkage-compensated, fibre-reinforced, thixotropic mortar. EPORIP was also used for monolithic construction joints between fresh and hardened concrete.

The next stage of the work was to skim over all the substrates with light grey PLANITOP 100 fast-setting, fine mortar.

The surfaces were then painted with QUARZOLITE BASE COAT coloured

acrylic undercoat and adhesion promoter, which has good defect-covering properties and is suitable for use on both internal and external surfaces.

The last step was to finish off the surfaces with ELASTOCOLOR PAINT, a special protective and crack-bridging elastomeric paint with long-lasting elasticity and good resistance to chemical agents and ageing.

So, thanks also to Mapei, a new city has been born, a city whose history is symbolised by the old town centre dominated by the Federiciano Castle, and a future shaped by a modern and majestic feat of engineering, as well as by the River Crati, which will soon become navigable, and by new residential buildings and the redevelopment of an area which was once full of slum housing.

The superplasticizing admixture DYNAMON SX 42 was used to prepare the concrete mix. The surfaces were then finished with ELASTOCOLOR PAINT.

#### DYNAMON SX 42

Liquid superplasticizing admixture for ready-mix concrete.

FIND OUT MORE



#### TECHNICAL DATA

**San Francesco di Paola bridge**, Cosenza (Italy)

**Year of construction:** 2018

**Period of the Mapei**

**intervention:** 2013-2018

**Client:** Cosenza City Council

**Intervention by Mapei:** supplying admixtures for

the concrete mix, products for anchoring, building mortars and coatings

**Design:** Santiago Calatrava

**Main contractor:** Cimolai

SpA

**Subcontractor:** Calabro Inerti

**Works direction:** Vito Alvino

#### Mapei coordination:

Mirco Malvasi, Achille Carcagnì and Daniele D'Ippolito, Mapei SpA (Italy), and Gn Rappresentanze.

#### MAPEI PRODUCTS

Admixtures for concrete: Dynamon SX 42

Building products: Mapefill, Mapefer, Mapegrout T40, Mapegrout LM 2K, Mapefer, Eprip, Planitop 100  
Coatings: Quarzolite Base Coat, Elastocolor Paint

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



STOP CORROSION OF STEEL IN CONCRETE STRUCTURES

**Mapeshield®**



Mapei has developed a range of specific products for galvanic cathodic protection and prevention: **Mapeshield I**, **Mapeshield E 25** and **Mapeshield S**, the perfect allies against corrosion of steel reinforcement in concrete structures, increase durability and guarantee the nominal design life of structures.

EVERYTHING'S OK WITH MAPEI







## Agustín Tosco Ring-road CÓRDOBA (ARGENTINA)

Construction of the Avenue Agustín Tosco ring-road was completed in 2019, allowing traffic to reach the various areas and suburbs of Córdoba more quickly. On the western part of the ring-road there is an elevated 1.8 km viaduct which connects the Kempes Stadium, the Córdoba Exhibition Centre and the Gauss and Laplace bridges. For most of the pre-cast concrete beams and deck slabs

of the viaduct, Mapei supplied DYNAMON SP45/AC\* a super-plasticiser distributed by Mapei Argentina. To construct the horizontal surfaces, MAPEPLAST N11\* plasticiser and water-resistant admixture was used to give the concrete extended workability. The mix was then cured using MAPECURE SA (which is also distributed by Mapei Argentina on the local market) and MAPECURE E30.

**TECHNICAL DATA**  
**Period of construction:** 2017-2019  
**Period of the Mapei intervention:** 2017-2019  
**Client:** Córdoba City Council  
**Contractors:** Benito Roggio, Hijos SAC-

Boetto y Buttigliengo SA – UT  
**Works direction:** Virginia Belli  
**Mapei coordinator:** Estéban Fontaine, Mapei Argentina

**MAPEI PRODUCTS**  
 Dynamon SP45AC\*, Mapecure E30, Mapecure SA\*, Mapeplast N11\*  
 \*These products are distributed on the Argentinian market by Mapei Argentina



## Kuala Terengganu Bridge TERENGGANU (MALAYSIA)

This bridge was inspired by Tower Bridge in London and was the first drawbridge ever built in Malaysia and in the whole of South East Asia. It has a 23 m-wide single carriageway and spans the River Terengganu at a height of 638 m. Certain parts of the bridge needed to be waterproofed with a system worthy of such a grandiose work of engineering and Mapei Malaysia proposed the

MAPELASTIC + MAPENET 150 system. Once the surfaces had been prepared according to specifications, the next step was to apply the first coat of MAPELASTIC two-component, elastic cementitious membrane. MAPENET 150 glass fibre mesh was then placed over the membrane and, to complete the system, a second layer of waterproofing mortar was applied over the mesh.

**TECHNICAL DATA**  
**Year of construction:** 2014  
**Year of the Mapei intervention:** 2018  
**Client:** The East Coast Region Development Council (ECERDC)  
**Contractor:** Huashi

(Malaysia) Sdn Bhd  
**Waterproofing contractor:** Twc Engineering Specialties Sdn Bhd  
**Mapei coordinator:** Simon Yap, Mapei Malaysia Sdn Bhd

**MAPEI PRODUCTS**  
 Mapelastic, Mapenet 150  
 For further information on products see [mapei.com](http://mapei.com) and [mapei.com.my](http://mapei.com.my)





# Mapei Polska's winning strategies

INTERVIEW WITH VERONICA SQUINZI, PRESIDENT OF MAPEI POLSKA AND CEO OF THE MAPEI GROUP

## What do you remember about the start of Mapei's operations in Poland?

The founding and start-up of Mapei Polska was one of my first professional experiences in the Group's internationalisation strategy.

I closely followed the development of this subsidiary, personally taking care of everything from the organisational aspects to the commercial ones.

I also spent plenty of time in Poland to carefully monitor the company's first steps as a start-up before it even had a manufacturing plant and only employed a very small number of staff. I supervised the implementation of the entire "Mapei Polska project", which I like to feel is a little bit "mine".

This experience taught me how to start up a company from scratch and turn it into a success; something I am extremely proud of!

I am, indeed, very pleased with the results that have been achieved:

Mapei Polska now has a very definite growth strategy; it knows how to invest in itself and its staff; it is equipped with state-of-the-art manufacturing plants with cutting-edge systems and technology; and it has managed to widen its product portfolio to meet the needs of the local market and win the loyalty of its customers as a trustworthy partner and unique supplier of custom-designed systems. So I am extremely fond of this subsidiary also due to the role I myself have played in its history, although it is now run by a local management team that handles its operations successfully on an independent basis.

## How can we assess Mapei Polska's business operations in Poland, 20 years after they first began?

Positively, to say the least.

Over two decades in business, Mapei Polska has never



**"I am extremely fond of this subsidiary also due to the role I myself have played in its history, although it is now run by a local management team that handles its operations successfully on an independent basis"**

seen a drop in sales on a year-to-year basis, while at the same time keeping up its excellent financial results.

When Mapei products first came out in Poland in the 1990s, the market for chemical products for the building industry already had a number of powerful local and foreign players.

The free market economy had just begun in this country as it prepared to join the European Union. So, we drew up a strategy that still underscores Mapei Polska's success.

Our starting point is always the quality of products, with no exceptions. We focus our attention on the needs of the professional users of our products and constantly monitor how distribution networks evolve.

We have invested heavily in marketing, which operates intensely in a number of different ways, and also in training. Thanks also to almost 800 training sessions that Mapei Polska holds each year, over 40,000 Polish installers regularly use Mapei solutions and, thanks to them, our products can be found on hundreds of building sites around this country.

## What are Mapei's growth prospects in Poland? Are there plans for fresh investment and (if so) where?

We plan to keep on growing by constantly extending our range of products and increasing our market share in specific segments of the industry.

Recent investments notably include the manufacture of plasters and primers carefully geared to the Polish market's requirements, which have enabled us to break onto high potential markets.

Launching these lines caters for the needs of local distributors and users. We also plan to reinforce our presence in relatively new sectors for Mapei Polska. We have already achieved some success in these sectors.

And, of course, we will not be stopping here: we plan to make new investments in human resources and structures to help Mapei Polska keep on growing.

20 YEARS AFTER FIRST SETTING UP IN BUSINESS, THE GROUP'S POLISH SUBSIDIARY HAS CONSTANTLY GROWN IN TERMS OF SALES AND INVESTMENT



**ABOVE.** Mapei Polska has commercial offices in Warsaw and production plants in Barcin and Gliwice.



## 2000 A MARKET WITH GREAT POTENTIAL

"Poland is an important market for the Mapei Group, not just due to its size and growth opportunities, but also for its openness to cutting-edge technology and high-quality products", so **Giorgio Squinzi, Mapei's Group's CEO at the time, stated on 16<sup>th</sup> May 2000, when signing the deeds to establish Mapei Polska.** These words were then followed by regular investments by the Group to help its three Polish subsidiaries grow: Mapei Polska, Sopro Polska and Górka Cement.

Giorgio Squinzi officially launches manufacturing at the plant in Gliwice.

## 2001-2002 GROWTH FROM THE VERY START

During its 20 years in business, Mapei Polska's sales have continued to grow every year. The subsidiary's constant growth is matched by the **ever increasing range of products it has to offer, which reached a total of 500 units in 2020** and includes adhesives for ceramics and stone material; adhesives for resilient and textile materials and wood; varnishes and oils for parquets; grouts for joints; sealants; primers and self-levelling agents; mortars for concrete repair; materials for screeds; waterproofing agents; chemical anchors; thermal insulation systems; wall coatings and renders; structural reinforcement products, cementitious and resin floors; admixtures for concrete; cement additives.



## From sports sponsorships to technical training: across-the-board commitment, even off the building site



### 2003 THE PLANT IN GLIWICE

Mapei Polska opened its first manufacturing plant in Gliwice in southern Poland in April 2003. It doubled its manufacturing output in just four years. The facility can now supply **270,000 tons per year of powder products, as well as a wide range of liquids.**

### 2006 ULTRACOLOR PLUS IS LAUNCHED

Mapei Polska's success is mainly due to the fact its products respond effectively to market needs, even managing to anticipate them. In the 1990s ULTRACOLOR grout for joints was a highly efficient and colourful revolution. Another important milestone was **the launching of ULTRACOLOR PLUS in 2006, which is now one of the most popular grouts in Poland.**



### 2007 and 2011 TRAINING HITS THE ROAD

Vehicles have enabled Mapei Polska to make real progress in terms of the quality of its technical training. The first vehicle began running in 2007. A second was then added in 2011. The two vehicles have stopped off in over 200 cities each year. They are part of a technical training programme that also includes sessions at the Mapei Polska's training centre in Gliwice, workshops in various locations, and presentations at sales outlets. **Mapei Polska shares its knowledge and know-how with over 25,000 professionals per year during almost 800 training sessions.** Online training has been in operation since 2020.

### 2012 SOLUTIONS FOR SPORTS FACILITIES

Mapei Polska helped build two of the main football stadiums for hosting the 2012 UEFA Championships. Mapei products were used to repair and protect the concrete surfaces of the stands in Gdańsk Stadium, waterproof surfaces, and paint the outside walls. **Mapei materials were also used to install over 22,000 m<sup>2</sup> of ceramic tiles and mosaics over eight levels of Warsaw Stadium.** Mapei solutions have so far been used for work on numerous swimming pools, multisport areas, tennis courts, and athletics tracks all over the country.



### 2007 SPORTS SPONSORSHIPS

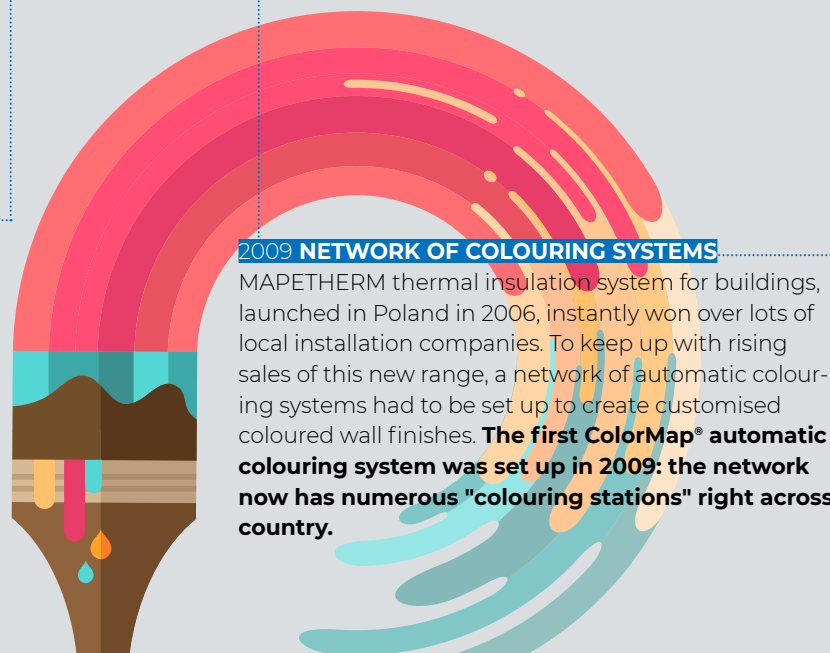
Mapei Polska's first sport sponsorship deal dates back to 26<sup>th</sup> May 2007 when Krzysztof "Diablo" Włodarczyk and Steve "USS" Cunningham fought for the IBF world boxing title. **Mapei Polska sponsored a gala evening, the "Mapei Night of Champions",** before an audience of 6000 fans (and 150 Mapei clients) and a television audience of 2 million.

### 2008 TECHNICAL EVENTS FOR PROFESSIONALS

Mapei Polska works very closely with professional installers, even off the building site. **In 2008 over 1000 people who had signed up for the Mapei Partnership Program for installers took part in "technical meetings"** where they received special training from Mapei experts. Over subsequent years these meetings became an unmissable event for professionals in the industry.

### 2009 NETWORK OF COLOURING SYSTEMS

MAPETHERM thermal insulation system for buildings, launched in Poland in 2006, instantly won over lots of local installation companies. To keep up with rising sales of this new range, a network of automatic colouring systems had to be set up to create customised coloured wall finishes. **The first ColorMap® automatic colouring system was set up in 2009: the network now has numerous "colouring stations" right across country.**



### 2013 THE PLANT IN BARCIN

When Mapei Polska opened its second manufacturing plant in 2013, it increased its yearly output of powder products by 150,000 tons. The facility in Barcin in central Poland is also equipped with production lines for plasters and wall coatings. All of its manufacturing processes work along the lines of eco-sustainability. "Manufacturers must adopt measures guaranteeing they operate eco-sustainably on a day-to-day basis. Eco-sustainability means reasonable use of natural resources, water, energy and non-renewable materials in order to reduce waste and air pollution", so Veronica Squinzi stated, CEO and Global Development Director of the Mapei Group, **as the plant in Barcin was awarded LEED certification.**



## Thanks to its two plants, Mapei Polska keeps on increasing its output and extending its product portfolio

### 2014 SOLUTIONS FOR UNDERGROUND WORKS

Mapei Polska also contributed to the **construction of Warsaw's second underground railway line (2017-2019)**. The Polish subsidiary supplied agents for stabilising the ground, sealing agents and admixtures for concrete for the tunnels excavated using gigantic tunnelling machines (see the dedicated article in this issue).

### 2015 PARTNERSHIP WITH PROFESSIONALS

Mapei Polska supports professional operators as they take on their daily challenges. It is, therefore, hardly surprising that an increasing number of people are taking part in the **Mapei Partnership Program for Installers**: 30,000 in 2015 and now over 40,000. "The program began on 21<sup>st</sup> May 2005 and has turned into a proper partnership", so Agata Modrzejewska noted, Mapei Polska's Marketing Manager. "Lots of installers joined right from the beginning. This is not just a simple database; these are real partners with whom we are developing solutions tailor-made for the local market".

### 2017 SOLUTIONS FOR THE MARINE INDUSTRY

In 2017 Mapei Polska launched the Mapei Marine line of products on the local market, an extensive range of solutions for building ships and yachts that has already been used in Poland to **upgrade two military ships and a number of commercial/industrial vessels**.



© Przemysław Liczniewski

### 2018 AWARDS FOR PRODUCT QUALITY

Mapei Polska was awarded the title **"Construction Brand of the Year"** 11 times from 2007 to 2018 in two product categories: **"adhesives for ceramics"** and **"grouts for joints"**. Each year installers are asked to choose the best brands in each category, taking into account quality, value for money, and frequency of usage. In 2020 Mapei Polska won the "gold prize" in three categories: adhesives for ceramics, silicone sealants and grouts for joints.

More info: <http://www.rankingmarekbudowlanych.pl/index.php/pl-pl/>



### 2020 THE TEAM

People and relationships are another of Mapei Polska's great strengths. Product managers identify specific market needs, while the sales and technical assistance teams set about meeting these needs. That is the Mapei Polska team: **400 people committed on all levels to provide installers, architects, designers and distributors with incomparable quality and service**.



## What's our secret? Understanding and meeting market demands

HERE'S WHAT ARTUR OLUBEK, MAPEI POLSKA'S GENERAL MANAGER, HAD TO SAY

**According to the European Commission summer report, Poland is the European country whose economy will be the least affected by the coronavirus pandemic, with its GDP falling by an estimated -4.6% against an EU average of -8.3%. How did Poland manage to mitigate the crisis?**

Experts point out three basic reasons for relatively good, so far, results of Polish economy. Firstly: since the beginning we have been facing less severe epidemic wave. The number of people diseased in Poland is lower than in Italy, Spain or France. Rules of social distancing have been implemented quite quickly. Restrictions applied to business activities were softer than in other countries. Secondly: Polish economy is diversified and, as such, proved to be more resistant to pandemic shock. The share of services in GDP is in Poland way below the European average. Within the industry, the automotive sector was the one to take the major hit, but it is less important to Polish GDP than it is the case in Germany or in the Czech Republic. Thirdly: we have strong domestic market and we can use depreciation of our currency. All that served as kind of bulletproof vest in the first confrontation with Covid-19.

**Is the building industry, both for infrastructure and private buildings, being affected by the global economic crisis?**

Compared to other sectors of Polish economy, construction industry looks good. It does not mean however that it shall pass through crisis with no scratch. My short-range forecast is cautiously negative. All previously launched investments are being executed in full flow, but we shall see symptoms of poor economic situation in 2021. They shall not be evenly distributed in the market, as the financial results of specific companies depend on their size, specialization and structure. Many general contractors shall face drops of incomes, but it must not lead to drastic decline in their margins due to stabilisation of the costs of raw materials, construction products and labour. New projects in private sector are expected to be lower in

number, especially in housing, office, hotel & commercial space segments. Investment activities of local governments have already been visibly limited. New tenders are not being published. Investment plans are being endlessly "under process" due to considerable loss of income on both locally collected taxes and public services.

**Which are the sectors (and products) for which Mapei is a market leader in the Polish building industry?**

According to Polish installers Mapei belongs to the top of construction brands with highest recognizability and quality of products. This is something we are especially proud of. In fact, we hold leadership position in products for the installation of ceramic tiles, which are crucial for our business. In 2020 Polish installers voted Mapei as

**We are widely acknowledged as the leading player in the sector of products for installing ceramics and stone materials**

Golden Construction Brand of the Year in three categories: grouts, adhesives for ceramic tiles and sealants. Professional recognition for product quality and quality-price ratio, as well as frequency of their use, help us grow in traditional and DIY distribution channels. Taking into considera-

tion sales results, we also enjoy trust of professional companies specialized in the installation of textile, resilient and wooden flooring as well as production plants that require cement additives.

**Which sectors offer Mapei the best opportunities for growth?**

I consider thermal insulation as the most promising segment. Besides, I see potential in some market niches, where the importance of product itself is equal to the specialized technical support on each and every step of the execution of the project. I refer here to solutions for sport facilities and ships, but also to structural strengthening and waterproofing solutions or admixtures for concrete, as well as to cementitious and resin floors and products for concrete repair. Public infrastructure projects are to be the priority in the years to follow for European Union funds and state budget: this is a big opportunity for Mapei Polska.





# Warsaw WARSAW METRO LINE 2

**LEFT AND TOP OF THE PAGE.** The construction works carried out in 2017-2019 on line 2 of the Warsaw metro included the completion of 2.2 km tunnels in natural excavation for each tube. **BELOW.** Line 2 runs under some areas of the Polish capital enclosing ancient buildings that date back to pre-war times.



and 10 m, in clean sandy soil, under water table.

### Geological conditions and design approach

Along the whole route the soil to be excavated and the soil above the tunnels were mainly granular. They belonged to the Quaternary period and were of sedimentary origin. The water table is 3 m deep from the ground level. Only the bottom part of the excavated front was silty and made of clay. Several buildings, in the area along the Strzelecka street, are in a critical structural condition and consequently more subject to possible damage. The local authorities in charge of the design were proposed a "classic" solution using sub-horizontal drilling carried out from the ground level under the foundations

of the buildings in order to install sleeved grouting pipes for subsequent grouting. The difficulties in obtaining the working areas, as well as the issues and the time required to get the permits for temporary occupation of private properties and traffic routes, were not compatible with the general planning of the construction works. It was therefore decided to limit soil improvement to 5 ancient buildings with a very fragile structure and in difficult conditions. This solution minimized the impact of the works on the urban area, reducing the risk of damage to the buildings located along the alignment of the tunnels. The final decision, also due to budget and management choices, was to limit soil improvement to the area located under the foundation of five buildings, and try to make an

accurate excavation by TBM EPB closed mode, with some solutions and procedures devised with the help of Mapei technicians.

### Specific solutions for surface settlement reduction

Due to the peculiarity of the buildings above the tunnel alignment, the operation in closed mode and the accurate control of the earth pressure were key parameters to be kept under strict observation to minimize the surface settlements.

Another fundamental aspect to be accurately controlled to minimize the loss of volume and, therefore, the settlement on the surface, was the annular gap backfilling injection. The volume and pressure control of the injection had to be carefully managed. The injected volume had to reach at least the theoretical value, with pressures of about 0.5 bars exceeding the earth pressure applied to the tunnel face. The soil, properly conditioned to achieve good TBM performance and a proper pressure transmission to the tunnel face, showed a too liquid behavior on the TBM belt, due to the lack of finer fraction and the saturated conditions of the sandy soil. Beyond the logistic problems related to the muck management from the tunnel belt up to the truck transportation, a too liquid behavior might have caused difficulties in the earth pressure control. In fact, a too liquid muck, in the presence of pressure in the excavation chamber, may flow along the screw conveyor by extrusion, pushed by the earth pressure. The liquid consistency of

## MAPEI PRODUCTS WERE SUCCESSFULLY USED FOR TUNNELING WORKS

The extension of the Warsaw Metro Line 2 in 2014 was certainly a further step in the development of the public transport system in the capital of Poland and it is included in the Odcinek II expansion program of public infrastructure. Line 2 was intended to become the main connection between downtown and the north-east areas of the city, reducing the distance between the residential districts and the city center. The particular geological conditions and the shallow overburden required particular care when building the new

metro line. The construction works carried out in 2017-2019 included the completion of 3 stations and 2.2 km tunnels in natural excavation for each tube. Excavations involved the use of two TBMs (EBP type), accurately refurbished after the excavation of the same metro line under the historical city center. The section between C-18 Trocka station and C-15 Dworzec Wilenski station runs along a curved path with shallow overburden under the Targówek and the Praga District, with buildings that survived the Se-

cond World War. The critical stretch for the excavation was the last part, the section from C16 Szwedzka station and the dismantling chamber, which was temporary created in the holding track in station C15. From this station 2 tubes run under the historical area, the right one under Strzelecka street and the left one running for roughly 500 m under a row of ancient buildings, with different elevation and with 2,5 m basement deep. The overburden between the top of TBM excavation and the lower level of the basement ranged from 7







**LEFT.** The excavations involved the use of two TBM EPB machines, accurately refurbished after the excavation of the same metro line under the historical city center.

**BELOW.** Visual aspect of the muck before the use of MAPEDRILL M1 (left) and after the use of MAPEDRILL M1 (right).

**RIGHT.** The station of Szwedzka after completion of the works.

CBS SYSTEM 1, an admixture used to ensure the A component a workability of 3 days. The proportion between MAPEQUICK CBS SYSTEM 3 (accelerator) and the A component was reduced. These modifications brought to a reduction of about 2 seconds of the gel time and to a higher viscosity of the backfilling grout. The modified mix design was studied and tested by Mapei experts at the mixing plant prior to its actual production, to evaluate the most suitable mix design for the specific situation.

The injection parameters were also modified in order to minimize the possible fall of soil in the void and to compensate the loss of injected volume due to possible permeation of the grout in the sandy soil. The injection pressure was increased up to almost 1 bar exceeding the earth pressure. The total injected volume per ring was also increased in order to keep the pressure level required to minimize the settlement.

**TBM excavation performances**

With the application of these measures and products during excavation works, earth pressure was kept regularly on the right range. It was checked that the volume of excavated ground never exceeded the theoretical values, which made it was possible to avoid settlement around the area of the cutter head. On the other hand, the volume of grout filled in the gap behind the lining at the tail skin was always higher than the designed value.

The first of two underground routes began to be excavated on October 2017 with TBM S644, which drilled the left tunnel towards the C15 Station and successfully completed the critical passage on December 2017. Then, following alignment under Str-



the muck caused difficulties in the pressure management and, therefore, in the minimization of the surface settlement. The solution adopted was the injection in the excavation chamber of MAPEDRILL M1, a soil conditioning polymer with water absorption and lubricating properties. The use of about 0.3 – 0.4 kg of MAPEDRILL M1 per cubic meter of soil, brought to an effective control of the soil consistency. By observing the TBM data during the use of the polymer, any uncontrolled fluctuation of earth pressure was visible. Although the muck was drier than before, the cutterhead torque and the TBM performances remained the same.

The injection of MAPEDRILL M1 and its fast reaction time allowed the treatment of the soil close to the screw

conveyor inlet, without affecting the consistency of the conditioned soil close to the cutter head.

**Backfilling grout injection improvement**

Due to the non-cohesive nature of the soil, every step of the excavation foreseeing an unsupported situation had to be reduced to a minimum. For this reason, the standard mix design of the A component of the two-component backfill grout, studied in the Mapei R&D laboratory during the site preparation, was modified. The proportions between the two components, were modified too, in order to reduce the gel time. To achieve this without affecting the performances of the grout, cement was increased on the A component mix, together with a slight increase of MAPEQUICK



zelecka street, TBM S760 passed the same route between October 2017 and January 2018. Both underground passages, about 1150 m long stretch, which included the 550 m under ancient buildings and Strzelecka street with shallow overburden, were achieved with average daily advances of 18.75 m and 18.5 m respectively, with peaks of 33 m per day. The recorded volume loss was less than 0.30% instead of 0.44 % and the total settlement under the urban areas was lower than one centimeter.

Following a customary procedure for this kind of underground projects in urban areas, a monitoring system was installed to check settlements and deformation during the TBMs performances. The system was able to continuously register data, providing automatic and manual measurements. The behavior of the

buildings was analysed during the passage of the two TBMs and proved to be similar. The settlement occurred in a similar way, both in terms of kinematics and values. The measurements underlined the success of the EPB technology in urban areas under sensitive buildings. The careful attention paid to the excavation parameters, such as earth pressure, muck extraction control, backfilling injection pressure and volume, played a crucial role in the minimization of the settlements.

Good practice, together with the use of a specific soil conditioning product such as MAPEDRILL M1, as well as the adjustment of the mix design and injection procedure of the backfilling grout, combined with good TBM crew skills and careful supervision, made possible to respect the admissible settlements limits, without the

use of an extensive grouting campaign below the buildings. The synergy between contractors and suppliers was crucial to ensure the sharing of know-how with the common target of a safe and effective TBM excavation, while guaranteeing the expected results and good production rates.

**MAPEDRILL M1**

Liquid polymer to be employed in mechanized tunnelling and drilling

FIND OUT MORE



**TECHNICAL DATA**  
**Warsaw metro - Line 2,**  
 Warsaw (Poland)  
**Period of construction:**  
 2010-ongoing  
**Period of the Mapei**  
**intervention:** 2017-2019  
**Intervention by Mapei:**

supplying products for backfilling grout injection and soil conditioning  
**Client:** AGP Metro  
**Main contractor:** Astaldi SpA  
**Mapei coordinators:** Enrico Dal Negro, Alessandro

Boscaro, Andrea Picchio, Enrico Barbero, UTT Division, Mapei SpA (Italy); Mikolaj Alexandrowicz, Mapei Polska (Poland).  
**MAPEI PRODUCTS**  
 Products for underground

**works:** Mapedrill M1, Mapequick CBS System 1, Mapequick CBS System 3, Polyfoamer FP/CC, Mapebent CBS 4, Mapeblox T, Mapeblox PKG  
[utt.mapei.com](http://utt.mapei.com)



# Zielona Góra 2019 FED CUP ZIELONA GÓRA

MAPECOAT TNS REMOVE SYSTEM WAS USED FOR PRO-GRADE TENNIS COURTS IN THE MOSIR CENTRE HOSTING THE CUP



**Removable and reusable**

The Polish Tennis Association has continued to use the removable MAPECOAT TNS REMOVE system on tennis courts in the MOSiR sports centre in Zielona Góra. One of these courts was also installed in June, 2019 in Krakow (Poland) on the occasion of the farewell tournament of the Polish tennis player and former world No. 2 Agnieszka Radwanska, who recently decided to hang up his racket after 15 years competing on the professional circuit.

And, on the back of the successes of these tournaments, **when it was decided to hold the 2020 Davis Cup in Poland, once again the Polish Tennis Federation chose to use the same MAPECOAT TNS REMOVE system for the courts as the one used in Zielona Góra and Krakow.**

And so, on 6<sup>th</sup> and 7<sup>th</sup> March this year, the 2020 Davis Cup play-off match was held in Kalisz between Hong Kong and Poland, with the presence of Mapei as Official Partner.

The MAPECOAT TNS REMOVE system, installed for the third time for an international tournament, once again received the praises of the umpires and line judges and not one single negative comment was received about the condition or performance of the court.

The players, both winners and runners-up, also praised the system for the level of comfort offered by the courts during rallies, which allowed them to change direction quickly and safely, for the precise bounce of the ball and for their blend of balance and slide. And these important comments and feedback are certainly one of the main reasons why the Polish Tennis Federation will be using the MAPECOAT TNS REMOVE system once again for the women's Fed Cup and the men's Davis Cup matches.

## Problems and solutions

The courts needed to be completed in a very short time, as the installation of the main removable court could only commence three days before the start of the tournament. The MAPECOAT TNS REMOVE system ensured a quick application, reducing the time required to carry out work and the down time of playing surfaces, while creating a playing surface with excellent playing comfort and performance characteristics.

In order to join Great Britain as co-hosts of the Group 1 Europe/Africa zone matches valid for the 2019 BNP Paribas Fed Cup – the 57<sup>th</sup> edition of the most important international team tournament in women's tennis – Poland had to upgrade an existing tennis centre with 2 pro-grade tennis courts and turn it into a sports complex by adding spectator stands and 3 new training and warm-up courts, all within a radius of 500 m so that players and fans could easily move from one part of the complex to another. To comply with these requirements,

the Polish Tennis Association chose the MOSiR sports centre in the city of Zielona Góra, where the tournament was played with great success from 6<sup>th</sup> to 9<sup>th</sup> February, 2019. The strict requirements imposed by the ITF (International Tennis Federation) were complied with by renovating the floors in the Grand Arena and Basketball Hall – two separate sports halls inside the centre - with new courts made from MAPECOAT TNS REMOVE system by Mapei. All 5 courts had to comply with stringent specifications, such as the pace of the courts, which in this case had to

be category 3 (medium) according to the ITF "Court Pace Classification Programme".

## High performances and speedy installation

The completion of the new courts was also a race against the clock, in that installation of the main removable court could only commence three days before the start of the tournament due to other events that had already been scheduled. The experience of the installation company in this particular field, along with the constant presence

of Mapei technicians on site, proved to be decisive in ensuring the courts were installed successfully and within the scheduled time-frame, and bearing in mind also that the courts had to be inspected every day by an official technical representative of the ITF.

The multi-layered (ITF certified) system used in this particular case was MAPECOAT TNS REMOVE. The system consist of multi-layer acrylic resins in water dispersion and selected fillers combined with self-laying, fibre-reinforced PVC mat thermo-bonded to a nonwoven fabric back-

1. Installation of the MAPECOAT TNS REMOVE system: bonding the rolls in place.
  2. Application of the top layer of the playing surface using MAPECOAT TNS FINISH.
  3. Marking out the court to define the area of play.
  4. View of the finished court.
- IN THE FACING PAGE.** A rally from one of the matches played during the 2019 Fed Cup on the MAPECOAT TNS REMOVE court in the Grand Arena at the MOSiR Sports Centre.





**ABOVE.** On 6<sup>th</sup> and 7<sup>th</sup> March this year, the 2020 Davis Cup play-off match was held between Hong Kong and Poland in Kalisz, with the presence of Mapei as Official Partner. The tennis courts were again completed with MAPECOAT TNS REMOVE.

### MAPECOAT TNS REMOVE

Multi-layered flooring system of acrylic resins in water dispersion combined with self-laying fibre-reinforced PVC mat for pro-grade indoor and outdoor tennis courts and playing surfaces for temporary sports events.

FIND OUT MORE



ing. It is available in a wide range of colours and able to meet specific individual parameters in terms of pace (slow, medium, medium-fast).

This type of surface can be installed in 3 to 5 days, then removed again in just a few hours and can be used repeatedly.

It may be applied over existing painted indoor flooring or on new cementitious or asphalt flooring which needs to be coated.

When MAPECOAT TNS REMOVE is applied, it forms a playing surface with excellent playing comfort and excellent performance characteris-

tics, such as regular bounce of the ball, quick, safe changes in direction and an excellent compromise between balance and slide for players.

It encloses the use of high-performance products such as MAPECOAT TNS LINE, MAPECOAT TNS COLOR, MAPECOAT TNS WHITE BASE COAT, MAPECOAT TNS FINISH 1.3.4, MAPECOAT TNS RE PLAY, ULTRABOND ECO FIX and ULTRABOND TURF TAPE 100.

The same system was used for the tennis courts hosting the 2020 Davis Cup in the Polish city of Kalisz (see the dedicated section at page 49).

### TECHNICAL DATA Tennis courts at MOSiR centre, Zielona Góra (Polonia)

**Year of construction:** 2019  
**Year of the Mapei intervention:** 2019  
**Intervention by Mapei:** supplying products for completing pro-grade

tennis courts  
**Client:** Polish Tennis Association  
**Installation company:** Rowit  
**Works direction:** Robert Kokoszko  
**Mapei coordination:** Arkadiusz Wojtkiewicz, Tadeusz Leksander, Roman

Ludwiczak, Mapei Polska (Poland); Alberto Cosmelli and Luca Albano, Mapei SpA (Italy)

**MAPEI PRODUCTS:**  
Installing tennis courts:  
Ultrabond Turf Tape 100, Ultrabond Eco Fix, Mapecoat TNS RE Play,

Mapecoat TNS White Base Coat, Mapecoat TNS Finish 1.3.4, Mapecoat TNS Line, Mapecoat TNS Color

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

# Mapecoat® TNS

RESIN SYSTEMS FOR TENNIS COURTS



ATP Challenger Burnie International (Australia)



REPAIR OF OLD EXISTING FLOORINGS



HIGHLY FLEXIBLE



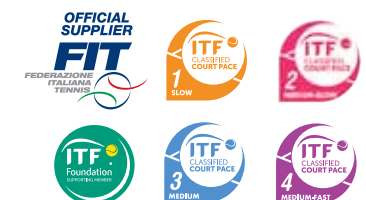
UV-RESISTANT



AVAILABLE IN 24 COLOURS

**Mapecoat TNS** multi-layered, acrylic resin-based systems: a complete range of strong, durable systems classified by the ITF to meet the playing requirements of all sports centres.

EVERYTHING'S OK WITH MAPEI







## Church of the Immaculate Conception RAWA MAZOWIECKA

Dating back to the 17<sup>th</sup> century, the Church of the Immaculate Conception and the nearby Jesuit monastery were at the centre of lengthy renovation work, which also included the façades of the church (approx. 2,200 m<sup>2</sup>). The restoration work using Mapei products involved removing the old render, applying a new layer of render and consolidating the walls where necessary. The first step was

to apply MAPE-ANTIQUE RINZAFFO salt-resistant, transpirant scratch-coat mortar. The surface was then levelled off with MAPE-ANTIQUE MC and MAPE-ANTIQUE FC CIVILE and finished off with a coat of SILEXCOLOR PRIMER and SILEXCOLOR PAINT. The areas of render that had started to crumble on the surface and become weak were consolidated by treating them with CONSOLIDANTE 8020.

**TECHNICAL DATA**  
**Period of construction:** 17<sup>th</sup> century  
**Period of the Mapei intervention:** 2017-2019  
**Owner:** Rawa Mazowiecka Parish  
**Contractor:** Castellum Wrocław

**Mapei distributors:**  
 Ceramika Primus, Bazar Radom  
**Mapei coordinator:**  
 Robert Bugajski, Mapei Polska

**MAPEI PRODUCTS**  
 Adesilex P9, Colorite Matt, Consolidante

8020, Eco Prim Grip, Fugolastic, Keracolor FF, Keracolor GG, Malech, Mape-Antique FC Civile, Mape-Antique Intonaco NHL, Mape-Antique MC, Mape-Antique Rinzafo, Mape-Antique Strutturale NHL,

Mapeband, Mapelastix, Mapenet 150, Mapesil AC, Planicrete, Primer 3296, Primer G, Prosfas, Quartz 0.9, Silancolor Cleaner Plus, Silexcolor Paint, Silexcolor Primer, Topcem Pronto, Topcem, Ultraplan Renovation



## Warsaw water filters WARSAW

The filtration plant of the Warsaw aqueduct has been in service since 1886 and produces around 530,000 m<sup>3</sup> of clean water every day. Recognised in 2012 as a monument to Poland's rich history of art and architecture, the filtration station is open to the public. Between 2010 and 2011, Mapei Technical Services provided solutions for waterproofing the bottom of the concrete tanks used to store drinking water (5,000 m<sup>2</sup>). After placing a new

layer of concrete on the bottom of the tanks, a layer of IDROSILEX PRONTO (now called PLANISEAL 88) osmotic cementitious mortar was applied, a special type of mortar suitable for contact with drinking water. This particular product is ideal for structures below ground level and for drinking water storage tanks and, in spite of the unfavourable conditions while it was being applied, it was a complete success.

**TECHNICAL DATA**  
**Period of construction:** 1883 – 1886  
**Design:** William Lindley  
**Period of the Mapei intervention:** 2010-2011  
**Owner:** Warsaw City Council

**Contractor:**  
 Energotechnika Sp. z o.o.  
**Mapei coordinators:**  
 Krzysztof Pogan and Mikołaj Alexandrowicz, Mapei Polska

**MAPEI PRODUCTS**  
 Idrosilex Pronto (now called Planiseal 88)







## Nursery and primary school DOBZYKOWICE

The façades of this school complex, which has both a nursery school and a primary school, underwent work to install an external thermal insulation system and then coat the system with a coloured finish. About 5,500 m<sup>2</sup> of thermal insulation was completed with the MAPETHERM system. The surface of the façades was then finished off mainly with SILAN-COLOR TONACHINO water-repellent

siloxane plaster, while for a smaller area, which had to be in a more vivid shade, it was recommended to apply QUARZOLITE TONACHINO acrylic plaster for internal and external application. UNIVERSAL BASE COAT\*, a coloured undercoat manufactured and distributed by Mapei Polska, was used as an undercoat before applying both of the aforementioned products.

### TECHNICAL DATA

**Period of construction:** 2017-2018

**Period of the Mapei intervention:** 2017-2018

**Owner:** Dobrzykowiec City Council

**Contractor:** Wac-Bud  
Wacław Cenker Jelcz  
Laskowice

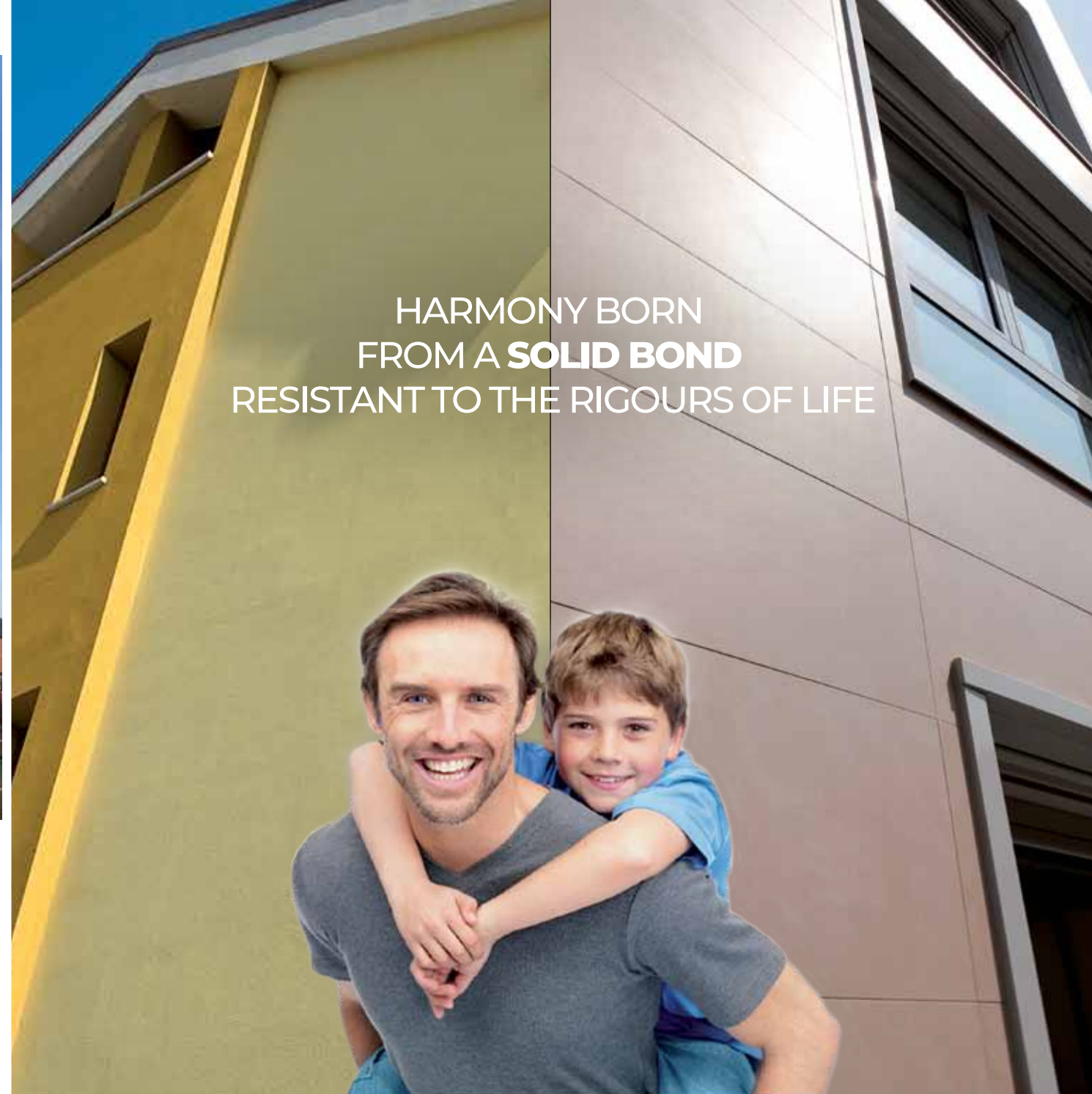
**Mapei distributor:** Styk  
Nadolice Wielkie

**Mapei coordinator:**  
Jarosław Szabla, Mapei  
Polska

### MAPEI PRODUCTS

Mapetherm System,  
Quarzolite Tonachino,  
Silancolor Tonachino,  
Universal Base Coat\*.

\*This product is manufactured and distributed on the Polish market by Mapei Polska (Poland)



HARMONY BORN  
FROM A **SOLID BOND**  
RESISTANT TO THE RIGOURS OF LIFE

## Mapetherm® System

## Mapetherm® Tile System

From Mapei research: two systems to guarantee external **thermal insulation**, whether you choose wall coatings (Mapetherm System) or install thin ceramic tiles (Mapetherm Tile System).  
**Wellbeing and energy savings**, in compliance with current standards.

EVERYTHING'S **OK** WITH **MAPEI**





# Górka: tradition supported by Mapei vision

FIRST ESTABLISHED IN 1912 AND NOWADAYS SPECIALISING IN THE MANUFACTURE OF ALUMINATE CEMENTS, IT WAS TAKEN OVER BY MAPEI IN 2000

Górka Cement is a company manufacturing aluminate cements that was first established in 1912 in the Polish city of Trzebinia, not far from Krakow. The region is renowned for its long tradition of mining operations (i.e. extracting and refining zinc and coal) and numerous other industries were founded here over the centuries. Górka manufacturing plant was set up by count Edward Mycielski, who owned the land, and over the next 100 years the plant stayed in operation despite wars, occupation and changes in political changes. The history of Górka has been inseparably entwined with everything that has happened in Poland over the last century: the loss of business partners due to the First World War and the end of the Austro-Hungarian Empire; damage caused to production plants by the final battles of the Second World War; the beginning of aluminate cement manufacturing under the Górka brand dating back to late 1960s.

## 2000: MAPEI ARRIVES

Górka became part of the Mapei Group mainly thanks to Marco Squinzi, Mapei's current CEO, who came across this company while he was looking for a new supplier of calcium aluminate cements. He set about studying ways of adapting its products as raw materials for numerous Mapei cementitious products. Górka had already lost a lot of its customers following the political and economic transformations in Eastern Europe in the 1990s and was going into liquidation with serious cash flow problems. A trip to the manufacturing plant was organised, testing was carried out on the products, and a decision was made within a few weeks of opening talks and further analyses. So in 2000 the Mapei Group bought all the company's shares and since then lots of changes have been implemented: firstly, the staff locker rooms were renovated along with the production offices and new Research & Development and



## GÓRKA CEMENT

**1** PRODUCTION UNIT IN TRZEBINIA, NOT FAR FROM KRAKÓW

**4** PRODUCTION LINES (+ 1 ABOUT TO BE LAUNCHED)

**1** RESEARCH & DEVELOPMENT LABORATORY

**50** MILLION EUROS INCOME IN 2020

**190** STAFF

## OVER 100 YEARS IN BUSINESS

**1912**  
Creation of the Górka corporation.

**1913**  
Górka starts manufacturing cement sold to the Austro-Hungarian Empire, Russia and Germany.

**1960**  
Górka begins manufacturing aluminate binders.

**2000**  
The Mapei Group takes over all Górka's shares.

**2016**  
After being awarded ISO 9001 in 2009 Górka is adding ISO 14001 certification and OHSAS 18001 certifications to its integrated management system.

**2017**  
Górka Cement US Corporation, Górka's American subsidiary, is officially established.

**2019**  
A new burner is installed to reduce the environmental impact of manufacturing processes.

**2020**  
Górka celebrates 20 years as part of the Mapei Group.



**LEFT.** After being taken over by Mapei, the Górka production facility is now a cutting-edge manufacturing plant equipped with modern manufacturing units as well as storage facilities and silos that have recently been extended or modernised.





**LEFT.** A Górká worker examines the refractory lining inside kiln unit, making sure that there is no damage in the heat-resistant bricks, before starting the manufacturing processes at high temperature.

**BELOW.** A modern Research & Development Laboratory has been in operation at the Górká plant since 2018.

**BOTTOM OF THE PAGE.** Following the Mapei Group's acquisition, Górká launched new products on the market, including GÓRFLOW, first chemical modified cement in Górká portfolio.

Quality Control laboratories were built. Manufacturing processes were optimised, and all the plants and systems were modernised, the real beating heart of the company. First the cement grinding mills were revamped and then the kilns and ESP filters were redesigned to withstand new and more demanding manufacturing operations, tripling their production output. Silos were built for the white clinker and grey cements, all controlled by new automated software so every stage in the manufacturing process could be visualised and managed from anywhere in the plant. Plenty of attention was focused as usual on the environment, so new burners with low NOx (nitrogen oxides) levels were incorporated fitted with sensors for constant monitoring the emissions and thermodynamic processes. After

**After the takeover, Górká was reborn thanks to big investments including in R&D laboratories**



carrying out testing using infrared ray TV cameras and installing temperature probes, the refractory lining in the kiln was redesigned along with the heat recovery to boost energy efficiency during the clinker cooling phase. Today Górká is a company in "great shape": its turnover has reached almost 50 million Euros in 2019; it employs 190 staff (compared to 98 in 2000) and its products are now marketed in 65 foreign countries. New products have also been launched on the market, as well as a new range of HACAG aluminate aggregates. The company has been certified for quality ISO 9001 and environmental ISO 14001 certifications. Its attention for safety is confirmed by OHSAS 18001 certification which will soon be upgraded into 45001. Growth projects are continuing as exemplified by new investments, like, for instance, building a new storage facility for finished materials and another for raw materials.

## Why are alumina cements produced by Górká so important for Mapei?

High alumina cements produced by Górká, both in the grey version (G40, which contains at least 40% aluminium oxide) and in the white version (with 70% aluminium oxide content), are now used in many of Mapei's formulations. The most significant effect exploited when used in formulas based on mixtures of Portland cement and alumina cement is the significant reduction in the setting time of mixes, which means it becomes possible to produce rapid-setting products, whereas products containing only Portland cement have much longer setting times. This rapid-set property is represented on packaging and data sheets for Mapei products by the "Fast Track" logo, which is precisely one of the effects that can be obtained by using alumina cement technology. Very often, calcium sulphate is added to the Portland cement/alumina cement mix in order to obtain, by hydration, a species called ettringite, the properties of which are used to obtain products with special and unique properties.

The first example of applications using Górká alumina cement technology are F class rapid-setting cementitious adhesives, which allow fast accessibility of ceramic tiles installation. Moreover, tile adhesives that make proper use of the aluminate cement technology can quickly harden also in external applications at low temperatures. This, however, is not the only noteworthy characteristic of rapid-setting adhesives, for which the formation of ettringite, an element that captures 32 molecules of water, is also important: 47% of the weight of ettringite is given by the weight of the water it captures, which is 50% more than the amount captured during the hydration process of

Portland cement. This "water crystallisation" process is very important when installing natural stone, which is often highly sensitive to moisture and easily stained, preventing particularly unsightly aesthetic effects appearing in the stone, a common phenomenon when the wrong product is used. Adhesives developed specifically for installing natu-



**ABOVE.** Electronic microscope image of ettringite crystals, the chemical species that forms in Mapei binders based on Górká cements, the features of which are exploited to obtain products with special and unique properties.

ral stones sensitive to water, such as GRANIRAPID and ELASTORAPID, exploit the chemical mechanism described above in order to guarantee a product that is immune to the problem of staining. Alumina cement-based technology is also used for self-levelling products, particularly those from the ULTRAPLAN line, in which the rapid development of mechanical characteristics and the rapid-drying properties of the binder are exploited, thereby enabling surfaces to be covered by impermeable resilient materials within just a few days, and even within a few hours in the case of ultra-rapid products. Furthermore, the composition of the mix that makes up the binder phase, Portland cement, alumina

cement and calcium sulphate, may be controlled to minimise the movements taking place in the product due to hydration reactions. This is very important in the case of self-levellers to prevent detachment and the formation of cracks. These properties are even more evident in the case of ULTRATOP, a self-levelling product with an exposed finish which is formulated depending on its colour with G40 or G70 cement, whose quality aspects are particularly important for aesthetic reasons.

Another fruit of the application of the Górká cement technology is ULTRACOLOR PLUS, a grout used to create coloured joints, with properties that are yet to be matched by any other product available worldwide. Apart from the rapid development of its mechanical properties and shrinkage minimization that allows its application in joints up to 2 cm wide, it contains no Portland cement and, as a result, it does not generate calcium hydroxide crystals during the hydration phase, which would otherwise lead to the formation of efflorescence on the surface of the mortar. In this way ULTRACOLOR PLUS guarantees maximum colour stability.

The chemistry that regulates the mechanisms exploited in the formulation of alumina cement-based products is actually quite complex but the acquisition of Górká by Mapei has generated extraordinary synergic effort between the two companies into research work and production processes, thanks to which, over the years, Mapei products have managed to remain at the absolute technological forefront.

**Stefano Carrà.** Research & Development Laboratories, Mapei SpA (Italy).





## Meyrin (Canton of Geneva, Switzerland) HÔPITAL DE LA TOUR

INNOVATIVE PRODUCTS TO INSTALL DIFFERENT TYPES OF RESILIENT MATERIALS AND LVT IN A CUTTING-EDGE MEDICAL FACILITY

Hôpital de La Tour is the only private hospital in the west of Switzerland with a 24 hour A&E service and an intensive care unit equipped to treat complex cases with a multi-disciplinary approach. The hospital was opened in 1976 and, over the years, has had to adapt to the latest developments in medical technology and growth in the local population by carrying out renovation work on various buildings. 2020 represented a turning point for the hospital: it had become necessary to increase the capacity of the hospital and the range of equipment available for patient rehabilitation, but without compromising on the level of comfort enjoyed by the hospital's patients. The only solution possible was to construct a new

building, but this decision brought with it a number of challenges. The existing complex had a star-shaped layout and the new building would have to be inserted into this layout, while also blending in with the surrounding landscape. All this in a very restricted space. Furthermore, the routine activities carried out by the hospital had to continue while building work was being carried out.

### A multi-service building

The new building, which is home of the Swiss Olympic Medical Center, is three storeys high and includes a loft, a ground floor, a mezzanine floor and three floors below ground level. Inside the building there are a number of specialist clinics, various

**1.** Hôpital de la Tour is an important medical facility in the Canton of Geneva (Switzerland) and was recently extended to deal with the increasing needs of the local population.

**2.** ULTRABOND ECO 530 was used to install linoleum flooring in the corridors.

**3 and 4.** Woven vinyl flooring was installed in the reception areas and adjacent corridors using ULTRABOND ECO 4 LVT.

rehabilitation centres, 60 rooms for patients and several radiotherapy and radiology units. To protect people from radiation, these units are situated on the lower levels, isolated from the rest of the building by two-metre thick floors and walls.

At the centre of the architectural design there is the route patients take from the diagnostics area to the therapy units, which along the way passes through the various clinics and areas reserved for routine medical visits and occasional check-ups. There are also waiting and reception areas available for patients, out-patients and medical staff, all decorated in pastel shades with high quality fittings. Sunlight is the main source of light for the building.

Wide corridors run through the building, connecting and distributing spaces dedicated to plant rooms, service rooms, work areas, patient wards and reception and rest areas. During the static and dynamic surveys carried out before constructing the new complex, the possibility of extending the building by two additional storeys was taken into account.

### Products for substrates

Mapei's extensive range of products proved to be more than up to this prestigious project, allowing the contractors to have just one single supplier for the products required to install the various flooring materials. What is more, most of these products have been certified EMICODE EC1<sup>plus</sup> by the GEV Institute, an indication of their very low emission of volatile organic compounds (VOC).

MAPECEM PRONTO pre-blended, ready-to-use mortar was used for the quick-drying (24 hours), controlled-shrinkage screeds. PRIMER G, synthetic resin-based, water-dispersion







5

**5.** The PVC flooring in the plant rooms was installed with ULTRABOND ECO V4 SP FIBER while the linoleum flooring was installed with ULTRABOND ECO 530.  
**6.** In the areas used for sports activities, the PVC flooring was bonded with ULTRABOND ECO V4SP FIBER.  
**7.** The linoleum flooring in the patient wards was installed using ULTRABOND ECO 530.  
**8.** Homogeneous PVC flooring was chosen for the radiology department, which was installed with ULTRABOND ECO V4 SP CONDUCTIVE.

primer was applied on around 12,200 m<sup>2</sup> of substrates to prepare the surfaces before being skimmed. The skimming product used was PLANIPATCH XTRA, a thixotropic, rapid-hardening product which is distributed in Switzerland by Mapei Suisse. EPORIP TURBO rapid-hardening polyester resin was used to repair minor cracks in the substrates and carry out minor repairs.

**Installing LVT, linoleum and PVC**

The next step was to install the various types of floor covering which, as specified by the client, had to be resistant, easy to clean and have an attractive finish. Woven vinyl flooring with a highly original pattern was chosen for the floors in the consulting rooms, corridors and administration offices.

In the reception areas and adjacent corridors the substrates were prepared by applying a layer of ULTRAPLAN ECO XTRA, a self-levelling mortar distributed in Switzerland by Mapei Suisse, before bonding the vinyl flooring with ULTRABOND ECO 4LVT, a solvent-free, fibre-reinforced adhesive particularly suitable for heavy wear use in domestic, commercial and industrial locations (hospitals, shopping centres, airports). Various types of linoleum flooring were installed in the wards and corridors using ULTRABOND ECO 530 adhesive in water dispersion. The surrounding walls were also covered with linoleum up to a height of one metre with ULTRABOND ECO 530 and ADESILEX LP adhesives, as well as MAPECONTACT double-sided reinforced adhesive strip.



6



7



8

The homogeneous PVC floorings in the radiology department wards were bonded with ULTRABOND ECO V4SP CONDUCTIVE, a light-coloured adhesive in water dispersion with very low emission of volatile organic compounds (VOC) for conductive floors. In the areas used for sports activities, the PVC flooring was bonded with ULTRABOND ECO V4SP FIBER, very high performance, fibre-reinforced rubber and PVC adhesive, which was also used for the PVC floors in the service rooms and post-op recovery wards.

From a technical point of view, building such a complex structure that has such an impact on the local community inevitably involves having to tackle difficult challenges. Overcoming these challenges required great teamwork between all the tradesmen, technicians and engineers involved in the work, as well as being able to count on reliable materials. And, thanks to the technical support provided by Mapei, the products supplied by Mapei were used correctly, enabling the objectives set at the beginning of the project to be achieved in full.

**ULTRABOND ECO V4SP CONDUCTIVE**

Light-coloured adhesive in water dispersion with very low emission of volatile organic compounds (VOC) for conductive flooring.

**FIND OUT MORE**



**TECHNICAL DATA**

**Hôpital de la Tour**, Meyrin (Canton of Geneva, Suisse)  
**Period of construction:** 1970s  
**Period of extension works:** 2016–2019  
**Period of the Mapei intervention:** 2016–2019  
**Client:** Hôpital de la Tour  
**Design:** de Planta et Associés and Aris Serbetis Architecte; Tridimensions

architectes SA  
**Contractor:** Gestron Services (Suisse) SA  
**Installation companies:** Anhy SA and Realsport Goup  
**Mapei coordinator:** Marcel Maieron, Mapei Suisse SA (Switzerland)  
**Photos:** Sébastien Crettaz  
**MAPEI PRODUCTS:**  
**Building screeds:** Mapecem Pronto

**Preparing substrates:** Eporip Turbo, Fiberplan, Mapenet 150, Planipatch, Planipatch Xtra\*, Primer G, Primer G Conductive, Primer MF, Ultraplan Eco, Ultraplan Eco Xtra\*, Ultraplan Maxi  
**Installing resilient floors:** Mapecontact, Ultrabond Eco 4LVT, Ultrabond Eco 530, Ultrabond Eco V4SP, Adesilex LP, Ultrabond

Eco V4SP Conductive, Ultrabond Eco V4SP Fiber, Ultrabond MS Rapid  
 \*These products are distributed on the Swiss market by Mapei Suisse SA (Switzerland)  
 For further information on products visit [mapei.com](http://mapei.com)



# Marco Squinzi is Vice-President of Federchimica

MAPEI'S CEO HAS BEEN PLACED IN CHARGE OF PRODUCT SAFETY



FROM LEFT. Marco Squinzi and Veronica Squinzi with Paolo Lamberti, President of Federchimica.

Marco Squinzi, CEO of the Mapei Group, has been appointed Vice-President of the Italian Federation of the Chemical Industry (Federchimica) after his name was put forward by the President Paolo Lamberti. Marco Squinzi, who has been a member of the Presidential Committee since September 2017, has been placed in charge of Product Safety.

This is a strategic part of the Italian Federation of the Chemical Industry, bearing in mind that the chemical industry is one of the most regulated sectors in the whole of industry, which must comply with a long list of norms and authorisations before being able to manufacture and market its products.

The safety of chemical substances is controlled by both European and national standards, most notably REACH (Registration, Evaluation, Authorisation and restriction of Chemicals), the European Union regulation, which sets the standards for chemical substances. Another important resolution issued on a European level is the CLP (Classification, Labelling and Packaging) regulating the system for classifying, labelling and packaging chemical substances and mixes of them. These are just two examples of extremely elaborate sets of regula-

tions in this sector and Federchimica has consistently paid great attention to these issues by providing support to its over 1400 associate companies. Its commitment also extends to other important regulations such as rules governing medical-surgical products and devices, as well as biocides, i.e. the control and authorisation of a wide range of products such as insecticides and disinfectants. The Vice-President of Federchimica in charge of Product Safety works very closely on a daily basis with all the companies represented by the Federation.

This is also a "relational" job, because the Vice-President must represent the demands of the Italian chemical industry in relation to both national and European political institutes. "The task I have taken on - so Marco Squinzi explained - carries great responsibility, because the issue of product safety has a decisive impact on the operations of chemical companies and their competitiveness on the global market, bearing in mind we must compete with countries whose regulations are much less stringent than those in Europe, as is the case, for instance, in the USA".

## The situation in the chemical industry

The Italian chemical industry is having to deal with the tricky economic situation deriving from the Covid-19 pandemic, but it expects to enjoy a revival in 2021. According to a study carried out by Federchimica (which

## SIGNS OF RECOVERY IN 2021

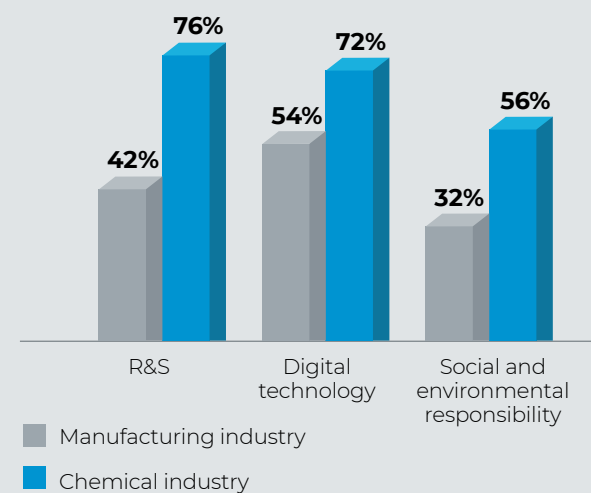
(Forecasts for chemical industry in Italy)

	(% variation in output)		
	2019	2020	2021
Domestic demand	-0.7	-11.0	+5.0
Imports	-2.8	-9.0	+4.5
Exports	-3.0	-7.0	+3.5
<b>Production</b>	-0.1	-10.2	+4.5

Source: Istat and Federchimica

## CHEMICALS TOP THE RANKINGS

Share of business for main realms of investment (Given as a %)



Source: Istat (The Italian National Institute of Statistics) and Federchimica

has cancelled its public assembly that was planned to be held in June this year and will instead hold a private assembly in the autumn, open only to its associate companies), the sector has been hit hard but less heavily than the rest of industry and it has guaranteed the supply of all those indispensable products/materials required to tackle the healthcare crisis. This has limited its losses: for example, compared to a drop in manufacturing output of 20.2% over the first five months of 2020, the Italian chemical industry has only dropped by 11.9%. Based on the current state of affairs, the Federation expects to close 2020 with a drop in industrial production of around 10%. Provided there is no second wave of the virus and assuming a vaccine is developed, next year's manufacturing output should rise again at a steady rate (+4.5%).

One of the most pressing concerns are possible repercussions in terms of customer liquidity. Nevertheless, the chemical industry is still one of the most solid sec-

## FEDERCHIMICA (Italian Federation of the Chemical Industry)

Federchimica is the abbreviated name of the Italian Federation of the chemical industry. It was founded in 1916 as the Italian Association of chemical-pharmaceutical entrepreneurs, in 1920 it became the Italian Federation of Chemical Industry Associations, and in 1945 it became Aschimici. It was transformed into Federchimica in 1984.

At the present time 1400 companies, with a total of 90,000 employees, are part of Federchimica. They are grouped into 17 Associations, articulated into 37 product groups. Federchimica is a member of Confindustria (Confederation of the Italian manufacturing and service companies) and CEFIC (European Chemical Industry Council).



**The Italian chemical industry has been badly affected by the Covid-19 pandemic in 2020, but it has been hit less heavily than the rest of the manufacturing industry. A recovery in production (+4.5%) is expected in 2021**

tors from an economic-financial viewpoint, as can be seen from the fact it has the lowest rate of bad debt on the whole of the Italian industrial scene: 1.5% compared to an average of 5.3% in the manufacturing industry in general.

According to the Federation's latest report, the revival in demand has varied considerably across different customer sectors: there is still a high demand for chemical products in the fields of health and hygiene and, while there are some positive signs in the building industry, the car industry is struggling to recover due to weak demand and high levels of unsold stock. And in view of a recovery period in industry, according to the Italian Federation of the Chemical Industry "the Recovery Fund (EU funds intended to ensure a sustainable recovery of the Union) provides an important opportunity to support the revival and the environmental-digital transformation process in Italy with the aid of extremely high public and private funding".



# Saying thank you in a colourful way

STREET ART IN HOSPITALS TO PAY TRIBUTE TO THE HEALTH WORKERS INVOLVED IN THE COVID-19 EMERGENCY

Using art to thank the medical staff and health workers who were in the front line in the battle to stop Covid-19 from spreading. One hundred thousand people in the Lazio region (Central Italy) and over one million people all over Italy worked relentlessly to look after the sick during the worst period of the pandemic. The "Diciamo grazie insieme (Let's say thank you together)" project, which resulted in the creation of 12 murals in 12 different hospitals in the Lazio region, was a way of acknowledging and paying tribute to all the hard work they did. It was also intended to leave a tangible sign for the future and promote a general feeling of optimism and solidarity. The project, which was promoted by the Lazio Regional Council, involved nine street artists who have always been committed to social work (Agostino Iacurci, Alice Pasquini, Greg Jager, Gummy Guè, Jonathan Calugi, Joys, Krayon, Lucamaleonte and Studio tuta). Working in their own distinctive style, each of the artists came up with their own idea for a mural located inside or outside the hospitals. The hospitals involved are located in Rome, Rieti, Latina,

Viterbo and Frosinone. Mapei contributed to the project by donating COLORITE PERFORMANCE paint made up of non-saponifiable, pure acrylic resin in water dispersion, which is used for painting all old and new surfaces, including those which are already painted, where both an attractive, smooth finish and a long-lasting, protective coat against environmental aggression and sun light are required. The street artists used this paint to create the murals. This support came in addition to other donations and projects Mapei has been involved in as part of the fight against the Covid-19 pandemic (see *Realtà Mapei International* no. 80).



**BELOW.** Mapei participated to the "Let's say thank you together" project by donating COLORITE PERFORMANCE paint to create the murals. In the bottom of the page, two of the murals created in the hospitals.



## Two concerts to remember the victims

Two concerts were held in the Cavea del Teatro del Maggio Musicale Fiorentino on 30<sup>th</sup> and 31<sup>st</sup> August in memory of the victims of the pandemic and to pay tribute to health staff working in Covid-19 departments. Both these events were extremely well attended by the general public, and healthcare staff and their families were able to attend free of charge. This was music's way of thanking all those people who, over the last few months, have worked so hard to save human lives. The President of the Italian Republic, Sergio Mattarella, sent a video message for the first concert, emphasising that "Remembering one of the most arduous and painful moments the Italian Republic has ever had to face strengthens our bonds of friendship and solidarity and encourages people to hold onto those civic values that came to the fore during that period". The Maggio Musicale Fiorentino's orchestra and choir were conducted by the maestro Zubin Mehta in a performance of Giuseppe Verdi's *Requiem*. Mapei contributed to the concert by buying a large number of tickets reserved for health care workers and members of the victims' families.



**ABOVE.** The Maggio Musicale Fiorentino's orchestra and choir were conducted by the maestro Zubin Mehta in a performance of Giuseppe Verdi's *Requiem* in memory of the victims of the pandemic.  
**RIGHT.** Mapei clients visiting the exhibition "Ulysses. Art and Myth" at San Domenico Museums in Forlì.

## Together in the name of art

The Peggy Guggenheim Collection in Venice has launched a crowdfunding campaign called "Together for the PGC" to make its own art collection accessible on a daily basis and guarantee that all public educational activities are free of charge, as stipulated in its corporate mission. After being forced to close down for 13 weeks, the museum now hopes to be able to reopen six days-a-week with free entry for children up to the age of 10. There will also be a range of free activities available to visitors. For this reason, the Collection is asking its wide community of supporters to make a donation, so it can continue its work and write a fresh page in its history.

Mapei is joining forces with this community by promoting the #effettoguggenheimintrapresae campaign with dedicated posts on its social media. Mapei has been a member of Guggenheim Intrapresae community since 2008, a group of businesses that work with the museum and support its various enterprises (see *Realtà Mapei International* no. 52 and 62). Mapei's backing of the Peggy Guggenheim Foundation over the years has also taken the form of a series of contributions to renovation works carried out on the coffee bar in 2016 (see *Realtà Mapei International* no. 60) and on the façades in 2009 (see *Realtà Mapei International* no 31).

## Ulysses: An endless journey

The exhibition entitled ("Ulysses. Art and Myth") sponsored by Mapei, which is currently on display at San Domenico Museums in Forlì (Central Italy), will draw to a close on 31<sup>st</sup> October. This exhibition of over 200 works reconstructs the close relationship down the centuries between the myth of Ulysses and its artistic representation. Paintings, sculptures, miniatures, mosaics, ceramics, tapestries and graphic works describe Ulysses' journey as a journey through art. Having now reopened after being forced to close down, the exhibition has lately attracted lots of visitors. Several groups of Mapei clients also retraced Ulysses' journey on museum tours specially arranged for them.



© Matteo de Fina

© Michele Monasta





# UCI Road World Championships: Mapei rekindles an “old flame”

THIS YEAR THE COMPANY SPONSORED THE ROAD WORLD CHAMPIONSHIPS HELD IN IMOLA

In keeping with what is now a tradition, Mapei sponsored the UCI Road World Championships again this year.

The races were held in Emilia-Romagna (Central Italy) from 24<sup>th</sup> to 27<sup>th</sup> September at the Enzo and Dino Ferrari Racing Circuit and around the surrounding hillsides. It was organised by the International Cycling Union (UCI), whose Main Sponsor continues to be Mapei.

The 2020 Road World Championships were originally scheduled to be held in Aigle-Martigny in the French-speaking part of Switzerland. The Swiss organisers had to cancel the event due to problems associated with Covid-19, so the Road World Championships were very quickly rescheduled to take place in Emilia-Romagna, a region in Central Italy with which Mapei has very close business and sporting ties.

Mapei's distribution centre is located

just a few miles away in Sassuolo. The centre serves and provides assistance to the customers of a world-famous ceramics district. The Mapei Group's subsidiaries Adesital, Cercol and Mosaico+ are also based in Emilia Romagna.

“We are delighted the 2020 Road World Championships were held in Italy, a country with a great tradition for cycling that we share”, so Veronica Squinzi stated, Mapei's CEO.

“Being the UCI's Main Sponsor - so Veronica Squinzi went on to say - confirms the company's very close ties with a sport it has always supported and whose intrinsic values are in Mapei's DNA and in our family's”. Marco and Veronica Squinzi, both CEO of the Mapei Group, took part in the special gala evening hosted at Imola Racing Circuit.

“We are glad the rainbow jerseys for the road races will be awarded in a

**Lots of cycling greats that wore the Mapei cycling jersey in the Mapei Hospitality area**



**TOP OF THE PAGE.** Elite Men's road race and Mapei Hospitality areas at the finish line and VIP lounge. **THIS PHOTO.** Scene from the time trial races.



## A “social” event

The 2020 UCI Road World Cup Championships were followed every day through live broadcasts, stories, and posts on Mapei’s various social media. More specifically, 32 stories were published on Instagram, there were 10 posts and 19 live broadcasts on Facebook, and 2 posts of a more official nature on LinkedIn. The posts, interviews with riders, former cyclists and Mapei clients, and all the stories about the races and “behind the scenes” events, attracted plenty of followers. There was lots of interaction, Likes, comments and shares, as well as a boost of the overall number of followers. Mapei’s subsidiaries were also keen to accept the invitation to follow this major event on their profiles. Some, like Mapei Colombia and Mapei Panama, even organised their own communication projects focusing on the event. Mapei Suisse arranged a charity auction for the cycling jerseys prepared for the Road World Cup Championships that were originally supposed to take place in Aigle-Martigny.



region that is so important to Mapei, which has been our Main Sponsor every year since the 2008 Road World Championships in Varese”, so David Lappartient noted, the President of the UCI.

### ON TV WORLDWIDE

The racing schedule of the world championships in Imola enclosed four races. The two individual time trials (an Elite Men’s time trial and an Elite Women’s time trial) and two road races (again both men’s and women’s)

were both tele-vised from the very start across five continents. The Mapei brand was constantly on show during the four days of fully televised cycling of the highest calibre. The Mapei logo appeared on thousands of banners and inflatable arches, prize-giving panels, press conferences, advertising totems, and communications materials.

### HOSPITALITY PROGRAM

Mapei was able to welcome its guests in two Hospitality areas. The Mapei Motorhome was parked just 150 m away from the finish line. This area was also equipped with gazebos and tables for hosting and entertaining the guests who watched the races live in very close contact with the racers as they sped by. Mapei guests also had access to the Mapei Hospitality Area in the MAICC Museum. Mapei provided MAPESEPT GEL for

washing your hands and MAPESEPT LIQUID for disinfecting tabletops. The two MAPESEPT products were also handed out with other gadgets to Mapei guests.

As usual, the event in Imola provided a wonderful public relations opportunity for the Mapei Group. Interviews with former cycling greats, who used to ride for the Mapei Professional Cycling team, and also VIPs and members of the old management staff, were very popular on Mapei’s social media.

## Being the Main Sponsor confirms Mapei's close ties with cycling

### THE SPELLBINDING HISTORY OF MAPEI PROFESSIONAL CYCLING TEAM

Lots of cycling greats, who gathered in the paddock at Imola over the four days of racing, remembered Giorgio

Squinzi and Adriana Spazzoli with great fondness and commotion.

“I only raced for the Mapei team in 1997-98 – Gianni Bugno told us - which were the last two years of my career, because I had always been locked in long-term contracts with other teams. Even though I was at the end of my career, I fitted in perfectly with both the Mapei team and Squinzi family. There was a wonderful atmosphere at the Mapei team”. Paolo Bettini, who raced in the Mapei Professional Cycling Team for four seasons, also visited the Mapei area. Bettini won two Liège-Bastogne-Liège, a Zurich Grand Prix and a World Cup while racing in in the Mapei colours. “Mr Giorgio Squinzi treated me so well, as did the rest of the Mapei team - so Paolo told us – I am sorry I only managed to win a race he was so fond of (the Milan-San Remo) in 2003, just a few months after Mapei withdrew from competitive racing”. Bettini won the UCI Road World Championship in 2006 and 2007. “The first person to call and congratulate me – so Bettini was keen to point out - was Mr Squinzi himself”. The Mapei team truly revolutionised cycling.

Filippo Pozzato raced for the team from 2000-2002: he was the first Italian to move up from the junior ranks directly to the professionals: “It was Mr Squinzi who, more than anybody else, encouraged me to sign for his team without racing as an amateur. I owe him so much”.

Filippo Pozzato raced for the team from 2000-2002: he was the first Italian to move up from the junior ranks directly to the professionals: “It was Mr Squinzi who, more than anybody else, encouraged me to sign for his team without racing as an amateur. I owe him so much”.

### UCI AND OTHER VIPs AT THE MICROPHONE

Other people who gave interviews to Mapei in the lounge included the Vice President of UCI, Renato Di Rocco, the Sports Director of the Mapei Professional Cycling Team from 2000 to 2002, Roberto Damiani, Letizia Paternoster (a rider who undergoes testing at Mapei Sport Centre), and the former great Francesco Moser, famous for his hour world records. After he retired from professional cycling, Francesco Moser also set the veteran’s hour world record in 1994 in Mexico City. “In 1994, the inside of the track was in a terrible state – so Moser told us - but Giorgio Squinzi supplied us with products and technical support, so we could sort it out to perfection”.

Vittorio Adorni won the Road World Championship at Imola in 1968 and has always been a friend of the Squinzi family. “It was Ercole Baldini and I – so Adorni explained - who got Mr Squinzi involved in cycling. It was mainly due to Baldini, who put him in touch with Marco Giovannetti in May 1993, which eventually led to the creation of a team that went on to rule the world of cycling. During my period as an executive at the UCI, I persuaded Giorgio Squinzi to sponsor the Road World Championships. Giorgio and I also shared a love of opera music”. Other people seen in the paddocks included Beppe Saronni and Patrick Lefevere, both former managers at the Mapei team, and former professional cyclists for the Mapei team, Andrea Tafi and Davide Bramati.

# Two world championship bronzes for Mapei Sport

PODIUM FINISHES FOR ELLEN VAN DIJK AND ELISA LONGO BORGHINI

Various men and women cyclists, who undergo assessment testing under the supervision of Mapei Sport staff, took part in the UCI Road World Cup Championships. Among them, the best results at the finishing line came from two women, Ellen Van Dijk (Netherlands) and Elisa Longo Borghini (Italy).

Both ride for the Trek-Segafredo team and underwent testing under the watchful eye of Andrea Morelli and Matteo Azzolini during team training camps (see *Realtà Mapei International* no. 79 and 81). “Last year Van Dijk suffered a serious accident – so coach Morelli explained - and she had to work tremendously hard to recover. Finishing third in the Imola time trial shows she is back to her best”.

The elite women’s time trial gold medal was won by the brilliant Dutch rider Anna Van Der Breggen ahead of Marlen Reusser (Switzerland). Anybody familiar with Ellen Van Dijk’s sporting background will know that winning a bronze medal will not satisfy somebody who always expects to win gold. It is worth remembering that Van Dijk won the gold medal at the time trial held at the 2013 world championships in Florence. Referring to Ellen’s performance at Imola, Morelli had this to say: “Ellen could have pushed harder over the first few kilometres. If she had been bolder during the first part of the race, she could have won the gold medal”.

Elisa Longo Borghini, born in 1991, won the bronze medal in the road race. Van Der Breggen distanced all her rivals to win the road race, too. Elisa and the Dutch rider Annemiek Van Vleuten fought out a sprint finish for the silver medal with Van Vleuten getting the better of her Italian rival.

Finishing behind Van Der Breggen and Van Vleuten means being beaten by the world’s best cyclists, so Morelli, Azzolini and other members of Mapei Sport staff were delighted with Elisa’s bronze medal. Elisa’s trainer, Paolo Slongo, and Josu Larrazabal, Trek-Segafredo’s Head of Performance who helps Van Dijk with her training, were also pleased with the rider’s achievements. Luca Guercilena, Trek-Segafredo’s General Manager, was also proud of his riders and happy with the closing results of these World Championships!

**BELOW.** The podium for the Women’s road race. From left on: Van Vleuten, Van Der Breggen, Longo Borghini.







# Sassuolo reaches 100



## FOUNDED IN 1920. ONWARDS AND UPWARDS TOWARDS NEW GOALS

Congratulations to Sassuolo Football Club on its 100<sup>th</sup> anniversary. It "came of age" in 2020, eighteen years after being taken over by the Mapei Group. It has just begun its eighth season in the Italian Serie A.

The press conference to celebrate the club's centenary, which was held on 17<sup>th</sup> July at the ultramodern Mapei Football Center, was attended by Marco Squinzi, Mapei's CEO, Veronica Squinzi, Vice-President of Sassuolo and Mapei's CEO, Carlo Rossi, President and CEO of Sassuolo, Gio-

vanni Carnevali, the club's Managing Director, the team captain Francesco Magnanelli, and the team manager Roberto De Zerbi.

"The writer Giovanardi - so Carlo Rossi told us - verified that the club was officially registered on 17<sup>th</sup> July 1920, although many people believe that Sassuolo was first established in 1922." The club competed in amateur leagues for many years before playing its first season in professional football in the Italian C2 division in 1984-1985. It was even relegated to

a lower regional division before getting back to professional football on a more permanent basis from the 1998-1999 season.

Mapei was the team's main sponsor from 1988 to 1991. "Sassuolo is now owned by Mapei and - so Rossi notes - that is vitally important for us; we will do everything we can to achieve Giorgio Squinzi's (Mapei Group's former CEO) goal: to play in the Champions League". It is worth noting that Sassuolo qualified for the 2016-2017 Europa League.

"The entire Mapei Group - so Veronica Squinzi pointed out - believes in Sassuolo, as we show on a daily basis. We love this team and my parents had great faith in it. The entire company wants to continue this dream". Veronica Squinzi then went on to add: "I want the team to know that we have no intention of stopping here. We are on a long journey. Our sponsorship began as payback for the role the Sassuolo ceramic district played in the success of Mapei products. Now Sassuolo Football Club is very much alive and kicking and is part of our growth strategy. We are determined to be successful. Never stop pedalling: Mapei is guided by one of my father's favourite sayings that is our motto. We share many values with football. Mapei has always believed in scientific research ever since it founded Mapei Sport. We bought the stadium in Reggio Emilia (Central Italy), built the Mapei Football Center in Sassuolo, and approved the introduction of a women's team. We believe in the Sassuolo project that also supports young people and

social issues".

Marco Squinzi has come up with another slogan: "Winning together. Working together with great determination towards ambitious, shared goals. My father's strategy, which has been taken up and shared by the rest of the family, will be continued as we strive towards even more important goals and ambitious targets. Our players are united and believe they can achieve these results, and when you have belief you can achieve anything. But it takes resources. Having invested in people and youngsters, so they could become part of the Sassuolo project and not just temporary guests, is vital for keeping that team spirit which got us promoted from the second division into the top division and then into Europe".

### AN EXAMPLE FOR EVERYBODY

Paolo Dal Pino, President of the Football League, had this to say: "Sassuolo set an example to everybody, a real sporting and business success. Mapei even owns its own stadium and provides Sassuolo with a powerful management team. Carnevali and his staff have achieved important results."

Gabriele Gravina, Chairman of the Italian Football Association, also sent a message for the club's 100<sup>th</sup> birthday: "Thanks to the support of the Mapei Group and the hard work of its highly qualified management team, Sassuolo has established itself as a club with a program, a modern club both on and off the pitch. It has invested without losing its identity, maintaining its close ties with its surroundings. It sets a fine example for the rest of Italian football".

### A ROAD NAMED AFTER THE OWNER, A PITCH NAMED AFTER THE VICE-PRESIDENT

As part of Sassuolo's centenary celebrations, the club announced some of its new projects, including an agreement it has made with the City Council. "The new road to Mapei Football Center that is currently under construction - so Giovanni Carnevali explained - will be named after Giorgio Squinzi. A new synthetic grass pitch will be named after Adriana Spazzoli, who was the club's Vice-President and the Mapei Group's Operational Marketing and Communication Director. Our youth teams will play their official matches on this pitch, which will also be used to host social events in partnership with Sassuolo City Council".



Speakers at the 100<sup>th</sup> anniversary celebrations: Francesco Magnanelli, Carlo Rossi, Marco Squinzi, Veronica Squinzi, Giovanni Carnevali and Roberto De Zerbi.



ABOVE. 1950s: Sassuolo players being cheered on by their fans. Back then the team played in the highest amateur leagues.



# Sassuolo now has a more competitive squad

“OUR FIRST GOAL IS NOT TO BE RELEGATED, BUT WE ALSO WANT TO TRY AND AMAZE EVERYBODY”, SO THE SPORT DIRECTOR, MR ROSSI, STATED

The 2019-20 season ended with Sassuolo in great form, finishing eighth in the table. The 2020-21 season has already begun. “The Italian Serie A - so Giovanni Rossi, Sassuolo’s Sport Director, noted - will be extremely tricky and it is already a great success, for both us and our owners, to be playing in the top division for the eighth season in a row. Our first goal is to get enough points not to be relegated, after that we will try and finish as high up the table as possible without losing the desire to amaze everybody and play our very best”.

Sassuolo managed to hold onto all its top players during the latest transfer campaign. Despite all the offers the Mapei-owned club received, it did not have to sell any of its leading players and the only new arrivals (except players returning from being on loan and the completion of unfinished signings) were the Uruguayan Nicolas Schiappacasse, the French Maxime Lopez, and the Turkish central defender, Kaan Ayhan, who was signed from Fortuna Düsseldorf (Germany). “We know all about Ayhan - so the team manager, Roberto De Zerbi, told us -, we had been watching his progress for a year and he is a great player.” In a few months Filippo Romagna will also be able to play again after recovering from the injury he got in March. Last year, Romagna was at Sassuolo on loan from Cagliari; the Mapei-sponsored club has now decided to sign him permanently.

“We have not released any top players, so completing Romagna’s transfer and our new signings means we have strengthened the squad even further” De Zerbi said.

2020 is a very unusual year due to the Covid-19 pandemic. “The 2019-20 championship - so De Zerbi went on to say - finished on 2<sup>nd</sup> August, so we have only had a short break and then very little time to prepare for the new season. Lots of my players were also called up to play for their national teams at the end of August and, although this adds to the club’s prestige, it did rather interfere with our plans”.

According to the midfielder Manuel Locatelli, last year De Zerbi “used his whip wisely”. On several occasions Sassuolo’s manager encouraged Manuel to step up his game and be more consistent. He was well rewarded: Juventus tried to sign him throughout the summer, and he was even called up for Mancini’s national team.

#### PLAYERS THAT NEED TO IMPROVE

“Without being too hard on them - so De Zerbi claimed - the Sassuolo team staff and I need to bring on our young players: Rogerio, Boga, Traorè, Müldür, Raspadori and other youngsters can certainly reach very high standards and have plenty of room for improvement. Traorè made a real impact when he first joined Sassuolo and played very well, but then problems with his passport and papers interfered with his progress, hardly surprising for a youngster”.

The 2019-20 season ended on a high note for Sassuolo. “My main concern is not any tactical changes - so De Zerbi pointed out - but to make sure every player is in their best position”.

Just like at the end of last season, teams will again be able to make five substitutions during matches this season, which means we will be able to rotate the whole squad more effectively: “A striker like Raspadori, who was initially behind two players

of the calibre of Caputo and Defrel in the pecking order, will now have more opportunities to make a real impact” so De Zerbi pointed out.



**TOP.** Sassuolo’s striker Grégoire Defrel.

**LEFT.** Kaan Ayhan, who plays in defence for Sassuolo and Turkey.

## LOTS OF SASSUOLO PLAYERS SELECTED FOR THEIR NATIONAL TEAMS

At the beginning of October, international teams played matches in the Nations Cup and lots of Sassuolo players were called up for their national teams. The Italian team manager, Roberto Mancini, picked Berardi, Caputo and Locatelli in his starting line-up. Haraslin played for Slovakia and Vlad Chiriches for Romania. The new signing Kaan Ayhan and Mert Müldür (shown in the photo) played for Turkey, Kyriakopoulos was picked for Greece and Djuricic represented Serbia. As regards youth players, the Italian Under 21 team called up Raspadori, while Turati was selected for the Under 20 team. Several players of the Sassuolo women’s football team were also picked to play for the Italian women’s teams.



## CARNEVALI: “PUMA BOOSTS OUR REPUTATION”

Puma is the new official sponsor for the technical kit of all Sassuolo’s men’s and women’s teams for the 2020-21 season. The multinational sports clothing company also designed the eye-catching centenary team shirt featuring narrow stripes (see the article in the previous pages). “Having a prestigious brand like Puma on our team kit - so Giovanni Carnevali, Sassuolo’s CEO and General Manager, noted - shows that our club has an excellent international reputation and is growing fast”. All the official team kit and clothing will have the new Sassuolo logo on it, featuring gold outlines/lettering and the number “100” clearly in view. The new Sassuolo Store will also be opening soon in partnership with Puma. It will be located in Sassuolo town centre where Sassuolo fans and supporters will be able to buy official clothing, gadgets, flags, scarves and match tickets.

**Sassuolo managed to hold onto all its top players during the latest transfer campaign**



## Haraslin: “I want to score lots of goals”

### DE ZERBI HAS AN EXTRA WEAPON ON THE LEFT WING

Lukas Haraslin scored against Cagliari in the first match of the 2020-21 season. He was born in Bratislava, the capital of Slovakia, and began playing for Slovan Bratislava. “My dream was to be a really great creative striker,” he says “partly because my dad, Josef, played in the number 10 shirt for teams in both Slovakia and Austria. I can tell you that when I was at Slovan and then later on during my first few months of Parma, I always wanted to wear the number 10 shirt as an attacking midfielder. They made me play in a different position for Parma and now I am now happy to play out wide for Sassuolo”. He made his debut in the Italian Serie A in the match between AC Milan and Parma at San Siro Stadium in 2015. “I had already played at San Siro Stadium when I was a young boy after winning a tournament. When the team manager of Parma, Roberto Donadoni, told me on the morning of 1<sup>st</sup> February that I would be playing that afternoon against AC Milan, I was incredibly nervous and excited. For a few hours I was in a daze, but then, when I went out on the pitch, all my nerves left me and I was just ready to play the match and enjoy a dream come true”.

### IMPROVING THE GOALSCORING AVERAGE

Haraslin played for Lechia Gdansk for four and a half years, scoring 12 goals. “I certainly hope to improve my goalscoring average. I played plenty of matches for Lechia and even got picked to play for Slovakia, but I did not score many goals. I had plenty of chances to score, but I did not have much luck. Nevertheless, I laid on plenty of goals for my teammates in crucial matches. Now I am really happy to play for Sassuolo and I want to score lots of goals to help the team get to the top. I feel great and I want to do well”, so Haraslin went on to say. Lukas scored against Bologna at Dallara Stadium in last season's final match. “It is my most memorable match playing for Sassuolo” he says. Skriniar is another Slovakian footballer, who plays for Inter Milan this

season. “Skriniar is better than me,” Haraslin said. “because he has already been chosen as Slovakian footballer of the year and is now a key player in Inter Milan's first team. Put it this way (editor's note, he had a smile on his face): Skriniar is the best defender in Slovakia and I am the best striker”. Until a few years ago, the most famous Slovakian footballer in the Italian league was Marek Hamsik, who was a real favourite at Napoli and played a record number of games. Haraslin dreams about becoming the kind of player for Sassuolo that Hamsik was for Napoli: “It would be wonderful if I could become an important player for Sassuolo. I can only promise I will do my best to succeed. I love playing for Sassuolo and I hope my teammates in this magnificent team enjoy playing with me: we must win together”.



**LEFT.** Lukas Haraslin, aged 24, plays for Slovakia and as a forward for Sassuolo.

## Sassuolo's women's squad now has its own “little Messi”

HALEY BUGEJA DRIBBLES AND SCORES. ALESSANDRO TERZI, DEVELOPMENT DIRECTOR OF WOMEN'S FOOTBALL: “WE ARE SETTING OUR SIGHTS HIGH”

Sassuolo women's football team, which has been playing in the Italian Serie A for the fourth year running, is one of the teams with the lowest average age. Much of the success Sassuolo has achieved over the last few years is undoubtedly due to Alessandro Terzi, who is the Development Director in charge of the Women's Football Area. The team manager is Gianpiero Piovani and the team's most spectacular player at the beginning of the 2020-21 season is just 16 years old; we are talking about the Maltese forward Haley Bugeja who

the club has just bought. She used to play for Mgarr United in Malta and before coming to Sassuolo she scored 140 goals in 63 matches. Haley has begun the 2020-21 season scoring plenty of goals and showing off her incredible skills: “We began keeping an eye on Bugeja in December 2018 in a youth team competition - so Alessandro Terzi explained - and then Hayley came to Sassuolo in May 2019 for a trial period; we then bought her 12 months later”.

**Mr. Terzi, some people have described this young player from Malta as a “Little Messi”. Are they all getting a bit carried away?**

“Haley is extremely talented and, although one does like making comparisons, they can be tough to shake off. She is just 16 and she will have to overcome plenty of obstacles along the way. She will go through some bad moments, so we should not place too much pressure on this young girl. She is physically very strong and can control the ball with both feet at high speed, which is quite remarkable. I have seen very few men or women players with that kind of skill and control. Bugeja's ball skills make her a formidable player”.

**Is the Sassuolo team for the 2020-21 season any different from last season's team?**

“It is basically the same squad as 2019-20 with a year's added experience. We are reaping the rewards of the hard work we did last season. Maria Luisa Filangeri, Valeria Monterubbiano and other girls in last season's squad have now improved and have



**TOP.** Alessandro Terzi and the team manager Gianpiero Piovani.

**BOTTOM.** The forward Haley Bugeja.

started this season in better form”.

**Are the players' expectations higher?**

“Of course, you never play just to take part. My head tells me I have a good team that can set its sights high, as long as everybody keeps their feet firmly on the ground. And we have Martina Lenzini and Maria Luisa Filangeri ready to make their debuts for the Italian national team”.

**Lady luck has not smiled on you at the beginning of this year's League Championship.**

“Unfortunately, knee injuries to Alice Parisi, Claudia Ferrato and the goalkeeper Nicole Lauria will definitely keep them out until early Spring. There are at least three times as many joint injuries in the women's game than in the men's game. Women are more likely to get injured but, of course, the other teams have their share of injuries, too. Parisi and Ferrato would have been in our starting line-up, and Lauria was our reserve goalkeeper. We now only have our first-team keeper Diede Lemey and Binini and De Bona from the youth squad”.





LET'S RESPECT THE RULES AND GET BACK TO TRAINING TOGETHER. THAT IS THE MOTTO BEHIND MAPEI SPORT'S RESUMPTION OF OPERATIONS



## Training safely

Mapei Sport Research Centre has resumed operations with the same determination a champion needs when they get back into training after an injury. After being forced to close due to the lockdown, the facility owned by the Mapei Group based in Olgiate Olona (Province of Varese, Northern Italy) reopened in May in accordance with the most stringent safety standards.

The centre that Mr Giorgio Squinzi, the CEO of the Group at the time, decided to set up in 1996 operates in the field of sport, carrying out scientific research and providing support and aid to athletes in a range of different sports. Since this is an international-standard centre, athletes and teams of the highest level draw on its facilities and, even during this period of uncertainty, it has been used by a number of champions and sportsmen/women of all standards. From Italy's top-flight Italian football clubs to youth teams, Mapei Sport can "get us all back in the saddle" even stronger than we were before.

"The pandemic reminded us how important it is to look after ourselves. Sport is good for your health and health is vital in sport. All this is nothing new, but resuming training outdoors reminded us how important sports are for our physical-mental well-being", so Claudio Pecci noted, the Managing and Medical Director of this highly qualified sports-medicine centre.

"Training is not just a means of achieving your best possible physical performance, it is also (and above all) a way of staying healthy. That is why, in wake of the Covid-19 emergency, we have reduced the cost of our services for athletes, such as the test to optimise your riding position on the bike and our VO2max and Mader tests. Our healthcare experts are ready to help all sportsmen and women: from professionals to people who do sport for fun, from competitive amateurs to health fanatics", so Dr Pecci went on to note.

Let's respect the rules and get back to training together. That is the motto behind Mapei Sport's resump-

tion of operations. "We consulted a company specialising in sanitation of environments and set special protocols in place to guarantee the utmost safety for our staff and anybody coming to Mapei Sport for a specialist medical check-up, nutritional advice or training plans", so Andrea Bosio explained, the Head of Scientific Research at the centre which was first established to provide scientific advice and a sound ethical approach for athletes at the Mapei Professional Cycling Team and which, down the years, has widened its horizons to encompass other sports, such as football, basketball, running, golf, Alpine skiing and motorsports.

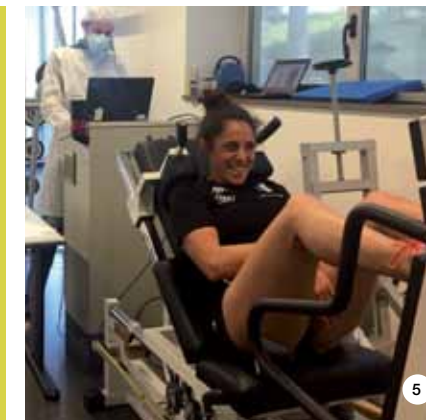
"Top-flight sport has begun again, and it has had to come to terms with a quite different kind of season. Clubs and athletes have been forced to re-plan their training and we have helped them to do so, as we always do, offering our expertise and experience – so Ermanno Rampinini explained, consultant for team sports. - As soon as we could work outside,

### MAIN MEDICAL SERVICES OFFERED BY MAPEI SPORT:

- Medical-sports check-ups
- Check-ups for medical certificates for competing in sport
- Nutritional advice
- Cardiological consultancy
- Orthopaedic consultancy

### MAIN TRAINING AND ASSESSMENT TESTS:

- Body fat index test
- Maximum oxygen uptake (VO2max) for cyclists, runners and triathletes
- Anaerobic threshold test for cyclists, runners and triathletes
- 3D Bike Fitting
- Strength and speed tests
- Asymmetry and balance tests
- Specific tests for team sports including football and basketball
- Specific tests for Alpine skiing
- Specific tests for tennis
- Training plans for cyclists, runners and triathletes
- Training advice for team sports including football and basketball
- Training plans for health and wellbeing



**1 and 2.** Field tests for Sampdoria football team (photo credit U.C. Sampdoria/Simone Arveda).  
**3 and 4.** The captains of the Trek-Segafredo cycling teams, Vincenzo Nibali and Elisa Longo Borghini, at Mapei Sport Research Centre.  
**5 and 6.** Lab tests for members of the Italian Alpine skiing team: Federica Brignone and Sofia Goggia.

we carried out field tests at Sassuolo, Parma, and Sampdoria football clubs, as well as at Olympique Lyonnais in France and Kongsvinger IL Toppfotball in Norway, a team supported by Mapei AS, the Group's subsidiary in Norway. We also tested all the men and women in the Italian National Alpine Skiing team, including Dominik Paris, Sofia Goggia, Federica Brignone and Marta Bassino. Carefully balancing training loads at a time when there are so many competitive events scheduled over such a short space of time has allowed us to reduce the risk of overtraining or injuries to a mini-

um".  
"We have resumed laboratory testing with champions of the calibre of Vincenzo Nibali and Elisa Longo Borghini, who, just like the rest of their teammates at Trek Segafredo, had to adjust their training plans to take on a full season of racing over just three months. Reopening our doors to professionals who rely on Mapei Sport is a great sign for all sports fans and sports people. Getting back to a 'new normal' as safely as possible is possible even for amateur sportsmen and women", so Andrea Morelli went on to say, Head of the Cycling Department of the Center.

Sport has resumed and we are once again enjoying the thrill of watching champion sportsmen and women. You, too, can get back in the saddle with Mapei Sport.

**Giulia De Maio.** Mapei Sport, Olgiate Olona (Varese, Northern Italy)



# NEWS FROM THE MAPEI WORLD

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

## USA – MAPEI CORP. WINS MULTIPLE STARNET DESIGN AWARDS

In June a panel of judges composed of architects and designers selected the winners of the 2020 edition of the Starnet Design Awards. Sponsored by Starnet Worldwide Commercial Flooring, the world's largest network of floor installation companies, the awards are intended to encourage cooperation between members, manufacturers of flooring materials and installation technology, and professional designers. Mapei Corporation won gold medals for the products it supplied for The Oleander housing complex in Brookhaven (Georgia), St. Stephen's Church in Grand Rapids (Michigan), and Nationwide Children's Behavioral Health Pavilion in Columbus (Ohio). It was also the 2020 Grand Prize and gold medal winner in the "Education" category for its involvement in the project for Park Elementary School (in the photo below) in Baton Rouge (Louisiana).



## SOUTH AFRICA: MOSAICS FOR THE COMMUNITY

Reagan Rubain is a South African ceramic artist whose works are focused on social issues. He graduated from Spier Arts Academy in Cape Town and then began working on various museum projects in the cities of Tshwane, Cape Town and Johannesburg. These included a 400 m<sup>2</sup> mosaic of Tshwane's Presidential Residence (see photo below), the Ocean View project in Cape Town, a picture of the Springboks national rugby team that won the 2019 World Cup, and a ceramic work dedicated to Winnie Mandela. Rubain uses ADESILEX P9, a high-performance, cementitious adhesive with no vertical slip and extended open time, for his brightly coloured and extremely elaborate mosaics.



## AUSTRIA – 40 YEARS AND PLENTY OF IDEAS

Mapei Austria was planning to celebrate its 40<sup>th</sup> year in business with great 'pomp and ceremony' by inviting its business partners to the Wiener Wiesn, the Austrian version of the Oktoberfest. Unfortunately, the pandemic currently raging forced the Austrian subsidiary to change its plans and organise a series of nice projects to celebrate its anniversary: in addition to a special logo, it gave all its customers a special set consisting of a bag, sunglasses, towel and drink; a board game that is very popular in Austria that has been given a "Mapei" twist; and also a clay vase where customers can plant vegetable. It also launched a publicity campaign focused on the anniversary that included a poster, advertising announcements, and the promotion of the logo on various means of communication



## SINGAPORE – SUPPORTING LOCAL INDUSTRY

The Singapore building industry has taken a serious hit due to the Covid-19 pandemic. A high number of cases have been recorded, including many people working in the building industry. All this led to a two-month lockdown and extremely strict mitigation measures in the ensuing period. Mapei Far East decided to help works resume by donating its business partners four hundred bottles of 500 ml hand sanitiser gel and 85 five-litre drums to refill the bottles on sites.





# Resin systems for high-performance floors



VERSATILE AND RESISTANT SYSTEMS, SUITABLE FOR EVERY KIND OF ENVIRONMENTS

Resin flooring systems only became an established solution in the building industry over the last few decades, but they represented a turning point regarding the level of protection they provide and the improvement in performance of surfaces completed with them.

Nowadays there are various types of systems available in a range of different materials and thicknesses, with varying levels of mechanical strength or resistance to chemicals, with non-slip and anti-static properties and finishes that are easy to disinfect, as well as many other characteristics in order to target the specific requirements of certain sectors of industry.

## Why do we tend to say “resin system” rather than “resin coating”?

The word “system” is far more appropriate, in that it expresses the concept that the solution proposed and applied is not just a simple layer of product (coating), but rather a combination of several layers that are applied in a specific way to form a system in which the layers work together to achieve the final performance properties of the system.

## Can I apply a resin system anywhere I like?

No. A system that has been designed and applied correctly will meet the performance properties specified for the flooring for a long time, but it will still need to be maintained and looked after. There are obviously systems that are easier to maintain than others and which are more resistant to routine cleaning and sanitising operations, and they are usually so thick that they can be used for a very long time before having to intervene to refurbish or repair them. It depends on the type of system.

## So how many types of system are available?

Systems can be made from various materials, in different thicknesses and with various types of layers. The most commonly used products are made from epoxy or polyurethane resin, but there are also other mixtures of these types of resins available with cementitious binders to make products with their own particular performance properties. Numerous systems can be created, each with its own particular set of performance properties, depending on the type of material used, how much material is applied, the number of layers applied to form the system and the application technique used. For instance, Italian standard UNI 10966 devotes a whole section to the design and completion of this kind of floors in interiors and exteriors.

## There are mixtures of two types of binder available



Mineral water bottling plant – MAPEFLOOR CPU/HD.



Dairy processing plant – MAPEFLOOR CPU/MF.



Vegetables processing plant – MAPEFLOOR CPU/NZ.

## that seem to be poles apart; cement and synthetic resin. Can you give us an example?

The most obvious example is the range of polyurethane/cementitious products, which are a well-calibrated blend of polyurethane resins, cementitious binders and various types of aggregates. The fascinating thing about these products is that the two binders, one mineral and the other organic, react and then interact with each other to form a product that, once set, has exceptional performance properties and mechanical characteristics. And as far as the simplicity and the time required is concerned, they are the perfect example of what I was talking about earlier regarding the maintenance requirements of the system. The products from the MAPEFLOOR CPU line by Mapei, where CPU stands for Cement-Poly-Urethane, have been on the market for around a decade and have met with wide approval from numerous satisfied clients. They are used to form systems in thicknesses varying from 3 to 9 mm. The technology behind these products dates back to the late 1970's, but it was only in the last twenty years that it finally caught on in the industrial sector where requirements such as high strength, resistance to chemicals and heat, impermeability, quick application and ease of maintenance are particularly important. They started to be used mainly in the food and beverage sector and in the chemical and pharmaceutical industries, but also in other sectors.

Polyurethane systems can have a smooth or non-slip finish, depending on the shape and size of the aggregates that are sometimes added, to give flooring non-slip properties and ensure safe working conditions.

## Why does the thickness vary from 3 to 9 mm?

Thickness is very important with regards to resistance to impact loads and, above all, thermal inertia. Not only are MAPEFLOOR CPU systems resistant to high temperatures when in service, and much more resistant than traditional systems, they are also resistant to sudden changes in temperature, or what is known as thermal shock. The thicker the system, the higher the maximum temperature the system can withstand. And they can even resist temperatures of up to 120°C!

## Can I buy this type of material and apply it myself?

We strongly recommend against doing that! Resin-based systems, and especially polyurethane/cement-based systems, require experience, skill and the right tools to apply them that only specialised teams possess.

Andrea Invernizzi. Resin Floorings Division, Mapei SpA (Italy)





# Products in the spotlight

PROTECTING THERMAL INSULATION SYSTEMS, SEALING FIRE-RATED JOINTS, PROTECTING WALLS AND CEILINGS IN THE EVENT OF AN EARTHQUAKE: A FEW PROPOSALS BY MAPEI



### MAPEWRAP EQ SYSTEM

Patented, certified system developed to make buildings safer, by preventing dividing and buffer walls from collapsing, as well as preventing ceilings from collapsing. The system is made up of **MAPEWRAP EQ NET** glass fibre reinforcement bonded with **MAPEWRAP EQ ADHESIVE**, a polyurethane adhesive in water dispersion. When applied on buffer and dividing walls, **MAPEWRAP EQ SYSTEM** prevents them from tipping over and when applied on ceilings it prevents them from collapsing. The system ensures a simple, quick application; it is highly durable; it requires no increase in the masses involved in the intervention and, hence, no modification to the stiffness of the structure.

A SURE AND SAFE ANSWER IN THE EVENT OF AN EARTHQUAKE



### MAPETHERM FLEX RP

Cement-free, fibre-reinforced, elastic, skimming paste and base coat for creating reinforced skim coats on insulating panels, excellent for repairing damaged/deteriorated thermal insulation systems. Thanks to its BioBlock technology, it protects surfaces from aggression of algae and mould and is extremely versatile. **MAPETHERM FLEX RP** does not require curing and there is no need to use a primer before applying the final finish, thereby reducing the time to complete work considerably. Its composition guarantees a "lightweight" product with increased yield and increased workability during application. It is colourable and available in two grain sizes: 0.5 mm and 1.5 mm.

PROTECTION FOR THERMAL INSULATION SYSTEMS



### MAPEFLEX AC-FR 2

It is a thixotropic, acrylic sealant in water emulsion for fire-rated joints in walls, ceilings, profiles and metal pipes in civil and industrial buildings and in infrastructural works. It is odorless and, therefore, can be used in both indoor and outdoor environments. It can be easily applied on horizontal and vertical surfaces and can compensate working movements up to 10% of the initial width of the joint. It has a good resistance to environmental stresses and temperature changes. The sealant is fire rated according to the norm EN 13501-2 and therefore it's suitable for sealing fire-resistant joints without using superficial thermal protection tapes, cords or cupels. **MAPEFLEX AC-FR 2** complies with EN 15651-1 with performance rating F-EX-INT, class 12.5 P.

FOR FIRE-RATED JOINTS



FOR SOUND MASONRY, ONLY THE BEST REINFORCED RENDER WILL DO.

To obtain sound, resistant masonry you need to identify the most suitable mortar to guarantee its durability over the years. **Planitop Intonaco Armato** has been specifically developed and tested for levelling off and reinforcing existing masonry without the need for supplementary strengthening mesh.



EVERYTHING'S OK WITH MAPEI





# Mapefloor® CPU

## HIGH PERFORMANCE INDUSTRIAL FLOORING SYSTEMS

Brewery in Riga (Latvia)

**Durable, functional systems: safe, quick installation compliant with all requirements of the food and drinks industry**

Mapei products and systems for **resin flooring**, with high mechanical performance properties, good resistance to aggressive chemicals, ideal for quick repair work on old, damaged flooring and for installing new flooring.

EVERYTHING'S OK WITH MAPEI

Learn more on [mapei.com](http://mapei.com)



Application with **Mapefloor CPU**

