



INTERNATIONAL



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

The Coronavirus crisis and how building can boost the economy

Dear readers,

As we go to print, Italy (and also the rest of the world) is slowly and gradually emerging from a health crisis in the wake of the Coronavirus epidemic, a pandemic that has caused so many deaths and infected so many people on such a painful scale.

It is time to restart the engines of the global economic system but, as this new phase begins, the consequences of this health crisis will inevitably be felt over a long period of time. The pandemic has hit everybody. It is a global phenomenon, although everything suggests that its impact will vary from region to region around the world.

The initial figures are clear: for the first time after an uninterrupted period of growth, the US GDP dropped by 4.8% during the period January-March 2020, while the Eurozone's fell by 3.8%. And the prospects were quite unimaginable until a few months ago: according to the

A SPECIAL ABOUT MAPEI SYSTEMS TO IMPROVE YOUR HOME

International Monetary Fund (IMF), the global GDP is expected to drop by 3% in 2020, twice this percentage (-6.1%) in the most advanced nations.

The economic situation in Italy, the country where Mapei headquarters are located, is complicated and the Government expects the GDP to drop by 8% this year.

But despite everything, we need to look ahead. Historically speaking, the building industry has been the "driving force" behind revival in many countries. It is once again likely to be a key launchpad in the aftermath of the worst crisis since the the last World War. Investment in infrastructure and major works will be particularly important, but housing will also be crucial.

Over the weeks before the Coronavirus pandemic, the Italian government announced its new "facades bonus", which, together with other forms of tax relief for housing, should boost the Italian construction industry and upgrade Italy's decidedly "old" housing heritage. This issue of *Realtà Mapei International* is dedicating a special section to Mapei solutions for renovating your home: a guide about Mapei products for carrying out works on private homes and an overview of private homes these materials have been used on.

We have already said that infrastructure will be a driver for restarting the economy.

Mapei has extensive experience in this sector, both in Italy and abroad. Inside, we are presenting some of the latest projects it contributed to with its products ranging from Singapore Airport to Sofia underground railway line and Matera's innovative railway station.

We will finish where we started: the Coronavirus crisis has provided the opportunity for Mapei to lend its support to all those (doctors, nurses, health staff, civil guard, armed forces and law enforcement agencies) most closely involved in the daily battle against this invisible enemy. Mapei SpA and Sassuolo Football Club have made donations to hospitals in Milan and Sassuolo. Some of the Group's subsidiaries (first and foremost, Mapei Guangzhou in China) have also taken part in various charity projects in the battle against the Coronavirus. We will be covering these efforts in this issue of magazine.

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Cover story

This issue devotes a special section to Mapei solutions for renovating your home: a guide about Mapei products for carrying out works on private homes and an overview of private homes these materials have been used in.

Editor in chief
Guido Palmieri

Editorial contributors and English translation
Martyn Anderson, Nicholas John Bartram, Federica Pozzi, Tiziano Tiziani, Federica Tomasi, Alessandro Brambilla

Production and editorial coordination
Metella Iaconello

Photographic research
Davide Acampora

Social media
Francesca Molteni

Graphic designer
Barbara Mennuni

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Via Cafiero, 22 - 20158 Milan (Italy)
Tel. +39/02/376731 - Fax +39/02/37673214
website = www.mapei.com
E-mail = realtamapei@mapei.it

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Rachele Somaschini, Fondazione Sodalitas, Mapei Sport Research Centre

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Mapei is supporting hospitals against CORONAVIRUS



THE COMPANY, WHOSE HEADQUARTERS ARE BASED IN MILAN, DONATED 750,000 EUROS TO THREE MILANESE HOSPITALS

The Mapei Group, which has always been very closely tied to the city of Milan where it was originally founded, has decided to play its part by donating 750,000 Euros to San Raffaele Hospital, Milan Polyclinic and Luigi Sacco Hospital to support research and provide aid to medical and healthcare staff in the front line in tackling the serious emergency due to the epidemiological spread of the Covid-19 virus in Italy.

"In a serious situation like this, we believe it is vitally important to support those who are most closely involved in the battle to save the lives of patients in hospitals and in trying to find a cure for the virus - so the Squinzi family (owner of the Group) announced - And our thoughts and support also go to the Italian Red Cross, one of the first associations to provide aid and support to those most in need".

Mapei confirmed its donation to the Italian Red Cross Committee in Milan for the Charity Concert that was supposed to take place on Monday 30th March at La Scala Opera House in Milan. Mapei has also provided support by donating protective face masks and gear to the Italian Red Cross and other local associations, committees, and hospitals.



Installing floors with Mapei products.
LEFT. Madonna Delle Grazie Hospital in Matera (Southern Italy).
RIGHT. Don Tonino Bello Hospital Molfetta (Bari), Southern Italy.

Mapei supplied its products for installing the floors in various hospitals around Italy.

LEFT. Mapei supplied products for installing PVC floors in San Raffaele Hospital's new intensive care department in Milan.

RIGHT. Mapei participated to the construction of the new hospital on the site of the old Trade Fair in Milan, by supplying solutions and donating ULTRABOND ECO V4SP adhesive for installing the floors.

Furthermore, Sassuolo football club and the Squinzi family have donated 100.000 Euros in favor of Sassuolo Hospital, engaged in the front line with its medical and health care staff to guarantee the health of the local community and beyond. The donation was aimed at the direct purchase of personal protection devices and equipment for intensive care.

Concrete support for hospital facilities

Mapei SpA also provided help and support to the city of Milan and other communities in Lombardy (Northern Italy) that have been so seriously hit by the Covid-19 pandemic by supplying materials and products to build the new emergency hospital on the site of the old Trade

Fair in Milan.

This new hospital, which was intended to help take the pressure off other hospital facilities struggling to cope with the current emergency, is located in pavilions 1-2 of Fieramilanocity (owned by the Fiera Milano Foundation) and covers a total of 25,000 m².

Mapei has donated its ULTRABOND

ECO V4SP high-performance adhesive for laying the resilient flooring donated by Carpet Italia in partnership with three leading resilient floor manufacturers.

Meanwhile, Mapei is offering all its experience and expertise to help deal with the current health crisis, supplying products and solutions for renovating or extending he-

althcare facilities, like, for example, San Raffaele Hospital in Milan, and plenty of hospitals in Southern Italy such as Villa Lucia Hospital in Conversano, Bari Polyclinic, Madonna delle Grazie Hospital in Matera, Ostuni Hospital, Don Tonino Bello Hospital in Molfetta, Perrino Hospital in Brindisi, Manduria Hospital, and New Deu Hospital in Foggia.

Mapei solidarity around the world

China will remember 2020 for its longest New Year holidays ever. After millions of people returned home as usual to celebrate the most important holiday on the Chinese calendar and just a few days after the start of the Chinese New Year (which fell on 25th January this year), the government of the People's Republic of China officially "locked down" the city of Wuhan preventing over 30 million people from leaving their homes or visiting other people. All this was caused by the Covid-19 pandemic.

The virus then spread from Wuhan to the rest of China in just two weeks and this meant there started to be a shortage of medication and protective equipment due to restraints imposed on manufacturing and transport during the holiday period. This initially caused serious problems for medical and paramedical staff due to a shortage of protective masks and detergents.

Mapei Guangzhou, the Group's Chinese subsidiary, decided to make its own contribution to help both the sick and their carers. The subsidiary, which is based in the Guangdong



Mapei Guangzhou donated free meals to taxi drivers in Canton.

region, decided to focus its efforts primarily on this area. For example, it supported a network of 180 taxis used by Guangzhou's medical authorities to transport medical staff and patients suspected of having coronavirus from their

homes to hospitals (or vice-versa). A further 20 taxis were used to pick up people from stations and airports. So Mapei Guangzhou donated free meals, milk and disinfectants to the drivers, who were not allowed to return home so as to keep their families safe.

Aid was also provided to Kaizhou district of the city of Chongqing bordering on the Hubei region (whose main city is Wuhan and which was also seriously affected by the epidemic) and to the city of Nantong in eastern China. In the first case, support was provided to the Chongqing Association for the disabled, supplying them with material for personal and health care.

Mapei Guangzhou supplied Nantong with medical equipment like gloves and disinfectants for doctors working in the tent specially set up in one of the city's hospitals to look after patients infected with Covid-19. Both these aid projects were possible thanks to the contribution of Mapei distributors in Chongqing and Nantong.

Serving the community in South America

Mapei Colombia, the Group's local subsidiary, also set off operations to help fight the virus. For example, it packed

(with the Mapei logo clearly visible) and distributed 4400 bottles of antibacterial disinfectant for its own customers and provided financial support for the La Estrella community located about 15 minutes from Medellin, where one of Mapei Colombia's 3 manufacturing plants and a warehouse are located.

Mapei Peru also decided to help out by launching a communication campaign called "Mapei Amigos" providing information about how the virus spreads and how to protect against it.

Helping out in Ukraine and Russia, too.

Mapei Ukraine also wanted to play its part in supporting the most vulnerable during this crisis. In April it donated thermometers to the "Starenki" voluntary association, which distributes food, medicine and medical equipment to the over 60s, who are being advised to stay at home.

AO Mapei provided hot meals for medical staff at a hospital in Stupino, where the Group's Russian subsidiary has one of its manufacturing plants. The meals were delivered to doctors who were quarantining after coming into contact with patients who have contracted the Coronavirus."

IMPROVING YOUR HOME WITH MAPEI PRODUCTS

In lots of countries (for example, Australia, Germany, France, Singapore, Switzerland) tax relief (which is constantly being updated and reviewed) is available to anybody interested in improving their own home to make it more energy efficient. Laws issued by central government or local authorities (regional councils, cantons or states in the case of federal nations) often offer incentives for reducing energy consumption or CO₂ production in private homes. There are also incentives for renovating and modernising private homes extending beyond the realm of the energy performance of buildings. These measures are aimed, on one hand, at boosting the building market and, on the other, at contributing to the modernisation and renovation of the building heritage of our cities which, particularly in the case of European nations, is often extremely dated, not to say very old.

Obviously, in areas that have been hit by earthquakes there are additional tax cuts and benefits aimed at promoting the reconstruction of buildings.

For instance, Italy's 2020 Budget Law (which came into force on 1st January) introduced a similar bonus to the Malraux law implemented in France in 1962 (named after the former French minister), which literally transformed the appearance of French cities. Italy's own new fiscal measure has bolstered an existing "package" of tax breaks for homes that included an "eco-bonus" and a "seismic bonus". It has also introduced a "façades bonus" offering a notable cut on taxes on private homes for the costs incurred in repairing façades.

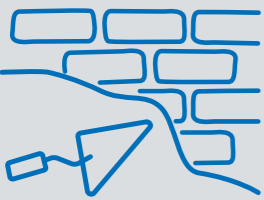
Thanks to the research and experimentation it has carried out over the years, Mapei can provide a full range of products and solutions meeting the needs of anybody attempting to make their own home more energy-efficient or simply better looking, more modern and safer. Everything from thermal insulation systems, finishing products for façades and waterproofing products for balconies to materials for repairing concrete or carrying out structural strengthening work: Mapei supplies numerous specific systems and products for this kind of work that also allow people to take advantage of the fiscal incentives available in their own country.

Over the following pages you will find examples of how to use Mapei solutions to carry out maintenance, modernisation and thermal insulation work on private homes, which, on many occasions, have also allowed their owners to benefit from tax relief.

Mapei solutions for your home

FOR ANY KIND OF INTERVENTION IN PRIVATE HOUSES
MAPEI OFFERS PLENTY OF PRODUCT SYSTEMS

Whether you need to insulate your home, refurbish your bathroom, renovate the floor in your sitting-room or kitchen, waterproof your balcony, repaint your façades or restore the masonry of your house, you can always rely on Mapei and at least 12 product lines available for all these types of jobs. These pages feature a short presentation of these lines and then, in the following pages, one finds real examples of how Mapei systems and products have been used for these kinds of applications in homes in various countries.

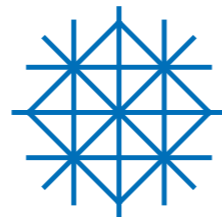


► Products for masonry restoration

Every Mapei product in this line is formulated to have characteristics as similar as possible to the mortars used in the past to make them compatible with any type of original wall or structure and ensure perfect renovation work.

► Products for structural strengthening

Mapei's Structural Strengthening Division offers support and high-technology solutions for static strengthening and anti-seismic improvements and upgrades for structures.



► Products for thermal insulation

The external thermal insulation system is the most effective way of reducing the consumption of your house: it also leads to an immediate reduction in CO₂ emissions, saves you a considerable amount of money and guarantees living comfort in both summer and winter.

► Products for waterproofing

Mapei has developed various product systems to carry out secure waterproofing work in your terrace, balcony and bathrooms.

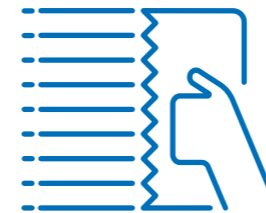
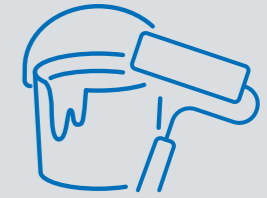


► Products for acoustic insulation

Mapei soundproofing systems are quick and easy to install and maintain their performance properties over the years.

► Wall protective and decorative coatings

Protection, durability and aesthetics: these are the main characteristics of Mapei coating systems for painting and decorating walls in residential buildings, with more than one thousand colours and high quality finishes.

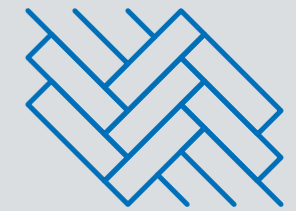


► Products for installing ceramic tiles and stone

Adhesives, grouting products, sealants, screed mortars, primers, smoothing and skimming compounds: choosing Mapei solutions means being certain of the result when installing and grouting ceramics, mosaics and natural stone including in private bathrooms, swimming pools, Turkish baths and façades.

► Products for wooden flooring

A complete range of products: from adhesives to install any size and format of wooden flooring to finishing products such as water-based lacquers, coloured oils and products for scheduled and unscheduled maintenance work.



► Products for building

Mapei created cutting-edge systems and materials to give you the opportunity of tackling the issue of the durability of structures and infrastructures from a new point of view. Plenty of solutions are available, for instance, for repairing concrete.

► Products for resilient, LVT and textile materials

Mapei proposes a range of systems to install resilient and textile flooring guaranteeing durability and maximum performance. It includes adhesives, smoothing and levelling compounds and primers.



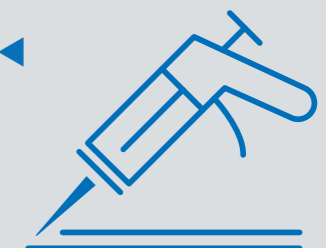
► Products for cementitious and resin flooring

This line enables you to create floors of the highest technical and aesthetic quality. Your home can benefit from floorings resistant to abrasion, impact loads, cracking and aggressive chemical agents.



► Elastic sealants and adhesives

Mapei offers a range of highly flexible sealants and adhesives with incomparable benefits: specific products for every type of application requirement with cutting-edge performance and durability.



Palermo (Italy)

RESTORING MASONRY IN A PRIVATE PALACE



FOLLOWING RESTORATION WORK ON THE FAÇADE, THIS IMPORTANT NOBLE PALACE OPPOSITE THE CITY'S CATHEDRAL HAS RETURNED TO ITS FORMER SPLENDOUR

The old part of Palermo has one of the richest and most articulated collections of historical buildings and sites in Europe, with more than 500 old palaces, churches, convents, monasteries, and theatres. They are all spread throughout the fabric of the city which developed over the years, from the times of the Phoenician colonisation, and then through the periods of Greek, Roman, Byzantine, Arabian, Norman, Swabian, Angevin, Aragon and Spanish influence, right up to the latest urban redevelopment works.

Opposite the majestic, Arabian-Norman cathedral runs the oldest street in Palermo, along which there are a number of beautiful, noble townhouses. One of these is Palazzo Filangeri of the Princes of Cutò, which started life in the middle of the 18th century. The Filangeri-Cutò family was of Norman origin and part of the Italian aristocracy which put down its roots in many parts of southern Italy after the middle of the 11th century. In 2019 the façade of the palace,

Problems and solutions

The products used for the restoration work on the façade of Palazzo Filangeri had to be approved by the Local Heritage Authority and needed to be in keeping with the ancient walls and their decorative features. A system was required that provided the best level of protection possible from aggressive atmospheric agents, pollution and the effects of microorganisms and mould. The product chosen for this phase, SILANCOLOR PAINT PLUS transparent, water-repellent paint, satisfied the requirements of the design team and the Local Heritage Authority.

which had become badly damaged and deteriorated over the years, underwent important restoration work.

Aesthetics and durability

Aesthetic qualities along with high mechanical performance properties and durability were the criteria which inspired this restoration project. The choices made during the design phase and when carrying out the various interventions also took into account the repair work required on the historic features of the palace.

The first operation was to apply SILANCOLOR CLEANER PLUS, a hygienising treatment in watery solution resistant to mould and algae, to carry out a deep-clean of the substrates. All the detached areas of masonry that had been removed during the cleaning operations were reintegrated with MAPEWALL RENDER & STRENGTHEN high strength, fibre-reinforced, natural, hydraulic, lime-based, transpirant mortar with very low emission of VOC (Volatile Organic Compounds).

Once the restoration work on the façade had been completed, the entire surface was consolidated with SILEXCOLOR BASE COAT, a special modified potassium silicate-based, highly transpirant coloured silicate undercoat. This product helps improving the final bond of potassium silicate-based finishing products, when applied on old, organic resin-based finishing materials. This part of the work also served to prepare a base for the skim coat to be applied later, which was carried out using MAPE-ANTIQUE FC GROSSO, a coarse-textured, large-grained, salt-resistant, lime and Eco-Pozzolan-based, breathable mortar specifically



ABOVE. The palace after completion of the works. **LEFT.** After removing the detached masonry and renders and cleaning the substrates, the façades were painted and protected with SILANCOLOR BASE COAT and SILANCOLOR PAINT PLUS.

developed for use on stone, brick, tuff and mixed masonry, including on buildings of historic and cultural interest. The next step was to apply a coat of SILANCOLOR BASE COAT, a water-repellent, coloured silicone resin-based based paint in water dispersion, and the finishing operations were then completed by applying a coat of SILANCOLOR PAINT PLUS, a water-repellent, transpirant siloxane paint for the hygiene of interior and exterior walls. It protects surfaces from the action of algae, mould and fungi, forming a long-lasting protective coat on the substrate.

SILANCOLOR PAINT PLUS

Water-repellent, transpirant, mould and algae resistant, siloxane paint for the hygiene of walls, in internal and external applications.

FIND OUT MORE

TECHNICAL DATA

Palazzo Filangeri of the Princes of Cutò, Palermo (Italy)

Year of construction: 1764

Year of the intervention: 2019

Intervention by Mapei: supplying products for repairing masonry and

coating the façades

Client: Principe Starrabba di Giardinelli

Design: Fabio Giardina

Works director: Fabio Giardina

Main contractor: GS

Restauro di Gaetano Sciortino

Mapei distributor: Corsale

Ceramiche

Mapei coordinators: Ezio Vallone, Salvatore Costa, Rocco Briglia, Rosario Conigliaro, Mapei SpA (Italy)

MAPEI PRODUCTS

Renovate masonry: Mapewall Render & Strengthen,

Mape-Antique FC Grosso Wall coatings: Malech, Silancolor Cleaner Plus, Silancolor Base Coat, Silancolor Paint Plus, Silexcolor Base Coat

For further information on products visit www.mapei.com

EXPOSED MASONRY?



Two products for installing and pointing "exposed" masonry. A wide range of colours available.

TUFF

CREAM

IVORY

GREY

DOVE-GREY

BRICK COLOURED

PINK

Mape-Antique Allettamento

- Suitable for **historical buildings**
- Cement-free
- Resistant to soluble salts

MapeWall Muratura Fine

- Suitable for **new buildings**
- Excellent mechanical performances
- Excellent quality/price ratio

Mape-Antique Allettamento and **MapeWall Muratura Fine** are transpirant, natural hydraulic lime-based mortars for installing and pointing "exposed" masonry, available in a range of 7 colours.

EVERYTHING'S OK WITH MAPEI

Learn more on mapei.com





Downderry, Cornwall (UK)

THERMAL INSULATION FOR A PRIVATE HOUSE

LOCATED ALONG THE CORNISH COAST, THE BUILDING WAS INSULATED AND PROTECTED FROM THE BAD WEATHER AND SALTY AIR

Problems and solutions

A house exposed to particular weather conditions with façades that needed a highly resistant, long-lasting system. This was achieved by using the SILANCOLOR TONACHINO coating system made up of siloxane resin-based formulations that help maintain the breathability of substrates and give them a water-repellent finish. This characteristic, coupled with Bio-Block technology to block the growth of mould and mildew, ensures that protection would last a long time.

Situated on the Cornish coast in the south-west of England, Downderry is a popular seaside tourist spot characterised by a damp climate and salty air. The house to be insulated had been built a few years previously in a contemporary style to blend in with the surrounding landscape.

Two years ago the owner of the property, who also designed the refurbishment work, decided to insulate the external façades and to apply a protective finish that would last a number of years.

In order to provide the client with an effective solution to their specific

requests, the main contractor contacted Mapei Technical Services for advice and to help choose an efficient thermal insulating system and the most suitable products to finish off and protect the external surfaces of the entire building. Mapei staff worked closely with the contractor, the client and the designer for the entire duration of the work, providing not only technical support, but also training for the workers and builders on the products to be applied.

For the thermal insulation of the external walls Mapei recommended MAPETHERM, a highly effective in-

sulating system for façades. The system was installed on both the existing wooden façades and on the new ones that were added as part of the refurbishment work. The 80 mm thick MAPETHERM EPS expanded polystyrene panels were bonded to the façades with MAPETHERM ARI GG one-component, highly thixotropic cementitious mortar.

The mortar was spread out evenly over the whole of the back of the panels, which were bonded in place starting from the bottom of the façades and working upwards. Around 24 hours after bonding the panels, the façades were skimmed with MAPETHERM ARI GG and, while the mortar was still wet, MAPETHERM NET alkali-resistant glass fibre mesh was placed on the surface and a second layer of MAPETHERM ARI GG was applied to form an even layer and completely embed the mesh.

Once the skim coat was completely dry, application of the SILANCOLOR coating system commenced, which was recommended by Mapei because it is the ideal solution for structures near the coast which are exposed to the kind of weather conditions found in this area. The first stage of the protection cycle was to apply a coat of SILANCOLOR BASE COAT, followed by a coat of white SILANCOLOR TONACHINO PLUS. This is a siloxane-based coating product which is highly water-repellent and transpirant, as well as highly resistant to damp and aggressive climatic conditions. It is particularly recommended for protective and decorative external wall coatings where mildew and mould could form due to particular local weather conditions. It is also ideal for finishing off and protecting external thermal insulation systems, such as the one installed on this building.



TOP OF THE PAGE.

The external walls were insulated with the MAPETHERM thermal insulation system.

ABOVE. The SILANCOLOR TONACHINO PLUS coating system was recommended to paint and protect the façades from aggressive climatic conditions and sea spray.

SILANCOLOR TONACHINO PLUS

Water-repellent, transpirant, siloxane plaster for the hygiene of internal and external walls.

FIND OUT MORE



TECHNICAL DATA

Private house, Downderry (UK)

Year of construction: 2018

Year of the intervention: 2018

Intervention by Mapei: supplying products for thermal insulation and

protective and decorative coatings

Design: James Lockyer Associates

Client: Jim Lockyer

Contractor: F.D.Hall & Son Ltd

Mapei distributor: RGB Supplies

Mapei coordinators:

Stephen Price and Adrian Jones, Mapei UK

MAPEI PRODUCTS

Thermal insulation: Mapetherm ARI GG, Mapetherm EPS, Mapetherm Net

Wall protective and decorative coatings: Silancolor Base Coat, Silancolor Tonachino Plus

For further information on products visit mapei.com and mapei.co.uk



IN THIS PAGE. All 31 towers of the residential complex were insulated with the MAPETHERM system and protected and painted with the SILANCOLOR system, including SILANCOLOR BASE COAT and SILANCOLOR TONACHINO PLUS.

Problems and solutions

An ambitious project in terms of objectives, complex for the sheer extension of surfaces to be insulated and challenging in terms of client expectations. The CityFied project is a testimony to Mapei's commitment to proposing cutting-edge products and technologies for upgrading the energy efficiency and give a new profile to an entire residential complex.

Laguna de Duero, Valladolid (Spain) INSULATION WITH EU FUNDING

A REDEVELOPMENT PROJECT PROMOTED BY THE EUROPEAN COMMISSION TO INCREASE ENERGY EFFICIENCY

The aim of the five-year "CityFied" plan, promoted and jointly financed by the European Commission, is to develop policies that will increase the energy efficiency in cities within the member states of the European Union by implementing a series of renovation projects on building stock and on the environment. A replicable, systemic and integrated strategy to adapt European cities and urban ecosystems into the smart cities of the future.

The project guidelines focus, above all, on reducing energy demand and greenhouse gas emissions and increasing the use of renewable energy sources by developing and implementing innovative technologies for the retrofitting of buildings, district heating systems and distributed low voltage generation.

Within the context of the CityFied project, large-scale demonstrations have been put in place in a number of European cities to illustrate the technologies required to develop the project, with the aim of maximising their impact and the possibility of replicating the three demonstrative renovation projects in Laguna de Duero in Spain, Soma in Turkey and Lund in Sweden.

The imposing Torrelago residential complex is divided into Torrelago

I and Torrelago II which, in turn, are made up of 12 and 19 buildings, respectively, for a total of 1,488 apartments. To insulate the façades of the 31 apartment blocks, the Mapei Technical Services team working on the project proposed MAPETHERM, an external thermal insulation system for the walls of buildings. 80 mm thick MAPETHERM EPS expanded polystyrene insulating panels were bonded to the walls with MAPETHERM ARI GG one-component, cementitious adhesive.

A few days after bonding the panels, the façades were skimmed by applying an even, 2 mm thick layer of MAPETHERM ARI GG with a trowel and, while this layer was still wet, MAPETHERM NET alkali-resistant glass fibre mesh was placed on the surface. After 24 hours a second layer of MAPETHERM ARI GG was applied to form an even surface and completely embed the mesh.

A few days later, once the skim coat was perfectly dry, a protective finish was applied using the SILANCOLOR system, which features high water-repellence and good resistance to UV rays, consisting of a coat of SILANCOLOR BASE COAT followed by a coat of SILANCOLOR TONACHINO PLUS in the colour specified by the client.

MAPETHERM EPS

Expanded polystyrene panel with 80 mm of thickness to be used in combination with MAPETHERM ARI GG one-component cementitious mortar to complete the MAPETHERM thermal insulation system

FIND OUT MORE



TECHNICAL DATA

Torrelago residential complex, Laguna de Duero, Valladolid (Spain)

Year of construction: 1977
Period of the intervention: 2013-2014

Intervention by Mapei: supplying products for

thermal insulation and the protective and decorating coating of external walls

Design: 3IAG

Client: Comunidad de propietarios Torrelago

Contractors: 31° Ingeniería Termoacústica SL, Revymol
Mapei coordinators:

Pedro Pardo and Juan Sanchez, Mapei Spain

MAPEI PRODUCTS

Thermal insulation: Mapetherm AR 1 GG, Mapetherm EPS, Mapetherm NET
Protective and decorative

wall coatings: Silancolor Base Coat, Silancolor Tonachino Plus

For further information on products see mapei.com and mapei.es



Angera (Province of Varese, Italy) NEW BALCONIES AND FAÇADES

CUTTING-EDGE PRODUCT SYSTEMS TO RESTORE A FAÇADE,
REPAIRING CONCRETE AND WATERPROOFING THE BALCONIES

Problems and solutions

The successful outcome of maintenance work of façades is highly dependent on the quality of the renovation work carried out prior to painting. Over the years, Mapei has developed numerous new, cutting-edge technologies to ensure the best result of these operations. They include two special mortars for carrying out quick repair work on concrete, PLANITOP SMOOTH & REPAIR and PLANITOP SMOOTH & REPAIR R4, shrinkage-compensated, thixotropic, fibre-reinforced, cementitious mortars.

If we glance upwards while we are walking the streets of our towns and cities, we will soon realise how most European buildings can be badly affected and show the signs of the passage of time: ruined façades, detached render and concrete structures with exposed rebar and clear signs of damage.

For instance, all the apartment blocks built between the end of the Second World War and the nineteen eighties in Italy have a certain degree of damage or deterioration.

This is why restoring the façade of apartment blocks is a job that becomes an absolute necessity after

a certain number of years. Cracks, mould stains and detached render on the external façade of buildings need to be evaluated very carefully and thoroughly. And that is exactly what happened when tackling the restoration work on the façades of this large apartment block in Angera, on the eastern shore of Lago Maggiore in Northern Italy, which included the use of various Mapei product systems.

Waterproofing the balconies

Repair work on the façades of the apartment block in Angera commenced with waterproofing the bal-

conies. Once the loose tiles had been removed, the gaps in the surface were filled with ADESILEX PG4 two-component, thixotropic, epoxy adhesive with modified rheology.

The surfaces were then sanded down and cleaned thoroughly, before installing DRAIN FRONT, TPE angular pipe unions for lining drains on parapets, which were bonded in place using again ADESILEX PG4 adhesive. The area was then waterproofed with MAPELASTIC two-component, elastic cementitious mortar reinforced with MAPENET 150 alkali-resistant fibre glass mesh. The waterproofing system was hemmed in along the walls around the outside and blended in with the joints, corners and edges by creating fillets made from MAPEBAND SA self-adhesive butyl tape with alkali-resistant, nonwoven fabric.

Once the MAPELASTIC layer was fully cured, the tiles were installed using ADESILEX P9 high performance cementitious adhesive with no vertical slip and extended open time. The joints were then grouted with ULTRACOLOR PLUS high-performance, anti-efflorescence mortar with water-repellent DropEffect and anti-mould BioBlock technology.

Restoring and finishing off the façade

Once all the areas of render and concrete that were no longer firmly attached to the substrate had been removed, the reinforcing rods that had been left exposed following this operation were cleaned and treated with MAPEFER 1K, one-component, corrosion-inhibiting mortar. The areas from where the concrete had been removed were reintegrated



with PLANITOP SMOOTH & REPAIR, a quick-setting, fibre-reinforced, shrinkage-compensated, thixotropic cementitious mortar.

The areas from where the render had been removed, on the other hand, were reintegrated and the substrate was skimmed with PLANITOP 200, a water-repellent, cementitious mortar with a fine, natural finish, reinforced with MAPENET 150 mesh. Then, once the repair work had been completed, PLANITOP 200 was also used to completely smooth all the surfaces. Once the surfaces had cured sufficiently, the façades were treated with a coat of SILANCOLOR PRIMER a silicon resin based primer in water dispersion with high penetration properties. The final finish was obtained by applying SILANCOLOR TONACHINO, a water-repellent, transpirant silicone resin based plaster for "rustic" effect exterior coatings, suitable for walls requiring attractive finishing, excellent water-repellence and vapour permeability.

The intervention began by waterproofing the substrates of the balconies with MAPELASTIC and MAPENET 150, while the finishing operations on the façades were carried out with SILANCOLOR PRIMER and SILANCOLOR TONACHINO.

PLANITOP 200

Water-repellent, cementitious skimming mortar with a fine, natural finish for concrete and plastic, glass and porcelain tile coverings.

FIND OUT MORE



TECHNICAL DATA

Rossella apartment,
Angera (Italy)

Year of construction: 1968

Year of the intervention:
2018

Intervention by Mapei:

supplying products to waterproof balconies and renovate the façade

Design: GZ Studio

Works direction:

GZ Studio

Contractor: Impresa Edile
Francesco Curci Srl

Mapei distributor: A.P.A.
di Papotti Adriano & C. Snc

Mapei coordinators: Paolo
Puricelli, Mauro Boselli,
and Fabio Bergamaschi,
Mapei SpA (Italy)

MAPEI PRODUCTS

Repairing and waterproofing balconies:
Adesilex PG4, Drain Front,
Mapelast, Mapeband SA,
Mapenet 150

Installing and grouting ceramic tiles: Adesilex P9,
Ultracolor Plus

Repairing concrete:
Mapefer 1K, Planitop

Smooth & Repair, Planitop
200, Mapenet 150
Wall coatings: Silancolor
Primer, Silancolor
Tonachino

For further information
on products visit
www.mapei.com



Rho (Milan, Italy)

NEW COLOURED AND INSULATED FAÇADES

THE FAÇADES OF FOUR RESIDENTIAL BUILDINGS BUILT IN THE 1970'S HAVE UNDERGONE AN EXTENSIVE REFURBISHMENT

Situated to the north-west of the metropolitan city of Milan, Rho is considered to be an area of great interest from a real-estate point of view thanks to it being the locality of an important exhibition centre.

Made up of four towers built in the 1970's, a residential complex in this area was badly in need of extensive refurbishment work on all the façades and of an upgrade of its energy performance characteristics. Mapei contributed to this intervention by supplying products for concrete repair, thermal insulation and the renovation of the façades.

Refurbishment of the façades

External thermal insulation system. To carry out the work on the ceiling of the pilotis floor (total surface area 7,000 m²), the system recommended was MAPETHERM thermal insulation system.

The first step was to get rid of all the old render that was no longer attached firmly to the substrate using power tools and by hydro-blasting to create a substrate that was clean and strong. The render was then re-integrated with NIVOPLAN levelling mortar admixed with PLANICRETE synthetic rubber latex to improve its mechanical and adhesive characteristics.

Once the substrate had been cured, insulating panels were bonded in place with MAPETHERM AR1 GG, a highly thixotropic, cementitious mortar. An even layer of the product was applied over the entire surface of the insulating panels with a notched trowel, apart from a 2 cm area around the perimeter of the panels to prevent the adhesive seeping into the joints and creating a thermal bridge. Around 24 hours after bonding the panels in place, the surfaces were skimmed with two even layers, around 4 to 5 mm thick, of MAPETHERM AR1 LIGHT one-component, lightweight cementitious mortar.

MAPETHERM NET alkali-resistant, glass fibre mesh was placed over the first layer of mortar while it was still wet and then the second layer of mortar was applied to completely embed the mesh.

After a few days, once the mortar was completely dry, the surfaces were finished off by firstly applying QUARZOLITE BASE COAT, a coloured acrylic undercoat and adhesion promoter which evens out surfaces and fills defects. The next step was to ap-

Problems and solutions

The aim of the refurbishment work on the complex was to partially improve the energy performance of the pilotis floor to qualify for tax incentives. Also, the paintwork and protective coating for the brickwork had to have high performances and a very long service life. The use of MAPETHERM TILE SYSTEM and QUARZOLITE PAINT ensured a perfect result.



1



2

ABOVE. A view of the residential complex after completion of the works.

1. After repairing the concrete, the surfaces were painted with ELASTOCOLOR PAINT.
2. ANTIPLUVIOL W impregnator was applied to protect the brickwork.



3. The MAPETHERM external thermal insulation system was recommended for the pilotis floor.

film which is impermeable to water and aggressive agents in the atmosphere while remaining permeable to vapour and gives structures a highly attractive finish.

Protection of the brickwork. Once work had been completed, ANTIPLUVIOL W colourless, silane and siloxane-based, water-repellent impregnator in watery emulsion was applied to protect the brickwork. The first step was to clean the brickwork by hydro-blasting to remove all the dirt, dust and grease.

ANTIPLUVIOL W penetrates deep down into substrates and provides protection against the effects of driving rain. It also helps to improve the durability and resistance of the walls over the years.

ply QUARZOLITE PAINT. Made up of acrylic resin in water dispersion and super-fine quartz, this product protects surfaces from environmental aggression and forms a very attractive, even surface with a slightly rough finish.

Repairs to the reinforced concrete elements. This part of the work was carried out on the parapets of the terraces and on the beams and pillars of the buildings. The first step was to prepare the substrates of the areas to be repaired by getting rid of the portions of finish and concrete that were no longer anchored firmly to the substrate using power tools and by hydro-blasting. The reinforcing rods left exposed were carefully cleaned to get rid of any traces of rust and treated with MAPEFER 1K, a one-component cementitious mortar with anti-rust properties. The areas of concrete removed previously were

then integrated with MAPEGROUT sulphate-resistant, fibre-reinforced, shrinkage-compensated thixotropic mortar.

To integrate the areas where the render had been removed and to level off the surface of the substrate, a layer of PLANITOP FAST 330 quick-setting, fibre-reinforced cementitious mortar was applied. Then, all the surfaces of the façades were skimmed over with PLANITOP 217 water-repellent, cementitious skimming mortar, which was reinforced with MAPENET 150 mesh. Once this layer was cured, the substrate was initially treated with MALECH acrylic water-based primer, which is used to regulate the absorption of substrates and as an adhesion promoter for coats of paint to be applied later.

The concrete surfaces were then painted with ELASTOCOLOR PAINT which, once dry, forms an elastic

TECHNICAL DATA

Residential complex, Rho (Milan, Italy)
Period of construction: 1970s
Period of the intervention: 2017-2019
Intervention by Mapei: supplying products for repairing concrete, thermally insulating walls,

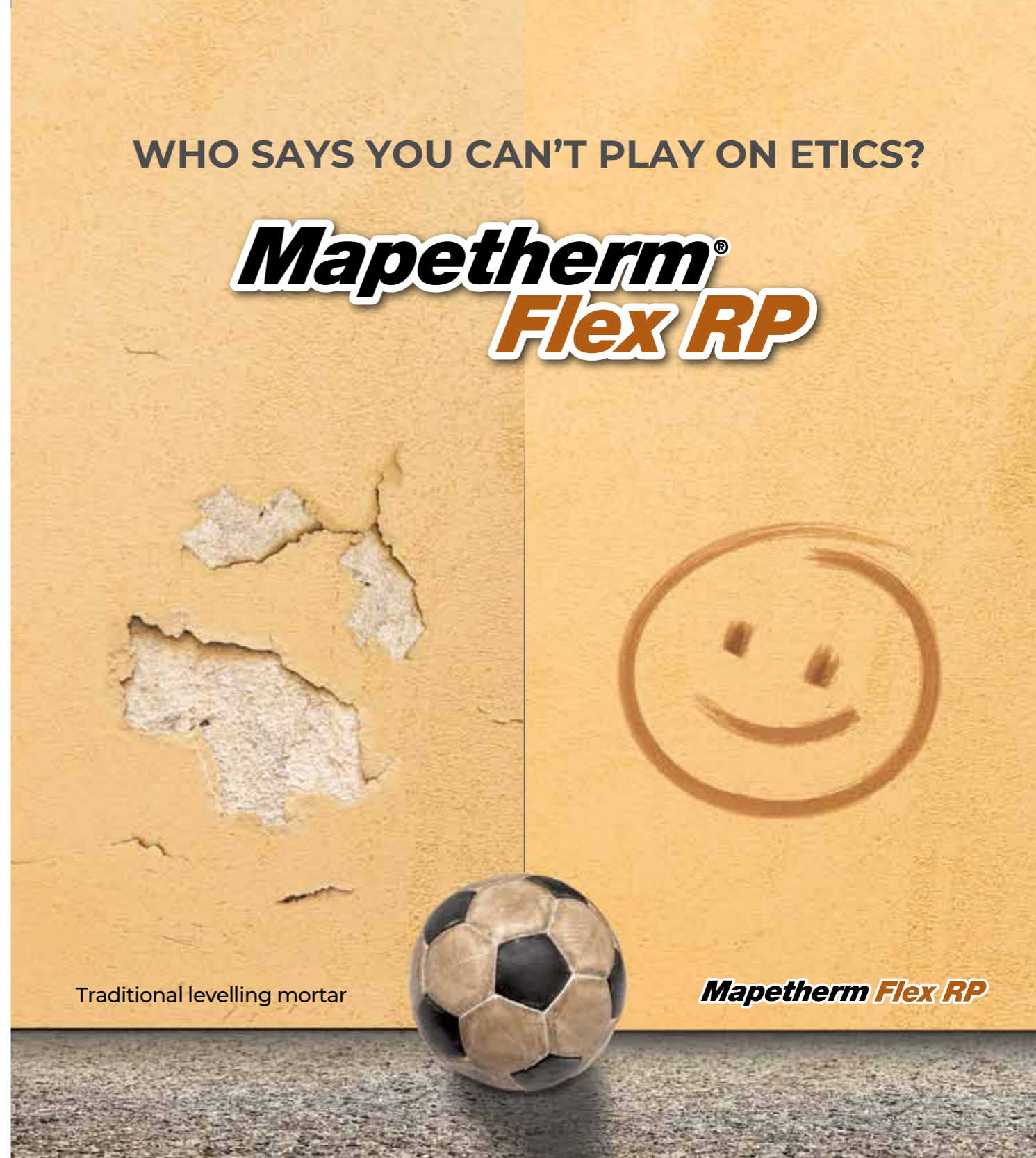
finishing and coloring the façades and parapets
Design: Colombini, Studio Pemdat
Works direction: Studio Pemdat
Main contractor: Icre srl
Mapei coordinators: Andrea Serafin, Andrea Peli, Fabio Bergamaschi, Alessio Rizzo, Mapei SpA (Italy)

MAPEI PRODUCTS

Building and repairing concrete substrates: Malech, Mapefer 1K, MapegROUT Thixotropic, Nivoplan, Planicrete, Planitop 217, Planitop Fast 330
Thermal insulation: Mapenet 150, Mapetherm AR1 Light, Mapetherm AR1 GG
Wall coatings: Antipluviol W, Elastocolor, Quarzolitite Base Coat, Quarzolitite Paint
 For further information on products visit www.mapei.com

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Mapetherm Flex RP is a ready-mixed, cement-free, mould and algae resistant skim coat. It features **high impact resistance** and can also be used for **repairing deteriorated thermal insulation systems**.

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Baden-Baden (Germany) RENOVATING A PRIVATE BATHROOM

XXL FORMAT
PORCELAIN TILES
WERE CHOSEN TO
GIVE A NEW LEASE
OF LIFE TO THE
BATHROOM AREA OF
A HISTORIC VILLA

Renowned mainly as a spa centre, the German city of Baden-Baden owes its particular charm to the old style architecture of many of its residential properties. The historic villa featured in this article recently underwent renovation work, which also included the bathrooms. For these areas the aim was to create a blend of technology, tradition and exclusive design with elegant materials, and at the same time maintain the old wooden flooring in the bathrooms.

The designer and the client decided to use large, XXL format (320 cm x 160 cm x 6 cm thick) porcelain tiles produced using a special manufacturing process to reproduce the beauty and properties of natural white marble. These tiles, in such an unusual format for their sheer size and reduced thickness, allow designers to create a wide range of patterns, but require a team of highly professional workers throughout the entire installation process.

Problems and solutions

The challenge in this case was not only to give sound advice on the best products to use to install and grout the XXL tiles, but also to offer expert support and advice to the contractor on how to prepare the substrates correctly so they would be suitable for receiving such a particular format of tile, to ensure perfect renovation of the bathroom.

The right preparation for XXL formats

From a technical point of view, the preparation work and installation of XXL tiles needs to be impeccable. Not only do tilers have to be specialised and experienced in trimming and installing such large formats, which are also very costly and difficult to handle, they also need to comply with the specific installation requirements, which are very often different from those applied to traditional ceramic tiles.

Apart from having to call in a specialised tiling company, the site also had to get special trolleys, lifting frames, and suckers to handle the tiles so they would not crack or break due to excessive bending, and to prepare a large storage area for the tiles. Once the logistics problems had been overcome, the designer and contractor then had to make sure the installation bed was prepared according to the requirements of XXL

1 and 2. Once their final position had been specified, the large-format tiles were carefully transported and placed in position using special frames before bonding them in place with ULTRALITE S1 QUICK adhesive with no vertical slip and high wetting capacity.
3. The joints were grouted with KERAPOXY CQ mortar for a perfect final result.



format tiles. Substrates, particularly when installing such large, thin tiles, have to be perfectly flat. If the installation surface is too uneven, it could ruin the appearance of the finished covering or lead to technical issues, such as cracking or breaking. In general this type of format is not very absorbent, which is why Mapei Technical Services recommended using class S1 adhesives which, apart from being deformable, have very high levels of adhesion suitable for bonding porcelain tiles – which are not very absorbent – and for large formats, as in this case. The first step of the installation phase was to treat the surface of the installation bed with PRIMER G synthetic resin-based primer in water dispersion diluted 1:2 with water. This product is an adhesion promoter that also makes surfaces more solid before installing anything over them. The walls of the bathrooms were then treated with MAPEGUM WPS liquid membrane, which is ideal for

waterproofing damp surroundings before installing tiles. MAPEGUARD WP 200 alkali-resistant waterproofing and anti-fracture membrane was then applied on the substrates in the shower area.

Preparation of the substrate was not the only part of the process that had to be taken carefully into consideration because, in order to install large format tiles, the adhesive system is also extremely important. For this reason, Mapei technicians recommended using ULTRALITE S1 QUICK one-component, high performance lightweight adhesive, which was applied using the double-buttering technique. This adhesive also has no vertical slip, high wetting capacity, a very high yield and good trowellability. To fill the joints, the product recommended was KERAPOXY CQ two-component epoxy grout, easy to apply and with excellent cleanability, a bacteriostatic agent and BioBlock® technology.

ULTRALITE S1 QUICK

One-component deformable, lightweight, rapid-setting and hydrating cementitious adhesive with no vertical slip, good trowellability, high wetting capacity and extremely high yield.

FIND OUT MORE



TECHNICAL DATA

Private villa, Baden-Baden (Germany)
Period of construction: early 20th century
Period of the intervention: 2017
Intervention by Mapei:

supplying products for preparing and waterproofing substrates and installing large-size porcelain tiles
Design: Thomasi Bechtold
Installation company: Fliesen Dinger GmbH

Mapei coordinator: Kurt Baumann, Mapei GmbH (Germany)

MAPEI PRODUCTS
Preparing and waterproofing substrates: Primer G, Mapegum WPS,

Mapeguard WP 200
Installing porcelain tiles: Ultralite S1 Quick
Grouting joints: Kerapoxy CQ

For further information on products visit www.mapei.com and mapei.de





LEFT. After applying MONOLASTIC waterproofing mortar, ULTRABOND ECO MS 4 LVT WALL was used to install LVT in the bathroom followed by a coat of MAPECOAT 4 LVT finish.

ABOVE. A system comprising PRIMER G, PLANITEX D5 and ULTRABOND ECO V4 SP FIBER was used to install LVT floors in the kitchen.

Přerov (Czech Republic) INSTALLATION OF LVT IN A BATHROOM

WITH THE RIGHT PRODUCTS LVT CAN ALSO BE INSTALLED IN BATHROOMS

Problems and solutions

Choosing such a particular wall and floor covering as LVT in a “problem” area with moisture and splashes of water, such as the bathroom and shower cabin as in this case, offered a real challenge. Products developed specifically for use with LVT (such as ULTRABOND ECO MS 4 LVT WALL and MAPECOAT 4 LVT), however, tried and tested for use in damp surroundings, proved to be an effective solution to this problem.

While work was being carried out to completely renovate this three-storey house, the owner of the property asked the contractor to cover an entire floor with LVT (Luxury Vinyl Tiles), the latest development in vinyl flooring for tough, strong flooring. This material has all the aesthetic appeal of real wood or stone but it is also warm, soundproof, easy to install and maintain, tough and long-lasting. The use of LVT is an old tradition in the Czech Republic but it had only been adopted in bathrooms on rare occasions. The local Mapei Techni-

cal Services was able to recommend a system suitable for installing LVT where water and moisture are present, including on vertical surfaces and the shower cabin. The cementitious screeds and the wall substrates were treated with PRIMER G primer in water dispersion. The surfaces were then skimmed with PLANEX HR rapid-drying, moisture-resistant smoothing and levelling compound. Any small defects and uneven areas in the substrates were levelled off with PLANIPREP 4 LVT ready-mixed, high performance,

skimming compound.

To ensure complete protection against water, the joints between the horizontal and vertical surfaces were waterproofed with MAPEBAND BUTYL tape (which is distributed on the Czech market by Mapei spol sro), while the surfaces were treated with MONOLASTIC one-component, cementitious waterproofing mortar.

The LVT tiles were then installed with ULTRABOND ECO MS 4 LVT WALL, a one-component, silylated polymer-based adhesive particularly recommended for applications in damp

surroundings.

All the distribution joints were filled with MAPESIL AC, a pure, mould-resistant, acetic, silicone sealant with mould-resistant BioBlock® technology.

The horizontal surfaces and all the LVT surfaces that could potentially be splashed by water were treated with MAPECOAT 4 LVT, a two component aliphatic, polyurethane finish in water dispersion that gives the surface of LVT a non-slip finish and high resistance to wear and abrasion.

The LVT floors in the kitchen were installed by using a system comprising PRIMER G, PLANITEX D5 levelling mortar (which is distributed on the Czech market by Mapei spol sro) and ULTRABOND ECO V4 SP FIBER adhesive.

TECHNICAL DATA

Private house, Přerov (Czech Republic)
Period of construction: 2018-2019
Period of the Mapei intervention: 2018-2019
Intervention by Mapei: supplying products for preparing and

waterproofing the substrates, sealing joints, installing LVT in the bathroom
Client: Václav Březina
Installation company: NAVA Interiér s.r.o.
Mapei distributor: NAVA Interiér s.r.o.
Mapei coordinators:

Daniel Lakoš and Zdeněk Runštuk, Mapei spol. sro.

MAPEI PRODUCTS

Preparing the substrates: Planex HR, Planiprep 4 LVT, Primer G
Waterproofing substrates: Mapeband SA, Monolastic
Installing and finishing:

ULTRABOND ECO MS 4 LVT WALL

One-component, silylated polymer-based adhesive for laying LVT on walls and floors, including those which are constantly exposed to water (kitchens, showers, etc.).

FIND OUT MORE



LVT: Mapecoat 4 LVT, Ultrabond Eco MS 4 LVT Wall, Ultrabond Eco V4 SP Fiber
Sealing joints: Mapesil AC

For further information on products visit mapei.com and mapei.cz



Milan (Italy)

STRENGTHENING IN AN APARTMENT

A SPECIALLY DEVELOPED MORTAR FOR STRENGTHENING THE FLOOR SLABS WAS USED FOR THIS INTERVENTION

To upgrade this apartment in Milan, apart from remaking the substrates, soundproofing the floors and installing wooden floors in the various rooms, the structure of the wooden floor slab itself also had to be strengthened.

The main aim of the work was to strengthen the floor slab to improve its capacity to distribute the loads and stresses acting on it, as well as to increase its stiffness by adding a structural screed as compact as possible to achieve the overall objective. The system recommended by Mapei Technical Services was particularly effective due to the limited increase in weight of the overall structure

and because there was no need to use any electro-welded reinforcing mesh. The strengthening system was made up of a structural screed to strengthen the extrados of the floor slab structure made from PLANITOP HPC FLOOR T ultra-high performance, high ductility, fibre-reinforced, shrinkage-compensated, semi-fluid cementitious mortar. The product is part of the HPFRCC (High Performance Fibre Reinforced Cement Composites) family of cementitious composites.

This micro-concrete combines high compressive and flexural strength with excellent levels of ductility and tensile strength, which is achieved

by the steel fibres contained in the product. Thanks to its semifluid consistency, PLANITOP HPC FLOOR T is used to maintain the existing slope on deformed floor slabs.

Work phases

The first step was to prepare the substrate (a surface of around 70 m²) by removing the layers already present on the wooden floor slab down to the planks. After cleaning the substrate, sheets of polyethylene thick enough for this job were laid over the entire surface and the sheets were overlapped to stop any drips or runs. The next step was to position the shear connectors by placing lengths

Problems and solutions

The refurbishment work involved completely renovating this apartment with a system that would strengthen the floor slab with a layer of product applied in the minimum thickness possible while achieving the mechanical properties required.

PLANITOP HPC FLOOR T high ductility, fibre-reinforced, shrinkage-compensated, semi-fluid cementitious mortar was chosen to meet this requirement.





1. Sheets of polyethylene were laid over the surface of the floor slab before placing the MAPEI STEEL DRY 316 bars.

2. The upper part of MAPEI STEEL DRY 316 bars were bent at 90° on the extrados of the floor slab.

3. Steel bars were also inserted into the beams around the edges and then sealed with MAPEFIX VE SF.

of MAPEI STEEL DRY 316 ultra-high-strength, dry-applied, helical AISI 316 stainless steel bars. The bars were installed inside smaller holes that had been previously drilled to a depth of half the height of the joists and the ends sticking out from the joists were bent at 90° so they would become embedded in the structural screed. Steel bars were inserted in holes drilled in the perimeter beams and were sealed in place with MAPEFIX

VE SF. This adhesive is specifically formulated to anchor zinc-plated threaded and deformed steel bars in solid and perforated substrates, as well as metal bars in tension and compression zones in cracked and non-cracked concrete, including in areas at risk of seismic activity. Once the floor beam had been prepared, a 2.5 cm thick structural screed made from PLANITOP HPC



4. The structural screed was made by pouring a 2.5 cm thick layer of PLANITOP HPC FLOOR T mixed with MAPECURE SRA curing and anti-shrinkage admixture.

5. The floor slab was soundproofed by applying the MAPESONIC CR system bonded in place with ULTRABOND ECO V4 SP adhesive.

6. The wooden flooring was installed in the various rooms using ULTRABOND ECO S955 1K adhesive.

then created made from TOPCEM PRONTO, ready-to-use, normal setting, quick-drying mortar with high thermal conductivity. To create a perfectly flat surface, the substrates were treated with PRIMER G adhesion promoter and then skimmed with ULTRAPLAN ultra-fast drying self-levelling compound.

The client also asked for the floor slab to be soundproofed and, for this part of the job, before installing the wooden flooring, the MAPESONIC CR system was applied, which is manufactured using recomposed cork and rubber bound together with high-quality polyurethane composite. It was bonded in place with ULTRABOND ECO V4 SP universal adhesive with very low emission of volatile organic compounds (VOC). Before applying the rolls, MAPESONIC STRIP adhesive tape was applied around the outside of the rooms to form a continuous length without gaps or interruptions. The new flooring was then installed after 24 hours. The wooden floor was bonded with ULTRABOND ECO S955 1K one-component, solvent-free, sililated polymer-based adhesive with very low emission of level of VOC.

FLOOR T was poured on the extrados side. The particular characteristics of the product meant that the cast material would follow the slope of the floor slab without it building up into layers too thick around the more deformed areas. PLANITOP HPC FLOOR T was mixed with MAPECURE SRA, a special curing admixture with the ability to reduce hydraulic shrinkage and the formation of micro-cracks. This stopped the water in the mortar from evaporating off too quickly and encouraged the development of hydration reactions. A new solid, compact screed was

PLANITOP HPC FLOOR T

One-component, fibre-reinforced, shrinkage-compensated, ultra-high strength, high-ductility, semifluid cementitious mortar for strengthening the extrados of floor beams.

FIND OUT MORE



TECHNICAL DATA

Private apartment, Milan (Italy)
Year of construction: 1910
Year of the intervention: 2019
Intervention by Mapei: supplying products for strengthening the floor beams, soundproofing and

installing wooden floors
Design: Sara Invernizzi
Main contractor: Gruppo LMB
Installation company: Milleun Parquet Srl
Mapei distributor: Gini & C
Photos: Gianni Dal Magro
Mapei coordinators: Massimiliano Nicastro,

Paolo Baldon, and Alessandro Sacchi, Mapei SpA (Italy)
MAPEI PRODUCTS
Structural strengthening: Mapecure SRA, Mapefix VE SF, Mapei Steel Dry 316,
Preparing substrates:

Topcem Pronto, Ultraplan
Soundproofing: Mapesonic CR, Mapesonic Strip, Ultrabond ECO V4 SP
Installing wooden floors: Ultrabond Eco S955 1K
 For further information on products see www.mapei.com

A COMPACT STRENGTHENING SYSTEM

THE FIBRE REINFORCED CONCRETE (FRC) PRODUCTS OF THE PLANITOP HPC RANGE ALLOW STRUCTURES TO BE STRENGTHENED BY ADDING MORE LIGHTWEIGHT COMPACT LAYERS COMPARED TO TRADITIONAL SOLUTIONS

For the work described on the previous pages (upgrade and renovation of an apartment in Milan), the wooden slab was strengthened by adding a compact structural screed made from PLANITOP HPC FLOOR T fibre-reinforced mortar.

FRC (or to be more accurate HP-FRCC - High Performance Fibre Reinforced Cement Composites) products by Mapei are made up of a range of mortars and micro-concrete with a cementitious matrix with extremely high performances (HPC) containing structural steel fibres (FRC) which are designed to give structures a high level of ductility and tenacity and improved mechanical properties during the plastic phase (post-cracking). The products from the PLANITOP HPC range have been specifically developed and designed for repairing and strengthening reinforced concrete structures and slabs of various

types by adapting to their particular characteristics, such as size, position, amount of deformation over the years, etc.

The range is made up of the following products:

- PLANITOP HPC high-fluidity mortar, ideal for strengthening reinforced concrete structural elements by casting the product into formwork to increase their section, such as pillars, beams, beam-pillar joints and structural walls.
- PLANITOP HPC FLOOR mortar and PLANITOP HPC FLOOR 46 micro-concrete, both with a fluid consistency, particularly suitable for strengthening reinforced concrete structural elements, various types of slabs, such as reinforced concrete slabs, brick-cement, wood or mixed brick-steel beams slabs, and for strengthening industrial floorings, airports and

road surfaces.

- PLANITOP HPC FLOOR T mortar and PLANITOP HPC FLOOR 46 T micro-concrete, both with a semi-fluid consistency, particularly suitable for strengthening reinforced concrete structural elements, various types of slab, such as reinforced concrete slabs, brick-cement, wood or mixed brick-steel beams slabs, and for strengthening industrial floorings, airports and road surfaces with a slight slope.

Thanks to their particular characteristics and innovative technology, using these products has numerous advantages during both the design phase and the execution phase of the strengthening work. Their particularly high mechanical properties and the structural steel fibres replace (either partially or completely) traditional steel reinforcement so that the layers of product required to strengthen an el-

ement can be designed to be much more compact, typically from 1.5 to 4 cm, with the following advantages:

- less mass and load added to the original structure;
 - lower amount of materials that need to be handled, mixed and applied;
 - less invasive from an architectural point of view, thereby saving precious centimetres during both the design phase and the installation phase (particularly important when strengthening slabs) of the various plant and service networks, acoustic layers, finishing elements, etc., and in order to respect the existing heights of thresholds and windows.
 - reduction in overall work times; no or less steel reinforcement needs to be laid and formwork may be removed after just 48 hours.
- Mapei also has a free software

Structural strengthening of brick-cement slab: why choose Planitop HPC Floor

Traditional System	Lightweight system with Planitop HPC Floor
<p>Yes Metal connectors</p> <p>Yes Layer applied at least 5 cm thick</p> <p>Yes Embedded electro-welded mesh</p>	<p>No Metal connectors</p> <p>More compact layer</p> <p>No Electro-welded mesh</p>

Comparing a traditional strengthening system with PLANITOP HPC FLOOR.

programme available called "Mapei HPC Formula" which can be downloaded from mapei.it (in the tools&download section) and can be used to check the values and calculations for some typical conditions for structural strengthening projects.

Rossella Comensoli, Structural Strengthening Products Line, Mapei SpA (Italy)

APPLICATION EXAMPLES



Strengthening by jacketing reinforced concrete pillars, beams and beam-pillar joints with compact layers of PLANITOP HPC.



Strengthening of the extrados of a brick-concrete slab with a compact layer of PLANITOP HPC FLOOR.



Strengthening of the extrados of wooden slabs with a low thickness structural screed realized with PLANITOP HPC FLOOR T.



Repairing a road surface with PLANITOP HPC FLOOR 46.

Ten years of constant growth in Bulgaria

MAPEI BULGARIA IS AIMING TO BECOME A MARKET LEADER IN THE TERMS OF ADHESIVES FOR CERAMICS, GROUTS AND WATERPROOFING COMPOUNDS



1. The Mapei Bulgaria manufacturing plant in Rousse in the north of the country.
2. The Bulgarian subsidiary's headquarters in Sofia.
3. Mapei Bulgaria also has a warehouse in Sofia.

Bulgaria is a small but high-performing country. Just like the rest of Eastern Europe, the Bulgarian economy has been extremely healthy over the last few years but it must now deal with a slowdown in its growth due to the Coronavirus epidemic, which, however, has hit the country less harshly than Western Europe and lots of other regions around the world.

Its GDP grew by 3-4% from 2015-2019 but in 2020 Bulgaria will also go into recession and, according to forecasts by the IMF (International Monetary Fund), its economy will shrink by 4% this year, less than many other countries in Eastern Europe, where only Serbia (-3%) and Hungary (-3.1%) will perform better than Bulgaria.

But this will only be a temporary slowdown because the economy

will grow again by 6% in 2021, an extremely positive performance in this region of Europe, second only to Serbia (7.5%).

Consumer prices will not vary significantly either (+1% in 2020, +1.9% in 2021). The IMF's forecasts are slightly more pessimistic than those announced by the World Bank, which expects the Bulgarian GDP to drop by 3.7% this year, a negative year after a period of constant growth; in 2019 its economy grew by 3.4% in line with the rest of Eastern Europe after increasing by 3.1% in 2018. Within this framework of economic expansion, the building industry has also performed well.

A favourable macroeconomic situation (at least until the sudden slowdown caused by the Coronavirus) that a company like Mapei has inevitably made the most of.

Mapei Bulgaria: a six-fold increase in sales

Mapei Bulgaria has been established in 2009, when the Group purchased an existing manufacturing plant used for manufacturing resin-based materials, dry mixtures and paints in the industrial area of Rousse, the city with the fifth highest population in the country, at the Romanian border. Mapei Bulgaria began fully operating and established its managing office in Sofia in 2010. It has also had its own warehouse in the capital since 2012. Business operations were not easy at the beginning due to the economic recession that affected many countries and resulted in the Bulgarian economy performing relatively modestly (+1% in the GDP during the period from 2010 to 2014). Nevertheless, Mapei Bulgaria took on the challenge and has managed to perform suc-

cessfully on the local building market recording steady increases in sales at the end of each year (there has been a six-fold rise in sales over the last 10 years). All this success is mainly due to a team of expert professionals (now approximately 80) and the ability to focus on its aims and goals: first and foremost to become the market leader in three different segments (adhesives for ceramics, grouts, and waterproofing); to cooperate effectively with distributors as a reliable and transparent partner; and to supply quality products along with technical assistance of a high standard. Over the years the manufacturing unit has been extended and its plants and systems have been modernised to meet the increasingly demand for high-tech building products from its Bulgarian, Macedonian, Romanian and Albanian customers.

Mapei Bulgaria is now planning to incorporate/launch new production lines at this facility. The Bulgarian subsidiary's marketing and communication operations have gradually developed and been extended. This year Mapei Bulgaria plans to invest in digital technology and training (over 100 events scheduled for 2020) and to focus on its most loyal customers through projects like the "Mapei Club", which awards branded work gear to those collecting most points by purchasing company products. Further projects will also focus on the world of architects and designers. In September the subsidiary also plans to celebrate its 10th anniversary in business together with its business partners and customers, an important milestone towards further and even more important achievements in the future.

MAPEI
BULGARIA

10.6
MILLION EUROS:
REVENUE IN 2019

1
MANUFACTURING
PLANT IN ROUSSE
(WITH A
MANUFACTURING
OUTPUT OF 50,000
TONS A YEAR AND
18 TONS OF CONCRETE
ADMIXTURES A DAY)

80
STAFF

HEADQUARTERS
IN SOFIA

2
WAREHOUSES
IN ROUSSE AND SOFIA



1

Sofia (Bulgaria) SOFIA METROPOLITAN RAIL NETWORK - LINE 3

AN IMPORTANT UNDERGROUND INFRASTRUCTURE PROJECT HAS BEEN COMPLETED TO THE FULL SATISFACTION OF THE CLIENT USING MAPEI PRODUCTS FOR UNDERGROUND CONSTRUCTIONS

Since 1974 Sofia, the capital city of Bulgaria, has been planning to construct a lightweight railway system. The first stretch of Line 1 was inaugurated in 1988 and, up until 2019, the rail network consisted of two separate lines with 35 stations, for a combined total length of 40 kilometres. Thanks to funds received from the European Union, construction of Line 3 was finally completed in 2019. The line is 16 km long and has 19 stations (11 of which are underground) and carries around 170,000 passengers every day.

The Mapei UTT team was asked for their support during the complex construction work on the underground tunnels along Line 3, especially as for the products that need to be applied when tunnelling with a TBM (tunnel boring machine).

After carefully analysing the ground to be excavated, Mapei experts recommended injecting POLYFOAMER FP/L, a liquid foaming agent based on biodegradable, anionic surfactants in combination with a polymer, able to generate a stable foam, with great lubrication properties, and is compatible with every type of soil excavated with an EPB TBM. The foam generated by POLYFOAMER FP/L reduces the friction between the particles of soil, thus minimizing the wear on the cutting wheel. To seal the cutterhead and the tail brushes, preventing the ingress of water, soil and other materials inside the TBM, it was recommended to use MAPEBLOX T tail sealant. When building the tunnel segments,

special concrete was produced by using DYNAMON SX super-plasticizer that gave the concrete enough workability, excellent final surface finish, and at the same time very high early strength, that allowed the contractor to increase the efficiency of the production process. DYNAMON SX is also particularly recommended for applications where there is the need for greater water reduction, along with very high compressive strength at the early and final stages.

Mapei Technical Services also recommended using the super-plasticizing liquid admixture for concrete MAPEFLUID N200. This product was used for production on site of back-fill injection mortar with excellent fluidity and excellent initial compressive strength after injection. Because MAPEFLUID N200 also acts as a slight retardant for the hydration process of cement, it gave the injection mortar enough open time to be transported long distance in the tunnel.



2



3

DYNAMON SX

Superplasticizer based on acrylic polymer to make concrete with high workability and good mechanical properties.

FIND OUT MORE



TECHNICAL DATA Sofia Metropolitan Rail Network - Line 3, Sofia (Bulgaria)

Period of construction:
2017-2019

Period of the intervention:
2017-2019

Intervention by Mapei:
supplying products for TBM

works and admixtures for concrete

Client: Sofia City Council

Works direction:

Suleyman Ergut
Contractors: Consortium,
Dogus, GP Group,
Ultrastry

Mapei coordinators:
Martin Stoyanov (Mapei)

Bulgaria), Enrico Dal Negro, Alessandro Boscaro, and Enrico Barbero, Mapei SpA (Italy)

MAPEI PRODUCTS

Products for TBM works:
Mapeblox T,
Polyfoamer FP/L
Admixtures for concrete:

Dynamon SX, Mapefluid N200

For further information on products see utt.mapei.com and mapei.bg

1. DYNAMON SX and MAPEFLUID N200 admixtures were used in the mix design of the concrete.

2. POLYFOAMER FP/L foaming agent and MAPEBLOX T sealant were supplied for the TBM tunnelling operations.

3. Mapei UTT (Underground Technology Team) were contacted and asked to supply products for the TBM tunnelling operations and for the underground work in general.

Problems and solutions

A tunnelling project that required the use of soil conditioning products, sealants and concrete admixtures. Mapei's Underground Technology Team recommended the most suitable, effective and durable solutions.



Singapore (Republic of Singapore) JEWEL CHANGI AIRPORT

A NEW RETAIL HUB NOW CONNECTS THREE OF THE FOUR AIRPORT TERMINALS TOGETHER AND INCLUDES HOTELS, A SHOPPING CENTRE AND A GARDEN WITH A 40 M HIGH WATERFALL

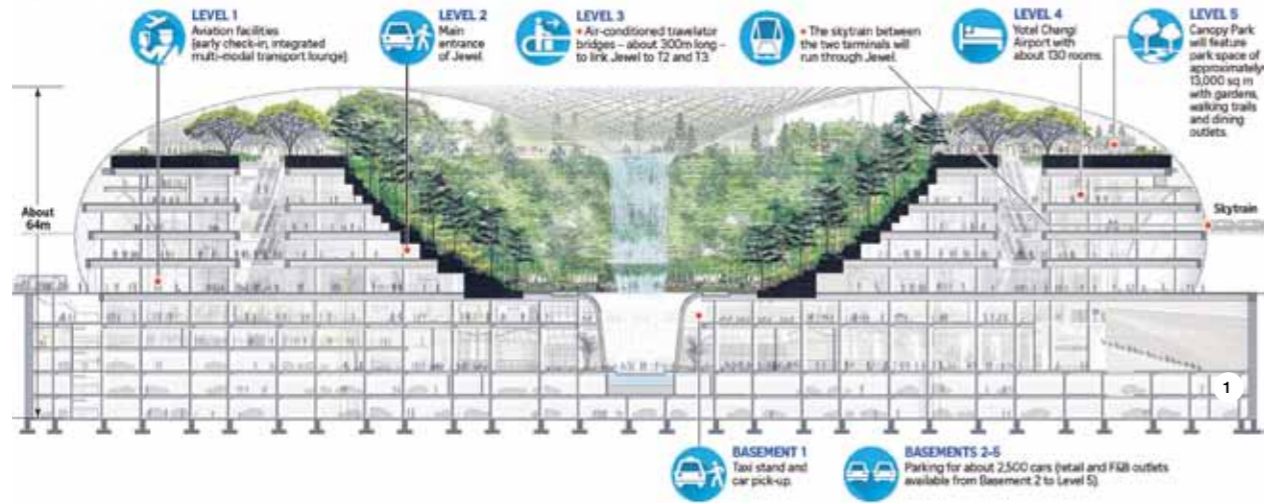
Designed by the Israeli-Canadian architect, designer and urban planner Moshe Safdie, who previously designed the Marina Bay Sands resort in Singapore (see *Realtà Mapei Internazionale* 33/2010), Jewel Changi Airport is the new retail hub made from steel and glass which, since 2019, with its network of footbridges and an overhead railway line, connects three of the four terminals of Singapore's main airport.

The airport is at the heart of a regeneration and expansion process and Jewel Changi is the latest of a series of futuristic projects for the structure. It consists of an imposing hall that connects three of the airport's terminals, characterised by a large tropical garden dominated by a ring-shaped glass roof, at the centre of which there is the highest artificial indoor waterfalls in the world. The aim of the project was to transform the airport into a destination in its own right. In

fact, inside the structure (which has a surface area of 134,000 m²), visitors find more than 300 shops and boutiques, restaurants, a cinema with 11 screens, a 130 cabin Yotelair, gardens and pedestrian areas.

Problems and solutions

An ambitious project that combined the construction of a futuristic architectural structure with the installation of natural landscaping inside the complex. The challenge was to ensure that only adhesives particularly suitable for the job would be used to install the various types of ceramic tiles and stone materials on the various types of substrate. And what is more, the installation products also had to be able to withstand and resist the constant passage of thousands of people.



1. A cross-sectional view of Jewel Changi Airport.
2. The walls of the waterfall are covered with lava stone slabs installed with KERAFLEX MAXI S1. The joints were grouted with KERACOLOR SF.
3. KERAFLEX MAXI S1 adhesive and KERACOLOR FF grout were used to install and grout granite and cobblestones along the paths in the Canopy Park and in the Shiseido Forest Valley.

Designing a waterfall in an airport

The structure of Jewel Changi is divided into two main blocks: a rectangular basement slab where the carpark, a cinema and service areas are located, and the toroid-shaped main building, spanning over 10 storeys (five of them are located underground), hosting the shops and boutiques over seven floors and featuring a large terraced greenhouse with a glass cupola roof. And it is the last of these areas that makes this airport so unique; a tropical garden over five levels, with an imposing glass and steel cupola, a bridge for the shuttle service connecting the various terminals, and a large artificial waterfall at the centre

of the building. The heart of the complex is the Shiseido Forest Valley covered by a large glass cupola, featuring a large, terraced garden with walkways and relaxation areas where more than 120 carefully selected plant species from all over the world are nurtured at a constant, controlled temperature of 23-24 °C, and a view overlooking the 40 m high Rain Vortex, the highest indoor waterfall in the world. Apart from being an iconic symbol of the airport, the waterfall is an installation that allows rainwater to be collected and then recycled into an irrigation system. The roof is made up of a 200 m long by 150 m wide toroid-shaped, grid-shell framework, the



only one of its kind. The cupola is covered by more than 9,300 glass panels, that allow the right amount of luminosity and light to flow into the complex, and has a 12 m diameter opening in the middle from where the water for the waterfall flows through.

Different areas required different adhesives

Mapei supplied the most suitable adhesives to install the various types of ceramic tiles and stone on all ten storeys of the structure. **Shiseido Forest Valley.** The lava stone slabs on the garden walls along the Rain Vortex and the slate slabs for the floor in the entrance to Jewel Changi Airport, in the Shiseido Forest Valley and in Terminal 1 were installed with KERAFLEX MAXI S1 cementitious adhesive with Low Dust technology and the joints were grouted with KERACOLOR SF cementitious grout. The same adhesive was used for the coverings along the cascading waterfall feature on the eastern side, while to grout the joints the preferred product was KERACOLOR FF

cementitious mortar admixed with FUGOLASTIC liquid polymer admixture to improve its adhesion and mechanical strength and to reduce porosity and absorption. The floors and stairs in this area were covered with granite, which was installed using KERAFLEX MAXI S1 adhesive and KERACOLOR FF cementitious mortar. A really tough adhesive had to be used for the soffit at the entrance of the Shiseido Forest Valley and the product recommended for this particular area was KERAPOXY acid-resistant epoxy adhesive. The flooring for some of the walkways in this area, in the Canopy Park and in the shopping area was made from even-shaped cobbles, which were installed with KERAFLEX MAXI S1 and grouted with KERACOLOR FF. The paving for the paths in the Canopy Park were in granite and the slabs were also installed with the same products. **Floor -1.** For this underground area, the granite floor slabs were installed with KERAFLEX MAXI S1 while ceramic tiles were installed in the area

where the restaurants are located with KERAFLEX adhesive. In both cases the joints were grouted with KERACOLOR SF super-fine, white cementitious mortar. **Shopping centre.** The floors on all seven levels of the shopping centre were covered with slabs of flecked cream marble and black granite slabs which were installed with KERAFLEX MAXI S1. The joints were grouted with KERACOLOR SF mortar. **Terminals.** The floors around the lifts in Terminals 2 and 3 were covered with slabs of marble installed with KERAFLEX MAXI S1 and the joints were grouted with KERACOLOR SF. The floors on floor -3, in the lobby and in the corridor connecting the terminals to Terminal 1 were covered with white Kashmir granite, which was





5



6

5. The floors in the restaurant in the basement area are covered with ceramic tiles installed with KERAFLEX and grouted with KERACOLOR SF.
6. The granite in the bathrooms was bonded with GRANIRAPID and grouted with KERACOLOR SF. The substrates were treated with PRIMER G before bonding the granite.

installed with KERAQUICK S1 high performance cementitious adhesive and grouted with KERACOLOR SF. The floor of the covered walkway connecting Terminals 2 and 3 was also covered with the same material and installed with the same products.

Bathrooms and service areas. To install tiles on the floors and walls of some of the bathrooms, it was recommended to use KERAFLEX adhesive. The floors and walls of the bathrooms in another area, on the other hand, were covered with black granite slabs installed with GRANIRAPID adhesive. Before installing the coverings on walls, the substrates were treated with

PRIMER G primer in water dispersion. The ceramic tiles used to cover the metal doors giving access to the service rooms and rooms for airport personnel were installed with KERALASTIC T thixotropic adhesive. Joints were grouted in all the areas with KERACOLOR SF. **External areas.** To pave the area in front of the entrance to Terminal 1, granite slabs were installed with KERAQUICK S1 and grouted with KERACOLOR SF. Some of the slabs had to be installed over metal grates and, to get the best result, it was recommended to use KERAPOXY adhesive and KERACOLOR FF grout for joints.

KERAFLEX MAXI S1

High performance, deformable cementitious white adhesive with extended open time and no vertical slip, for ceramic tiles and stone material, with Low Dust technology and very low emission level of volatile organic compounds (VOC).

FIND OUT MORE



TECHNICAL DATA
Jewel Changi Airport,
 Singapore
Period of construction:
 2014-2019
Period of the
intervention: 2017-2019
Intervention by Mapei:
 supplying products to
 install ceramic tiles and
 stone materials

Design: Safdie Architects,
 RSP Architects Planners &
 Engineers Pte Ltd
Client: Jewel Changi
 Airport Trustee Pte Ltd,
 Changi Airport Group
 (Singapore) Pte Ltd
Main contractor: Woh
 Hup – Obayashi Joint
 Venture
Installation companies:

Woh Hup Pte Ltd, Sunray
 Woodcraft Construction
 Pte Ltd
Mapei coordinator:
 Lawrence Chong, Mapei
 Far East (Singapore)
MAPEI PRODUCTS
Preparing substrates:
 Primer G
Installing and grouting:

ceramic tiles and stone:
 Fugolastic, Granirapid,
 Keraflex, Keraflex Maxi S1,
 Keraquick S1, Kerabond T,
 Keralastic T, Keracolor SF,
 Kerapoxy, Keracolor FF
 For further information on
 products see mapei.com
 and mapei.com.sg



EVERYTHING'S
OK
 WITH
MAPEI

Keraflex®

From the Mapei Research & Development Laboratories, the range of **Keraflex** cementitious adhesives: high performance products to improve **installation of ceramic and stone tiles.**

Certified for the wellbeing and living comfort of end users.



Matera (Italy)

CENTRAL RAILWAY STATION

THE BEST PERFORMING CONCRETE AVAILABLE AND TOTAL WATERPROOFING: THIS INFRASTRUCTURE DESIGNED BY STEFANO BOERI IS NOW MORE THAN JUST A STOPPING-OFF POINT

Designed by the architect Stefano Boeri, the station is covered by a large roof that turns the outdoor space into a covered square.



© Giovanni Nardi

Matera Central railway station offers a full range of services for the city of Matera (Southern Italy). It is situated along the Bari-Matera line and is managed by the Ferrovie Appulo Lucane (FAL) company.

The station was originally built at ground level before being transformed into an underground station. Inaugurated in 1915 as the southern terminus of the Bari to Altamura line, in 1928 another stretch was opened running between Matera and Miglionico and was in service from 1932 until 1972.

After being selected as "2019 European Capital of Culture", a redevelopment project for its central station was presented in 2018, designed by Stefano Boeri along with SCE Project for the structural works and E.S.A. Engineering for the plant systems.

The stated goal of the project was to turn it into a "station" in the true sense of the word, rather than to just carry on using it as an infrastructure hub. The project was more precisely defined as the "redevelopment of the station's buildings and structures by regenerating their aesthetic and functional qualities and upgrading the technological systems and railway services".

The new Matera Central Station, with its new main building, was inaugurated last year on 13th November and, just like the old station, it is right next to the old part of the city. The exterior finish of the new building, with its reception and hospitality services, ticket office and waiting rooms, is in local stone and is inspired by the classic underground caves typical of Matera. To overcome the problem of traditional underground stations, which tend

to be illuminated by artificial lighting and can often be quite cramped and unpleasant to be in, the new station has an opening of around 440 m² in the roof of the tunnel. The result of this feature is that passengers arriving or departing from the station now have the distinct sensation of being in an underground station but, thanks to the direct connection that has been created between the inside and the outside of the station, the underground tracks now receive natural air and ventilation.

Super admixtures and constant support

During both the regeneration phase and the waterproofing work on the underground tunnel, and then during construction of the entire station complex, Mapei worked in collaboration with the La Calcestruzzidue Srl concrete plant in Matera to develop the correct mix design for the concrete by providing all the technical support required. The constant presence of the Mapei Mobile Labora-

Problems and solutions

For this particular site, Mapei Technical Services had the support of the company's Mobile Laboratory during the various stages of the site work to study and develop the correct mix design for the concrete. DYNAMON SR914 acrylic super-plasticiser was the admixture proposed by Mapei and chosen by the concrete manufacturer to make concrete with a low water/cement ratio and a long maintenance of workability.



tory during the various phases to manufacture and pour the concrete enabled the team to optimise work schedules and to make the most of all the potential of the Mapei admixtures.

Going into detail, around 1,000 m³ of SCC C40/45 concrete with 700 mm slump flow containing DYNAMON SR 914 acrylic super-plasticiser was used as a foundation bed to position the cross-ties and tracks inside the existing tunnel, an area which would have been difficult to reach using other systems.

The concrete was pumped without any particular problem along around 600 m of fixed hoses. The hoses were gradually taken apart and their overall length was reduced as the pumped concrete worked its way closer to the fixed pumping station.

The surface of the concrete was then thoroughly cleaned to remove any residual material that had remained after pumping. The steel spacers and gravel clusters were removed from the surface of the concrete.

MAPEGROUT 430 fine-grained, fibre-reinforced, normal-setting thixotropic levelling mortar was used to level off the surface of the concrete substrates.

The second pours of concrete for the tunnel between the floor slab and the walls were sealed with IDROSTOP B25, a special 20x25 mm hydro-expanding jointing tape made from a mixture of natural sodium bentonite and polymers.

The second pours on the walls and the gaps around the pipework passing through the concrete were sealed by applying MAPEPROOF SWELL, a one-component, hydro-expansive paste used to form flexible, waterproof seals.

In certain cases, such as when water started to seep through some structural elements, the flow was blocked off with LAMPOSILEX ultra-fast setting and curing hydraulic binder. Once the surfaces had been properly repaired, they were cleaned down and a coat of PRIMER 3296 acrylic primer in water dispersion was applied, following roller application of MAPELASTIC FOUNDATION, a two-component, flexible cementitious mortar, which is especially suitable for waterproofing concrete surfaces subject to both positive and negative water pressure.

DYNAMON SR 914

Acrylic super-plasticizer for high quality concrete, specially formulated to make concrete with a low water/cement ratio and a long maintenance of workability.

FIND OUT MORE



ABOVE. The tunnel's roof slab has a large opening built into it.
LEFT. Mapei's Mobile Laboratory was on the building site all the time while the concrete was being manufactured and cast.

TECHNICAL DATA

Matera Central railway station, Matera (Italy)

Year of construction: 1915

Period of the

intervention: 2018-2019

Intervention by Mapei:

supplying admixtures

and waterproofing products

Client: FAL (Ferrovie

Appulo Lucane) Srl

Operations Manager: Vito

Filippetti (FAL Srl)

Architectural design:

Stefano Boeri Architetti

Structural design: SCE

Project Milano

Plant systems design: ESA

Engineering Milano

Works direction: Visa

Engineering Srl – Vincenzo

Gigli

Main contractor: Cobar SpA

Mapei distributor: Cobar

SpA

Concrete manufacturer:

La Calcestruzzidue Srl

Mapei coordinators:

Achille Carcagni, Gianni

Capriglia, Carlo Vitulli,

Fabio Laricchia, Michele

Mirco Malvasi, Gianmario

Dispoto, Francesco

Dragone, and Giovanni

Villani, Mapei SpA (Italy)

MAPEI PRODUCTS

Admixtures for concrete:

Dynamon SR 914

Levelling concrete:

Mapegrout 430

Substrate pre-treatment:

Primer 3296

Waterproofing: Idrostop

B25, Lamposilex,

Mapeproof Swell,

Mapelastic Foundation

For further information

on products visit

www.mapei.com



A brand-new space that enriches the fabric of the city

A FEW QUESTIONS TO THE ARCHITECT MARCO GIORGIO, PARTNER OF THE STEFANO BOERI ARCHITETTI DESIGN STUDIO AND PROJECT DIRECTOR FOR THE NEW RAILWAY STATION.

Seventy years have gone by from when the Sassi cave dwellings were called “A national shame”. Today, after being chosen as “2019 European Capital of Culture”, Matera is at the very heart of an important urbanistic and cultural transformation plan. How does the new station, designed by you and your team, fit into this rapidly transforming scenario?

As a native of this area I can say, quite openly, that the charm of Matera is the result of a process of abandonment that was transformed initially, and almost unknowingly, into a state of conservation, and then into a slow rediscovery and repossession of places that are unique in the world and which, as such, attract an extraordinary amount of interest because of their authentic and archaic beauty. Its isolated position, which left its mark on these lands until quite recently, to a certain extent helped

to safeguard its integrity. Then, little by little, the area became more open to modernisation and there was a period of development that resulted in beautiful, quality work, illustrious testaments to architecture of the highest quality, within the framework of a programme of expansion in the building stock which, however, wasn't always able to find the right balance with the past and with the surrounding landscape. The new railway station gave us the opportunity to make our own small contribution to the slow repossession of those places; on the one hand by providing a solution to concrete needs, while on the other hand by looking to construct a quality space for the entire city to enjoy.

What were the guidelines that inspired your design for the new Matera Central Station?

First and foremost we provided a functional solution to a concrete need: the need for a modern station with essential and comfortable services for the passengers. Secondly, the station was the driver behind the process of urban regeneration of a space with no identity, such as Piazza Visitazione for example, which, in spite of being centrally located with respect to the flow and passage of local residents, until just a couple of years ago had the appearance of a large urban void. And lastly, by studying the local architecture, we tried to enhance the relationship between life below ground and life above ground, by recreating a dialogue between the three levels that characterise the intervention: track level in an underground tunnel, street level featuring a building for the passengers and an upper level, the large roof that has been designed so as to create a covered piazza.

What criteria did you follow when choosing the materials?

The materials we used were basically three: steel, for the structures with large spans and for the main connecting elements; stone, for the wall and floor coverings in both interiors and exteriors, which reaches right down to characterise the lowest and deepest point of the main platform for the trains; and glass, for the large openings cut into the stone which, during the daytime, bring natural light inside the station and, at night, illuminate the facades of the station and reflect through the roof onto the space it overlooks.



SYSTEMS AND MATERIALS FOR **REPAIRING, SKIMMING AND PROTECTING CONCRETE**

A durable, sustainable structure can only be achieved by thinking in terms of systems rather than products, which is why, year in year out, **the building line by Mapei** is extended by introducing new, cutting-edge systems and materials with the aim of supplying **solutions for every type of problem encountered on site.**

EVERYTHING'S OK WITH MAPEI





Thun (Switzerland) PARKING CITY OST SCHLOSSBERG

A TECHNOLOGICAL CHALLENGE ALLOWS DRIVERS TO PARK DIRECTLY BELOW THE OLD PART OF THE CITY

Parking City Ost Schlossberg has 310 parking spaces and was built right underneath the castle and the old part of the city of Thun. It allows drivers to park 15 m below ground level and reach the old part of the city in just a few minutes.

Right from the very start the project encountered problems, due mainly to the area containing the homes of the local residents, the castle and the old part of the city around the Schlossberg hill, but also due to logistics reasons. The proposal was to build a large car park without pillars which would be brightly lit and safe, while using excavation methods which would have as little impact as possible on the surrounding area.

A challenging site

Work got under way in 2016 and, using a special 130 ton roadheader, 51,000 m³ of rock was removed in 500 days to create two large caverns (measuring 15 m in width, 78 m in length and 17 m in height), with each cavern divided into four semi-floors. The method employed took particu-

lar care to avoid creating too much disturbance for the local residents and to respect the local environment, reducing dust and noise created during excavation work to a minimum. Every three metres, the area dug out by the roadheader had to be held in place and made safe by quickly applying shotcrete, steel reinforcement and anchor points. Mapei Technical Services took an active part in the site work right from the start of the excavation phase. Working in collaboration with the concrete manufacturer, Mapei Suisse, the Swiss subsidiary of the Group, recommended using specific products for the shotcrete and carried out regular tests on the mechanical properties of the fresh concrete, including on site. Mapei Suisse also held internal training courses for the personnel carrying out the work to familiarise them with the admixtures chosen for the concrete mix. Concrete admixed with DYNAMON SR 912 CH, a super-plasticiser manufactured by Mapei Suisse, was prepared in the mixing plant, transported to site and then sprayed on the



TOP OF THE PAGE. A view of the castle with the pedestrian exit and an internal view of the car park.

ABOVE. The concrete used for the work was admixed with DYNAMON SR 912 CH admixture. MAPEQUICK AFK 777 T was used as a set-accelerator for the shotcrete.

walls with a lance just after they had been excavated.

Before applying the shotcrete, MAPEQUICK AFK 777 T set-accelerator was added to the mix. Thanks to its high accelerating strength and the absence of alkalis, this product is recommended for making shotcrete that has high mechanical strength after very short, short and long curing cycles, resulting in practically no loss in strength during long curing cycles compared with the same type of concrete without accelerators. To make pumping easier and help the concrete mix flow in the pipelines, the admixture MAPESTART 1 was also supplied. Also, to make the walls stable and safer, it was recommended to apply STABILCEM T, a pre-blended, thixotropic, shrinkage-compensated, injectable mortar to anchor the tie-rods and bolts in the rock.

MAPEQUICK AFK 777 T

Liquid alkali - free accelerator for shotcrete.

FIND OUT MORE



Problems and solutions

Located in the city centre, the space available for the site was limited and the noise and dust from the site had to be reduced to a minimum to avoid disturbing the nearby houses and the Schlossberg area of the old part of the city. The problem was overcome by adopting a "soft" excavation method to reduce vibrations, dust and noise using a 130 tonne Eickhoff ET 480 roadheader. And Mapei admixtures played an important role in obtaining a mix design that ensured high performances and a smooth pumping.

TECHNICAL DATA

Parking City Ost Schlossberg, Thun (Switzerland)

Period of construction: 2015-2018

Period of the intervention: 2015-2018

Intervention by Mapei: supplying admixtures for concrete and shotcrete, and products for anchoring

Client: Parkhaus Thun AG

Design: Basler & Hofmann AG; Kissling + Zbinden AG; Itten + Brechbühl AG; LP Ingenieure AG; Toneatti Engineering AG; Basler & Hofmann West AG; Siplan AG

Main contractor: Arge Marti Schlossberg,

Contractors: Marti Gesamtleistungen AG, Marti Tunnel AG, Marti AG Bern/Thun

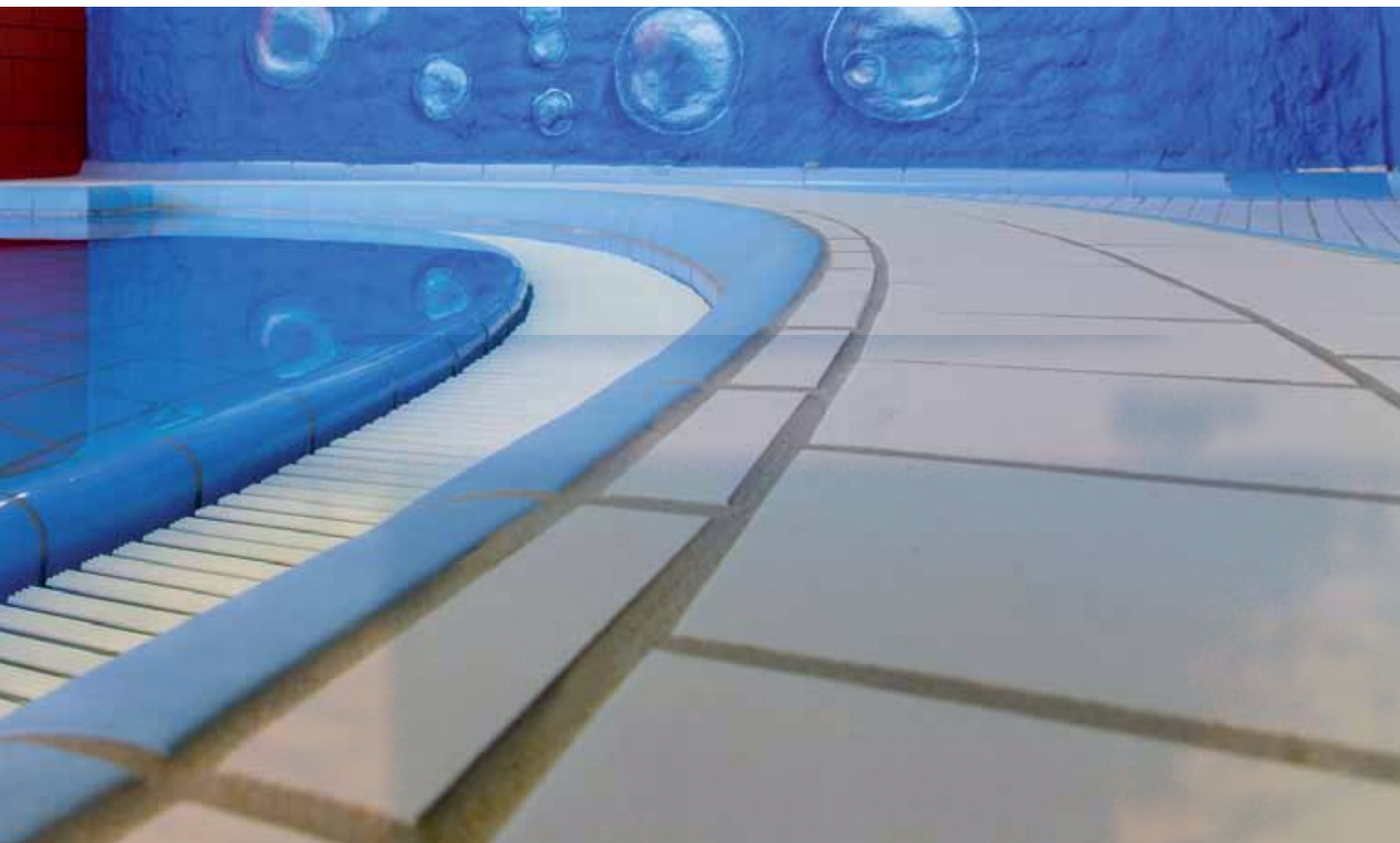
Concrete manufacturer: Frischbeton Thun AG
Mapei coordinators: Stefan Niederberger, Thomas Liniger, and Beat Liniger, Mapei Suisse SA (Switzerland)

MAPEI PRODUCTS: Admixtures for concrete: Dynamon SR 912 CH*, Mapestart 1 Admixtures for shotcrete:

Mapequick AFK 777 T
Anchoring: Stabilcem T

For further information on products visit www.mapei.com and www.mapei.ch

* This product is manufactured and distributed on the Swiss market by Mapei Suisse



JOINTS: QUALITY IS THE WINNING WAY

CENTRAL ELEMENT FOR DURABLE TILING

Joints are an essential feature of what is defined by many standards (including Italian standard UNI 11493-1) as ceramic tiling. They are important for both aesthetic and technical reasons which play a part in achieving the final result.

We consider the technical aspects of joints to be the priority because they increase the durability of ceramic tiling by reducing the risk of problems arising such as detached tiles, cracking and out-of-flatness, all of which have a direct effect on the expected service life of the ceramic covering itself. Well designed and correctly filled joints can help extend the service life of ceramic tiling. And how do they do this? Joints are basically a way of maintaining the continuity of a tiled surface and modify its modulus of elasticity, making the entire tile/grout line system more "deformable" and, as a result, able to withstand the dimensional stresses it will be subjected to during its service life.

An area of ceramic tiling with no joints has a modulus of elasticity almost the same as a single, large ceramic tile. As a result, the surface will be extremely rigid and be more

likely to break or detach from the substrate than an area of tiling with joints, due to dimensional instability in the substrate caused mainly by the hygrometric shrinkage of the substrate (if it is not fully cured when installing the tiles), expansion or contraction in the substrate or tiling (if there are significant variations in temperature), the deformability of the installation surface (due to flexural deformation), vibrations, settling, etc.

To summarise, a covering with a lower modulus of elasticity will be better at absorbing these effects and reducing the risk of breakages and/or detachment. It follows, therefore, that joints are very important to safeguard the integrity and durability of ceramic tiling.

What standards prescribe

Many national standards including Italian standard UNI 11493-1 prescribe the use of joints. UNI 11493 standard, section 7.10.2 (width of joints), states:

"Installing tiles using butt-joints is not permitted. In no case should joints less than 2 mm wide be either specified or adopted". The width of joints must be defined

during the design phase by taking into consideration the following aspects:

- type of tiles (pressed/extruded; rectified/non-rectified);
- format of the tiles;
- dimensional tolerance specified for the tiles;
- coefficient of thermal expansion of the materials used for the tiling system;
- mechanical properties (deformability/modulus of elasticity) of the installation materials (adhesive and grout);
- position and layout of joints;
- mechanical characteristics (rigidity, dimensional stability) of the substrate;
- area of use (internal/external) and expected service conditions.

As a general rule, design specification usually state that the width of joints should be 2 to 3 mm for pressed tiles with regular dimensions (rectified tiles) installed in internal areas on a rigid, dimensionally stable substrate, or from 6 to 8 mm for the opposite conditions.

To calculate the correct width of joints there would have to be a design phase. If it is not possible to have a design phase, however, tile layers can take the dimensions given above as a technically valid guide.

Not only durability

It is also important to consider that there are other advantages from a technical-performance point of view of having joints in tiling. They reduce the influence of differences in dimensions between the tiles and make it easier to control that the joints are filled evenly and are longer lasting, thereby extending the service life of whatever type of material is used to fill them.

No less important is the aesthetic aspect of joints, which is achieved during the execution phase and during the sealing/grouting phase of the joints, in which the characteristics of the products become extremely important. It is essential, therefore, to rely on good quality products with high performance properties, such as KERACOLOR, ULTRACOLOR PLUS, KERAPOXY and FLEXCOLOR cementitious grouts by Mapei.

The most suitable grout for each type of joint

Which material to use depends on the performance properties required and on the area of use. Epoxy grouts are preferable when you require a product with no absorption, high resistance to chemicals and a high level of hygiene, such as in industrial floors, industrial kitchens,

KERACOLOR FF, KERACOLOR GG and KERACOLOR SF

High performance, polymer-modified, cementitious grouts for joints from 4 to 15 mm.



canteens, laboratories, etc. All the products in the KERAPOXY family can be used for joints in floors, walls, worktables, etc. in compliance with the principles of HACCP (Hazard Analysis and Critical Control Points) guidelines and the requirements of EC Regulation No. 852/2004 for the hygiene of foodstuffs. High performance acrylic and cementitious grouts, such as FLEXCOLOR, KERACOLOR and ULTRACOLOR PLUS, are normally used in surroundings where you require a high-performance product without reaching the same level of characteristics as for epoxy grout. Mapei cementitious grouts, however, also have properties such as DropEffect® (water-repellence) or BioBlock® (anti-mould) technology.

The jewel in the crown

ULTRACOLOR PLUS is a high performance, polymer-modified, anti-efflorescence, rapid-setting and drying mortar with water-repellent DropEffect® and mould-resistant BioBlock® technology for joints from 2 to 20 mm wide. It is a class CG2 WA product compliant with UNI EN13888 standard and is available in 34 different colours. It features unique characteristics, such as:

- Resistance to mould (BioBlock® technology). It contains special organic molecules which, by distributing themselves evenly throughout the microstructure of the grout lines, go to the very root of the problem by impeding the formation of microorganisms responsible for any alterations in grout caused by mould.



ULTRACOLOR PLUS

High-performance, anti-efflorescence, non-irritating quick-setting and drying polymer-modified mortar with water-repellent DropEffect® and mould-resistant BioBlock® technology for grouting joints from 2 to 20 mm wide.



THE EXPERT'S OPINION

KERAPOXY and KERAPOXY CQ

Two-component, acid-resistant epoxy grouts (available in 20 colours), easy to apply and with excellent cleanability, with a bacteriostatic agent and BioBlock® technology, ideal for grouting joints in ceramic tiles and mosaics. They can also be used as adhesives.



- **Water repellence** (DropEffect® technology). It reduces absorption of surface water and has a drop effect.
- **Stable, uniform colour**. The self-hydrating hydraulic binder contained in the product guarantees uniform colour and, because ULTRACOLOR PLUS does not produce efflorescence, no staining. During the hydration process, the special cements contained in ULTRACOLOR PLUS do not form the calcium hydroxide crystals that cause efflorescence.
- **Speed**. Short waiting time before cleaning and very easy to finish off. Short waiting time before opening floors to foot traffic and putting them into service.
- **Easy to clean**. Smooth, compact final finish with low water absorption, which also makes it very easy to clean.
- **Mechanical strengths**. Excellent resistance to abrasion, freeze-thaw cycles and flexural loads, which means excellent durability.
- **Resistance to UV rays**. The range comes in more than 34 colours which are resistant to ultraviolet rays and atmospheric agents.

Epoxy grouts

It also very important to note that epoxy grouts are becoming increasingly popular in the residential sector. The constant increase in the size of tile formats we have witnessed over the last few years has, on the one hand, led to a reduction in the overall area joints have to cover but, on the other hand, has made the role joints play in tiling systems even more important because of the higher lev-

els of induced stress generated by larger formats and the need to reduce the "rigidity" of tiling as much as possible. Low consumption rates per square metre and the introduction of epoxy grouts that are easier to use (such as KERAPOXY DESIGN and KERAPOXY CQ) have encouraged the introduction of epoxy grouts for residential/commercial buildings, while in the past they were only used in the industrial sector. Nowadays, it is not uncommon to also see epoxy grouts used in homes and shops, or at least in more stressed areas such as bathrooms and kitchens, where a non-absorbent grout that is easier to clean and hygienise is the ideal solution.

It is worth remembering at this point that KERAPOXY CQ has been certified according to ISO 22196:2007 standards by the University of Modena (Italy) as a grouting mortar protected against the formation and proliferation of micro-organisms, which means it is particularly suitable for use in combination with ceramic tiles with similar characteristics, such as in the healthcare sector, to create ceramic surfaces with extremely high levels of hygiene. It is clear that joints have a very important role to play in the design and installation of ceramic covering and their presence has a direct effect on the durability and quality of ceramic coverings. It is important, therefore, to design tiling with joints dimensioned according to the specific characteristics of each single project and the conditions the surface will be exposed to, and also in compliance with current standards (such as UNI 11493-1). And it is just as important to choose suitable products to fill joints, products that have the right mechanical characteristics and properties, comply with international reference standards (UNI EN 13888) and which are aesthetically pleasing, eco-sustainable and durable.

To conclude, it is important to point out that Mapei grouts are classified ECI PLUS in compliance with the EMICODE classification system issued by GEV. This means that our products have very low emission of volatile organic compounds and protect, therefore, the health of those who use them and of those who live in the surroundings where they are used.

We invite you to contact Mapei Technical Services to define the most suitable product for your particular needs, according to the effective characteristics and performance properties required.

Enrico Geronimi. Technical Services, Mapei SpA (Italy)



FLEXCOLOR

Ready-to-use, acrylic resin-based mortar with water-repellent DropEffect® and mould-resistant BioBlock® technology, for grouting joints from 2 to 10 mm in ceramic tiles.



SET THE mood

WITH **MAPEI GROUT COLLECTIONS**



The most attractive joints are always by **Mapei**. 5 collections to suit every taste and 4 products resistant to mould: **Ultracolor Plus**, **Kerapoxy**, **Keracolor** and **Flexcolor**. **For all your wall and floor coverings, make room for Mapei coloured joints.**

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





LEFT. A view of the external arcade upon completion of the restyling work.
RIGHT. An external view of the shopping centre.



Crema (Italy)

GRAN RONDÒ SHOPPING CENTRE

NEW FLOOR COVERINGS IN THE ARCADE AND BATHROOMS IN THIS BIG SHOPPING MALL

The Gran Rondò shopping centre is in a strategic position, just 1 km from the city centre of Crema (Northern Italy). Opened in 1994 and then extended in 2006, it underwent a complete restyling in 2019 to provide a more comfortable experience for its visitors. The centre extends over an area of more than 15,000 m² and has 38 shops and boutiques, a hypermarket and a carpark with a capacity of 1,280 vehicles.

Preparation work and installation in the arcade

Mapei Technical Services proposed

the most suitable systems to install the new flooring in the arcade and bathrooms. For the arcade (total surface area 2,250 m²), the restyling project specified that the old stone flooring should be overlaid with Marazzi ceramic tiles in various formats (60x60 cm, 30x60 cm and 15x60 cm with a thickness of 10.5 mm).

Some of the stone slabs were removed. Where required, the substrate left exposed was skimmed and levelled off with PLANITOP FAST 330 fibre-reinforced, quick-setting cementitious mortar. Before installing the new flooring chosen for this

Problems and solutions

The objective was to create ceramic coverings that would be durable, resistant and, above all, quick to install. Therefore, Mapei Technical Services suggested to use products that would allow the installation work to be completed quickly. Besides, the double-buttering technique reduced the risk of tiles breaking due to heavy or spot loads, which is especially important in areas subjected to heavy foot and load traffic, such as in shopping arcades.



1



2



3

area, the old flooring was thoroughly cleaned, the surface was sanded down and the substrate was cleaned to remove all materials that could affect adhesion of the new flooring. Ceramic tiles were bonded with KERAQUICK MAXI S1 rapid-setting and hydrating cementitious mortar with very low emission of volatile organic compounds (VOC), which is particularly recommended for ceramics and stone, including large

formats. This product allows to open floors to intense use within just 24 hours of being installed. The contractor was therefore able to carry out the work during the shopping centre's closing hours.

It was recommended to use the "double-buttering" technique to install the tiles: that is, to apply the adhesive on both the installation bed and on the back of the tiles in order to guarantee complete wetting. Using this technique prevents gaps and voids forming between the substrate and the tiles, thereby reducing the risk of tiles breaking due to heavy or spot loads.

ULTRACOLOR PLUS high-performance mortar was then used to grout the joints. Polymer-modified and recommended for joints from 2 to 20 mm wide, this is a rapid-setting and hardening product with water-repellent DropEffect® and anti-mould BioBlock® technology. ULTRACOLOR PLUS also makes it possible to open flooring to foot traffic within just 3 hours of completing the grouting operations.

Installing in the bathrooms

To install the tiles in the bathrooms, it was recommended to create a new solid, compact isolating screed. A vapour barrier, doubling as an isolating layer, was created by laying sheets of polyethylene over the surface, with the edges of the sheets overlapping by 20 cm. The screed itself was made from TOPCEM PRONTO ready-to-use, normal-setting, quick-drying screed mortar, which allows screeds to be made that have a re-

1. The old stone flooring was overlaid with new ceramic tiles bonded with KERAQUICK MAXI S1 adhesive.
2. The "double-buttering" technique was recommended in order to create a better bond.
3. ULTRACOLOR PLUS high-performance mortar was used to grout the joints.
4. The substrates in the bathrooms were waterproofed with MAPELASTIC AQUADEFENSE and the ceramic tiles were installed with KERAFLEX MAXI S1 ZERØ. Joints were grouted with ULTRACOLOR PLUS.



4



sidual moisture content of less than 2% after just 4 days of curing.

The ceramic flooring was installed with KERAFLEX MAXI S1 ZERØ high-performance cementitious adhesive with very low emission of volatile organic compounds. The joints were again grouted with ULTRACOLOR PLUS.

To seal the expansion joints, as well as the junction points between the porcelain flooring and the skirting around the edges of the drains and pillars, it was recommended to use MAPESIL AC pure acetic silicone sealant with anti-mould BioBlock® tech-

nology, and MAPEFOAM closed-cell polyethylene foam cord.

The ceramic tiles of the walls were bonded to plasterboard panels. Extra care was taken around the control joints and corners between horizontal and vertical surfaces by applying MAPEBAND EASY rubber tape. A waterproofing layer consisting of two coats of MAPELASTIC AQUADEFENSE ready-to-use, ultra quick drying, flexible liquid membrane was then applied on the substrates. The tiles were then installed with KERAFLEX MAXI S1 and joints were grouted with ULTRACOLOR PLUS.

KERAQUICK MAXI S1

High-performance, deformable, rapid-setting and hydrating, non-slip cementitious adhesive with extended workability and very low emission of volatile organic compounds.

FIND OUT MORE



TECHNICAL DATA

Gran Rondò shopping centre, Crema (Italy)

Year of construction: 1994

Year of the intervention: 2019

Intervention by Mapei:

supplying products to prepare screeds, waterproof

substrates, install and grout ceramic tiles in the arcade and bathrooms

Mapei coordinators:

Francesco Di Chiara and Alessio Rizzo, Mapei SpA (Italy)

MAPEI PRODUCTS

Preparing screeds:

Topcem Pronto

Skimming substrates

Planitop Fast 330

Waterproofing substrates:

Mapeband Easy,

Mapelastic AquaDefense

Installing ceramic tiles:

Keraquick Maxi S1, Keraflex Maxi S1 Zerø

Grouting joints: Ultracolor Plus

Sealing expansion joints:

Mapefoam, Mapesil AC

For further information on products see mapei.com



Novosibirsk (Russia)

THE THERMAE OF THE WORLD

CONSTRUCTION OF THIS AQUATIC THEME PARK AND SPA COMPLEX INCLUDED THE USE OF MAPEI GROUTS FOR JOINTS

This large aquatic and spa complex rivals anything Europe has to offer and is undoubtedly the finest one ever built in Russia. We are talking about the Thermae of the World located in Siberia, in the city of Novosibirsk. The entire structure extends over an area of 5,000 m² and is divided into various internal and external recreation areas, offering its visitors swimming pools, a beach area overlooking the lake and the surrounding woods, a nursery and a restaurant serving “wellbeing” cuisine, as well as various thermal treatments. The spa park itself has several pools and areas each of a different size according to the type of treatment available: a large 1,500 m² swimming pool, an outdoor pool that is heated so that it may remain open all-year-round, a saltwater pool, a Jacuzzi, a collagenarium (a cabin with special lamps in different colours for cosmetic treatments), salt caves, a children’s pool, a relaxation area, a hamam, several saunas and a Turkish bath.

Mapei Technical Services were contacted at the very start of the project

for advice on which solutions would be the best to use for a structure constantly in contact with water, in which damp and moisture can clearly cause problems due also to the presence of hot water and steam and to different areas being exposed to different variations in temperature.

After studying the project, a selection of alternatives were presented that would be able to withstand the different conditions and ensure a long service life.

Mapei products were used in the indoor and outdoor pools and to install glass mosaics and large-format floor tiles in the corridors of the complex.

Substrate preparation and installation in the spas

The sides of the pool were skimmed and levelled off with NIVOPLAN PLUS levelling mortar (produced and distributed on the Russian market by AO Mapei). To help it bond more firmly to the substrate, it was mixed with PLANICRETE synthetic rubber latex. MAPEFILL, a high-flow non-shrink cementitious grout that de-

1. This large aquatic and spa complex is undoubtedly the finest one ever built in Russia and was completed by using plenty of Mapei products.
2. Before installing the tiles and mosaic in the pools, the substrates were levelled off with NIVOPLAN PLUS mixed with PLANICRETE.
3. The mosaic was bonded in the pools with ULTRALITE S1 and the joints were grouted with KERAPOXY or KERAPOXY DESIGN.

velops very high levels of mechanical strengths, was recommended to anchor metal elements to the structure of the swimming pool and to seal the joints between the concrete blocks. The first phase of the waterproofing work on the large swimming pool (1,500 m²) and the sides of the hamam and pools, including the hot pools, was to place MAPEBAND rubber tape with alkali-resistant fabric along the joints between the horizontal and vertical surfaces. This was followed by the application on the surfaces of a layer of MAPELASTIC two-component cementitious mortar to form a highly flexible, waterproof protective coating.

The marble slabs in the hamam and the large-format ceramic tiles in different areas of the complex were installed with white GRANIRAPID, a cementitious adhesive particularly suitable for bonding floors exposed to high levels of foot traffic and which, thanks to its extraordinary bonding strength and rapid-drying properties, is an ideal choice for areas that need to be put back into service quickly.

The glass mosaics in the spa pools and in the swimming pools were bonded in place with ULTRALITE S1, one-component, high-performance, flexible, lightweight, cementitious adhesive with no vertical slip and ex-



tended open time. KERAPOXY a special acid-resistant epoxy grout, was recommended to grout the joints of the mosaic coverings in the pools and spa pools, along with KERAPOXY DESIGN two-component decorative, acid-resistant grout. Not only is the latter product particularly suitable for grouting joints in areas where hot water is present, it also has a semi-transparent finish that produces a stunning effect, especially when used on glass mosaic. Final cleaning operations were carried out with KERAPOXY CLEANER and KERANET cleaning solutions.

KERAPOXY DESIGN

Two-component, decorative, acid resistant epoxy grout (available in 32 different colours), ideal for glass mosaics. May also be used as an adhesive.

FIND OUT MORE



Problems and solutions

The main problem was how to install and grout different materials – marble, ceramic tiles and glass mosaic – in areas where there would be water present, including very hot water. Also, the grouting for the glass mosaic tiles needed to be carried out with extra care in order to obtain such a stunning final effect. This was achieved by using KERAPOXY DESIGN.

TECHNICAL DATA

Thermae of the World, Novosibirsk, Siberia (Russia)

Period of construction: 2015-2018

Period of the intervention: 2016-2018

Intervention by Mapei: supplying products for preparing substrates and installing ceramic tiles,

marble and mosaics in different areas

Main contractor: SOK
Installation company: Kontek

Mapei distributor: Triton
Mapei coordinator: Eugene Lebedev, AO Mapei (Russia)

MAPEI PRODUCTS:

Preparing substrates: Mapeband, Mapefill, Mapelast, Nivoplan Plus*, Planicrete
Installing ceramic tiles, marble and mosaic: Granirapid, Ultralite S1
Grouting joints: Kerapoxy, Kerapoxy Design
Cleaning: Keranet,

Kerapoxy Cleaner

For further information visit mapei.com and mapei.ru

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

Rachele Somaschini and research accelerating together

MAPEI CONTINUES TO SPONSOR THIS GREAT RALLY DRIVER

She has blond hair, green eyes and is as fierce as a tiger behind the wheel of her rally car. Rachele Somaschini, aged 26, is a rally driver just like her father. She drives a DS 3 (PSA-Citroen brand) 1600 turbo for the RS Team; her navigator is Chiara Lombardi.

Rachele is being supported by Mapei again this year: a partnership that began in 2018 when she was sponsored for the Monza Rally Show and which continued the next year with a deal covering the Targa Florio event and other races in the 2019 Italian Rally Championship.

A partnership that has become closer over time and confirms Mapei's commitment to social responsibility and supporting scientific research. The Mapei logo appears on the Somaschini-Lombardi team car in all major Italian races. Rachele does not just race in rallies for the sport, she is also involved in fundraising for research into cystic fibrosis. "So far my fundraising project has collect-

ed 160,000 Euros for the Italian Cystic Fibrosis Research Foundation, something I am very proud of".

Rally organisers have shown considerable interest in her "Racing to breathe" project, whose sole ambassador is this blonde-haired rally driver. "Up until 2015 - so Ra-



chele told us - everybody thought it was just a fundraising project, but then lots of people realised it was something much bigger than that, a sort of campaign to raise general awareness about the illness".

Somaschini has first-hand experience of the illness: "So far my cystic fibrosis has been much less severe than in other people my age; I'm trying to do everything I can to fight the illness. I decided to get involved in the battle against this illness when I was 16. I train at least two hours a day, focusing on aerobic work to counteract my breathing problems. My illness causes my body temperature to go up during races, so I drink lots of supplements to avoid dehydration".

The RS Team had great plans for the 2020 racing season but, unfortunately, racing was interrupted on 23rd February due to the Covid-19 pandemic: Rachele only managed to take part in the Monte Carlo and Val d'Orcia (see photo at top of page) rallies. The Italia Sardegna (WRC World Championships), Roma Capitale (European Championships), Monza and San Remo rallies have all been postponed until as-of-yet unspecified dates. As Rachele says: "I am not worried because my sponsors are, first and foremost, all warm-hearted people who have always been there when I have needed them. Nevertheless, we know that priorities have changed due to the Coronavirus: health comes first and, out of respect for people who are suffering and those fighting the virus on the front line, we must play our part to try and stop its spread and be ready to resume racing in top form as soon as possible".

LEFT. Rachele Somaschini, aged 26, is a testimonial for research into cystic fibrosis.



AT THE BOARD MEETING HELD ON 4TH MARCH VERONICA SQUINZI WAS APPOINTED ADVISOR AND DIANA BRACCO PAID TRIBUTE TO ADRIANA SPAZZOLI



Veronica Squinzi joins the Board of the Sodalitas Foundation

Veronica Squinzi, CEO and Global Development Director of the Mapei Group, has been appointed to the Board of the Sodalitas Foundation. She was officially made an Advisor of the Foundation at the meeting held on 4th March.

Veronica Squinzi's decision to join Sodalitas is considered to be particularly important and fits in with Mapei's commitment to social responsibility. Indeed, a fourth fundamental "pillar", Sustainability, has gradually been incorporated alongside the Group's three main guidelines as a key driver behind constant business growth. Mapei, which has always been attentive to its impact on the environment and society, enforces the principles of sustainability by translating them into good ethical practices and behaviour in terms of product/process/social sustainability.

A new President of the Sodalitas Foundation was also appointed at the board meeting held on 4th March to replace Adriana Spazzoli, Mapei Group's former Operational Marketing and Communication Director who sadly passed away on 21st November last year. Board member Enrico Falck was appointed in her

stead and, paying tribute to Adriana Spazzoli, he expressed "his admiration for the work she has done for the Foundation over the last three years". The meeting was opened with a special tribute to the former President, Adriana Spazzoli, who led the Sodalitas Foundation from 2016 to 2019. "Throughout her term in office - so Alessandro Breda, Managing Director of Sodalitas, claimed during the meeting - it is worth remembering that Adriana Spazzoli always showed great determination and willpower in everything she did for the Foundation (and its members) to which she always provided her full support, showing admirable resilience in performing her duties right until the very end".

Another member of the Board, Diana Bracco, talked about her close personal friendship with Adriana Spazzoli. She noted that "Adriana Spazzoli shared the common belief that the only way to do business is responsibly and sustainably and how this firmly held belief made her just the right person to take over the leadership of the Sodalitas Foundation, a position she made her own and fulfilled so admirably with such remarkable vision and enthusiasm".



Farewell to Amilcare Collina, a life dedicated to research

Professor Amilcare Collina, who was one of the Mapei Group's leading figures for over two decades, passed away in Milan on 28th March 2020, after a short illness.

Born in Milan and a graduate in Chemical Engineering from Milan Polytechnic, he began his managerial career in the Montedison Group's Research & Development department after initially working in the academic world as an assistant to the Nobel Prize in Chemicals winner, Prof. Giulio Natta.

While working at Montedison, he focused on the development of basic chemistry processes and was the author of numerous international patents for new processes for manufacturing formaldehyde and ammonia and for polymerising ethylene in a gaseous state.

But it is when he joined the management team at the Donegani Institute in Novara (1983), where he was then appointed Managing Director (1985), that a number of strategic projects really started to take off, including one into composite-thermoplastic materials.

The success of this project led to the development of Mater-Bi® - a bio-plastic-based material derived from cornflour - and the founding of Novamont, a company created to market the new product, which appointed Amilcare Collina as its Managing Director in 1991.

In 1994 he began working with the Mapei Group and became the Director of Research at Vinavil in Villadossola from 1996 to 2000, a company that Mapei took over from Enimont. He soon became the link between Mapei's requirements in terms of chemical formulas and Vinavil's production outputs, as he began developing polymers destined to become the raw materials and basic ingredients in the chemical formulas of Mapei products.

In 2000 he became the head of Mapei relations with the scientific community. In this role he developed numerous joint-ventures with various university institutes, including the "Nanotechnology Project" with Padua University (Northern Italy) and the "Composite Materials Project"

with Federico II University in Naples (Southern Italy).

Both these projects have had significant implications on Mapei product lines: the former through the development of MAPEFAST ULTRA®, a hardening accelerator based on nano-particles of hydrated silicates, and the latter by promoting the development of innovative composite materials for the structural reinforcement of historical buildings in seismic locations. More recently, he also set under way important research projects in the field of sustainability, renovation, conversion and the exploitation of waste.

Professor Amilcare Collina never lost his passion for Chemical Engineering. Indeed, he never gave up his active role in tackling specific scientific and technical issues, like, for example, studies he carried out for Mapei's MAPETHERM® thermal insulation system. He was, in fact, responsible for the joint-venture with Federico II University of Naples to study interaction between the various components of a complex insulation system, mainly analysing the interactive behaviour between adhesive and skim coat.

Professor Collina worked at Mapei alongside Ms Adriana Spazzoli, the former Mapei Group's Operational Marketing and Communication Director and President of Sodalitas. He was actively involved in Sodalitas projects and committed to incorporating sustainability as one of the bearing columns in the company's corporate philosophy.

Every who knew him admired both his authoritativeness and intellectual vivacity, his youthful irony and great humanity. His passing leaves a void it will be hard to fill, not just at Mapei but also in the entire chemicals industry. Thank you, Professor.

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

Thanks to Stefano Carrà, Giulio Morandini, Francesco Pignataro and Paolo Sala for the information they provided about Professor Collina



HE WAS IN CHARGE OF MAPEI'S RELATIONS WITH THE SCIENTIFIC COMMUNITY FROM 2000. THIS WORKING PARTNERSHIP HAD SIGNIFICANT REPERCUSSIONS ON PRODUCT LINES.

A new way of promoting sustainability

P.A.S.S. "PASSPORTS" NOW AVAILABLE FROM THE MAPEI WEBSITE

The world of design is increasingly focused on sustainability: in addition to growing interest in eco-sustainability ratings, such as LEED, BREEAM and Well, there are now the so-called CAMs - Minimum Environmental Criteria for building - first drawn up by the Italian Ministry of the Environment in 2017 and now compulsory in Italy for public tenders.

Mapei has always been focused on the design of sustainable products with low emissions of volatile organic compounds, with recycled material, and whose environmental impacts are measured and declared through EPDs (Environmental Product Declarations).

The sustainability characteristics of Mapei products, which are measured, assessed and certified by independent bodies, must be passed onto stakeholders (i.e. architects, contractors, designers and everybody requiring these products) as clearly as possible. Mapei provides various tools of doing this, which are available in Italian and English languages from its website (mapei.it).

The first tool, which has been available on the website for some time now, is called "LEED Calculator" and allows designers, who have signed up to the website and entered the

appropriate data for their building job-site, to directly download LEED declarations for all products and the documents required for a building to be awarded LEED certification.

The declaration (see the image below) contains everything needed to gain important LEED credits: from environmental product declarations, to the evaluation of volatile organic compounds, and Solar Reflective Index measurements.

Product	EPD Type	Production	Program	Number	Weighted EPD Value (g)
KERAFLEX MAXI S1	INDUSTRY-WIDE	ROBBIANO DI MEDICIA (2006)	EPD	EPD 001	0.8

Product	Regulation	Product Type	Allowable (µg/l)	Actual (µg/l)	Regulation	Voluntary Label	TVOC 28 days
KERAFLEX MAXI S1	SCANDI	ADHESIVE	55	54	ISO 16000	ECO*	< 60 µg/m³

The declaration is, therefore, a "summary" of everything needed to get a building certified, while all certified documents, such as Ecodec licenses for low-emission products or EPDs, can be directly downloaded from the product's webpage.

The "green" passport

The rising demand for sustainable products, both as regards voluntary international protocols and mandatory Italian CAM, has resulted in Mapei introducing another means of providing information about all its products that can be called a "green passport" or P.A.S.S. (**Profile, Aspects and Synthesis of Sustainability**).

These passports list the sustainability characteristics of any given product: i.e. whether it has low emissions of volatile organic compounds, whether it contains recycled materials, and whether it comes with an EPD.

But the benefit of a P.A.S.S. is that it also specifies how the product can contribute to ratings for a given building, notably as regards LEED v4 and CAMs.

A quick and simple way of assessing a product in relation to a building: the sustainability characteristics and, above all, their contribution to eco-sustainable building ratings are listed for each product.

These cards, which were printed on "Apple Paper" (a variety of paper obtained from waste material from industrial apple processing) for the 2019 edition of Cersaie international trade fair and are now uploaded on the product page of the mapei.it website, are extremely easy to use and automatically serve the needs of clients interested in building sustainably.

Mikaela Decio. Corporate Environmental Sustainability Manager, Mapei Group





Sassuolo has its own Formula 1 "Ferrari"

GIAN MARCO, A CENTRAL DEFENDER, DREAMS OF PLAYING FOR ITALY

Gian Marco Ferrari, aged 28 who plays in central defence for Sassuolo, is one of the players the Italian team manager Roberto Mancini has got his eye on and is considering calling up for the Italian team.

Meantime, Gian Marco is not letting this go to his head. "It is up to the selectors, not me, to decide whether I should be picked to play for Italy. It is in other people's hands, I can only promise to play my absolute best. If, in future, Italy's national team staff think I am good enough, I will do my very best wearing the Italy shirt. Of course, it is flattering to hear that the Italian staff are interested in me".

Gian Marco has come through the ranks: "Before playing in the Italian Serie A, I played in the lower divisions even though I actually began my career with Parma's youth team. And then, partly by luck and partly thanks to my determination, I managed to make it into the top flight. And I hope to keep on playing in the Serie A (editor's note, he laughs), I deserve it".

Ferrari joined Sassuolo in summer 2018: before that he played in Serie A for Crotona and Sampdoria. "The players were really enthusiastic at Crotona, because we were all so young and playing in the top division for the first time. It was hard but at the same time wonderful to have reached the top level and manage to avoid relegation. It was all quite different at Sampdoria: the Genoa-based club is a prestigious team and its fans are extremely passionate and demanding. I had to prove my worth and it was quite different from the situation at Crotona. It is different again at Sassuolo, it almost feels like a family. And even though Sassuolo has fewer fans than Sampdoria, they still expect a lot and, in a friendly way, they certainly let you know they want to achieve something special".

Ferrari is currently managed by De Zerbi. "In my recent career, De Zerbi is the manager with whom I have worked most, so he has had the biggest influence on my progress as a player, giving me responsibilities I never had in the past. Nevertheless, all the managers I have had have helped me in some way, including those at Crotona and Sampdoria. Even the people who managed me in Serie C".



LEFT. Ferrari and Quagliarella (Sampdoria) at Mapei Stadium.

BELOW. Gian Marco in the match against Roma at the Olympic Stadium.



HE WAS A STRIKER

Gian Marco's did not begin his career in defence. "In youth teams I played as a forward and it was other people who had to mark me. Then, over the years, I gradually moved out to the wing and then became a fullback before moving to the centre of defence in Serie A". All youngsters have their own idol when they begin playing football: "Mine was Alessandro Nesta, the world-class defender who played for Lazio and AC Milan. He was my hero, even though I played in attack".

Forwards are always the most popular players with fans, so do defenders feel rather overlooked? "In modern football – so Gian Marco points out - it is even fun to play in defence. Keeping possession has always been something I liked even when I was a kid, and in modern football defenders are expected to be much more creative. I really enjoy playing for Sassuolo, because we pass the ball around a lot". Which games did you enjoy most this season before the football season was interrupted? "The match we won 4-2 against Roma at Mapei Stadium at the beginning of the second part of the season: I think that was an historic result. We also had two excellent wins against Spal, 3-0 at Mapei Stadium and 2-1 away from home."

The team resumed individual training sessions at Mapei Football Center on 4th May and group sessions on 18th May.

SASSUOLO CAN DOMINATE PLAY

Ferrari was particularly upset by the 1-0 home defeat against Parma during the second half of the season. "We dominated all 95 minutes of the match without scoring. There were other games Sassuolo deserved to win, because of how well we played, but ended up losing or drawing. We could have had three or four more points when play was stopped due to the coronavirus emergency. It is going better now, and I have completely recovered from my ankle injury".

Ferrari is a defender who scores important goals. Playing in the Italian Serie A, he has scored 3 for Crotona, 2 for Sampdoria and 4 for Sassuolo (all last season).

"My best goal for Sassuolo was the one I scored against

Lazio, which gave us a draw in a very tricky match".

Gian Marco plays with number 31 on his shirt. "I wanted to play with the number 13, partly because I can remember putting in some great performances when I was younger playing number 13 in Serie C, even though that is a number you usually wear when you are on the bench. I thought it was rather ironic when I was given the number 13 shirt, but I was only too happy to take on the challenge. When I joined Sassuolo Peluso was already playing with the number 13 shirt, unfortunately (editor's note, so he says with a smile), and so I turned the numbers round and asked for the number 31 shirt".

As well as playing for Parma's youth team, Gian Marco was also born in that city. "Nevertheless - so he is quick to point out - that does not really affect me when we play against Parma: I try to prepare for every match in the same way, regardless of the strength or prestige of the opposing team. The only time I feel any different is when we play away at Tardini Stadium in Parma: lots of Parma fans know me and that makes me even more determined to put in a good performance".

IT IS GREAT TO HAVE DREAMS

What is Ferrari's dream as a footballer? "To keep on climbing up the ladder and improving. For me it is important to take another step up each year, however small it might be, and keep on improving. There are no limits on what I dream of achieving with an ambitious team like Sassuolo that could become an even bigger club. I really want to break through. Every footballer dreams of playing international football".

And what is Gian Marco's dream on a more personal level? "I became a dad about a year ago and it has been the best experience of my life so far. I dream of becoming a great dad and that is not mean achievement. It is hard work being a dad".

Mapei Sport serving football

MAGNANELLI, A "VETERAN" OF SASSUOLO, TELL US HOW TRAINING HAS ADAPTED TO THE INCREASINGLY PHYSICAL NATURE OF THE SPORT

Lots of football teams from all over the world rely on the expertise and professionalism of the Mapei Sport Centre's staff headed by Dr Claudio Pecci. Over the years teams at the very top of their leagues, such as Juventus, Roma and Marseille, have chosen the Mapei Sport Research Centre in Northern Italy to help them perform to the very best of their ability, as have many other first or second division teams, such as Sampdoria, Kongsvinger IL, Olympique Lyonnais, Nantes and Munich.

Of course, the Sassuolo players feel right at home at the Mapei Sport centre. The team undergoes regular functional testing at Mapei Sport to manage properly training loads, get the very best advice about sports medicine (under the supervision of Dr Pecci), and draw on Dr Luca Mondazzi's nutritional knowledge and expertise.

Ermanno Rampinini, head of Mapei Sport's Human Performance Lab (HPL) since 2002 and a consultant for team sports like football and basketball and for Italy's Alpine skiing teams, is the project leader in charge of the facility.



1



2

Magnanelli undergoing tests

Somebody extremely familiar with the Mapei Sport Research Centre is Francesco Magnanelli, the captain of Sassuolo and the player with the most appearances for the club, who, during his long career playing in all the different divisions from Serie C2 to Serie A, has undergone over 60 assessment tests on the pitch.

"Our working partnership over the years has been extremely positive. The world of football is constantly changing, and the game is now much more physical than it used to be. The results of tests carried out at Mapei Sport provide extremely important support and information about the overall health and fitness of both the team as a whole and individual players. The test results are crucial for avoiding injuries, improving wellbeing, and solving problems", so the 35-year-old footballer was quick to point out.

"I have watched the research centre and its staff develop and their professionalism and expertise are beyond question. Over the years I have developed an excellent relationship with the staff. We are not robots, we need to be treated like people, something the staff at Mapei Sport staff knows only too well. I will never forget the help I received after getting my various injuries. I was assisted right throughout the rehabilitation period and, thanks to regular check-ups, we chose just the right moment for me to return to play. The information at hand prevents

you from making your comeback too soon, so you do not get injured again straight away", so the Sassuolo midfielder went on to say. Sometimes the Mapei Sport tests seem like torture to the players. "Being given electric shocks to your legs at 8 o'clock in the morning, sometimes in midwinter (he is referring to the test to assess an athlete's neuromuscular efficiency during repeated direction changes, Editor's Note), can be rather uncomfortable but they are very useful and part

of our job. I like being examined by Ermanno and other staff at Mapei Sport, because I am curious and I know that, however exhausting testing might be, it will help me improve. They really make me sweat, but it is the best way to assess my fitness. Which is my favourite test? HIT (High-intensity Intermittent Test). The test is based on changes in direction, avoiding your maximum heart rate. By measuring blood lactate, pH and other extremely useful parameters, it is possible to assess your physical fitness. The results are then noted down and crisscrossed with the "outcome" of the blood tests carried out at the same time, which are useful for checking your metabolic efficiency and muscle fatigue levels".

"The world of sport is changing all the time - so the captain of Sassuolo added. - The physical side is now just as important as the technical-tactical side of play. In the past training sessions were longer, we now work with greater intensity. We tend to recreate match situations on a smaller scale. We try to make the very most of our training time; we might only train for an hour, but at an extremely high intensity. That is why you need to be monitored. Mapei Sport ensures my teammates and I are heading in the right direction".

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



3



4

1, 2. Sassuolo's captain undergoing assessment tests at the Mapei Sport Centre and on the pitch.
3, 4. As well as Sassuolo, Mapei Sport Centre also monitors other football teams such as the Norwegian club Kongsvinger IL Toppfotball and the French club Olympique Lyonnais.
BELOW. Ermanno Rampinini explains the test results to Magnanelli.



RAMPININI: GPS NOW USED IN TRAINING

Magnanelli's first test 15 years ago seems a lifetime ago. Rampinini confirms this impression: "The latest scientific knowledge allows us to be even more accurate and precise in our assessments, and technological support means we can now carry out tests that were unthinkable in the past. Like, for instance, the determination of neuromuscular efficiency during repeated direction changes that is relatively new and now allows us to assess a player's ability to limit the amount of fatigue induced by a football-specific exercise in a very simple and effective way. The staff can then use this information to optimise the training of individual athletes at different times of year. Another relevant example concerns GPS. Until a few years ago we just used GPS in our cars to find the right route, but now we have high-frequency devices providing us with detailed information about training sessions and matches as they happen. As well as what technicians can see with their own eyes, we now have more and more fact and figures at hand, which, if interpreted properly, are a real help to both team managers and trainers".

NEWS FROM THE MAPEI WORLD

EVENTS, SPONSORSHIPS AND PROJECTS BY THE GROUP'S SUBSIDIARIES

MAPEI INC. AT BUILDDEX VANCOUVER - CANADA

On 12th-14th February, Mapei Inc., the Group's Canadian subsidiary, took part in Buildex Vancouver, a show for architects, engineers, contractors and other professionals of the building industry. It was an excellent opportunity to showcase to the general public the company's solutions for installing stone and ceramics, resilient and textile materials and wood, its products for cementitious and resin-based floors, and also its systems designed for heated floors and the surfaces of car parks.



MAPEI CROATIA: AID AFTER THE EARTHQUAKE

The city of Zagreb was struck by a violent earthquake on 22nd March that damaged a number of buildings, including a hospital for premature children and their mothers. Lots of charity projects have been set under way after this incident, including the donating of sports gear and other equipment used by famous athletes. Everything was auctioned to raise funds for reconstruction work. Mapei Croatia, the Group's local subsidiary, contributed by donating the football shirt worn and signed by the former Sassuolo player Šime Vrsaljko.



ON THE WORLD'S HIGHEST SUMMITS WITH MAPEI HELLAS - GREECE

Christina Flampouri is the first Greek woman to conquer the famous "Seven Summits", the peaks of the tallest mountains on every continent. This great challenge first thrown down by Richard Bass in 1985 is the ambitious dream of so many professional climbers. Christina completed the challenge on 6th January by planting the Mapei flag on the summit of Vinson Massif, the tallest mountain in the Antarctic. Her dream came true with the help of Mapei Hellas, the Group's Greek subsidiary, which decided to support this passionate, iron-willed climber who never stops trying to exceed herself, values that have always been at the foundations of the company's own corporate philosophy.



#SLETMASTERS2019 - RUSSIA



AO Mapei, the Group's Russian subsidiary, organised various seminars for professional installers in 2019 to explain how to use its products properly. The project also involved two Instagrammers, who are extremely well-known in the Russian ceramics industry, to encourage professionals to exchange their experiences and provide advice about installing ceramics, particularly large-size formats. After its success last year, AO Mapei has decided to reorganize #SLETMASTERS and take it to 7 different Russian cities (Krasnodar, Novosibirsk, Samara, Rostov-on-Don, Saint-Petersburg, Ekaterinburg, Minsk) in 2020 with the help of expert installers and new Instagrammers.

Mapei Academy training is now online

THE HOLDING COMPANY MAPEI SPA AND LOTS OF THE GROUP'S SUBSIDIARIES ARE JOINTLY INTENSIFYING THEIR ONLINE TRAINING OPERATIONS



During this very tricky period when so many people are forced to stay at home, Mapei has decided to invest in and extend its training programs through an online project design to keep the company in close contact with its customers and installers. This project is part of the Mapei's commitment to training and is designed for professionals, technicians, customers and end consumers based around two basic programs.

Mapei Academy online

From mid-April, Mapei SpA (Italy) is organising a series of training and interactive activities involving its experts and building professionals, who look at key issues in the building industry. These webinars, hosted on the Goto webinar online platform, are open to everybody. You can take a look at the programme for these webinars on the Mapei SpA's Facebook page or mapei.it website. These online courses last approximately one hour and each of them focuses on a specific issue, outlining relevant Mapei solutions/products and encouraging debate between everybody taking part. For

instance, the most recent ones focus on installing ceramics, structural strengthening, building products and installing resilient materials.

#acasaconmapei (athomewithmapei)

The other project - "#acasaconmapei" (athomewithmapei) - is a collection of videos in which Mapei SpA's technicians (connected by agile working methods from their own homes) suggest the ideal Mapei products for different jobs and take a look at the latest market demands and trends. The videos cover miscellaneous subjects, such as choosing the most hygienic grouts for joints, installing large ceramic tiles and stone slabs, and solutions providing soundproofing against foot traffic. They are available from mapei.com/it/it/acasaconmapei, the Mapei SpA's Facebook page, and YouTube channel. The project will also be promoted on Mapei SpA's Instagram profile. New videos are added every week to answer the questions most frequently posed to Mapei's Technical Services team, which, we would like to remind you, is always at hand to offer advice.

Over to...



"In the space of just a few days the Mapei Academy in Italy has been reorganised, rescheduling its courses, adapting its subject matter, and focusing training around digital tools. We have also promoted these projects making full use of social media and creating customised content, videos and posts that have gone viral. This has been a great success with thousands of people signing up and taking part in our sessions, clearly showing that training remains at the very focus of Mapei's corporate plans."

Stefano Raghieri. Corporate Operational Marketing & Communication Director, Mapei Group



"We have extended our already extremely wide-ranging training programme to reach everybody interested in high-quality communication, business experience and know-how."

Birgit Brink. Conferences & Trainings Coordinator, Mapei SpA (Italy)



"This experiment, which we think has been successful both for us and everybody else involved, will now continue during this resumption period. I would like to thank all those who got involved: together it will be easier to get going again!"

Francesco Stronati, Technical Services Director, Mapei SpA (Italy)

WORLDWIDE TRAINING



Mapei GmbH (Germany)



AO Mapei (Russia)



Mapei South Africa



Mapei Yapi (Turkey)

From Australia to South Africa

Mapei Group's subsidiaries in Brasil, Argentina, Croatia, New Zealand, France, Mexico, Australia, Germany, Slovenia, South Africa, Russia Greece, Singapore, Austria, Mexico, Turkey, and the United Kingdom have also adapted their training programs so they can be put online. Many of them, such as Mapei Argentina, Mapei Far East (Singapore), Mapei UK, Mapei GmbH (Austria), and Lusomapei (Portugal), have created videos with technic content, while others, such as Mapei France, Mapei Croatia, Mapei Hellas (Greece), Mapei GmbH (Germany) and Mapei de Mexico, have organized webinars on the most interesting subjects for the building industry in their own countries. Mapei Inc. and Mapei Corp., the local subsidiaries in Canada and the United States respectively, have been carrying out online training for some time now, operations which are, of course, continuing during this tricky period. Obviously, online training events are referred to on each subsidiary company's website, its social media pages (Facebook, Instagram and LinkedIn), company newsletter and YouTube channels, so that as many people as possible are kept informed, since great interest is being shown in these projects. Learn more on training activities in your country at mapei.com



Mapei SK sro (Slovakia)



Mapei Australia

Over to...



"We have called the project #emformacomapei to emphasise the importance of keeping healthy and informed even at home or in the office, particularly at the present moment but also in future."

Luca Sacripanti. Marketing Manager, Lusomapei (Portugal)



"Online training is nothing new for Mapei Inc, but we have ramped it up since 20th March."

Yoanna Pergantis. Marketing Manager, Mapei Canada Inc.



"Training is an essential pillar of Mapei Australia's customer service, allowing our team of professionals to showcase why Mapei is an industry leader. To continue to service our customers at the highest level, we are adapting our in-person training presentations to webinars, with positive feedback received to date."

Ashleigh Gray. Marketing Manager, Australia & New Zealand



"Work was already underway on a digital training structure to make available to the local market. When the initial impact of COVID 19 was seen and in particular the impact it had in Italy, we identified that it was something we need to get in place and up and running before we too felt the impact. Suddenly Digital became the only real option."

Geoffrey Green. Marketing Manager, Mapei South Africa



We called this initiative #encasacomapei. We've adapted the format to produce short videos with different contents, making it faster and easier to share them on digital media,

Lucas Alvarez. Marketing Manager, Mapei Argentina

AN EFFECTIVE WAY OF MAKING THE BEST USE OF MAPEI PRODUCTS

Mapei is providing operators in the building industry with a range of **video tutorials** showing simple practical examples of how to use the products properly and get the best possible results. These short film clips show how to use both separate products and entire systems. They were recorded in the studio and "out in the field" during building work Mapei was involved in.

The entire collection of **product tutorials** (over 30 videos with others currently being shot) is available online from the mapei.it website on the dedicated webpage in both Italian and English languages (photo 1).

Tutorials can be found on the webpage by **entering a key word** or making a selection from the different categories available (photo 2). Each video has a direct link to the relevant products (photo 3).

The last product video tutorial to be posted is about **installing and grouting porphyry in old town centres** (photo 4).

All the videos can also be found on the Mapei SpA YouTube channel and are regularly posted on Facebook, Instagram and LinkedIn.

Video Tutorials

The anti-noise defence system for your home



MAPEI SPECIFIC PRODUCTS FOR SOUNDPROOFING

We are here to talk again about quite a delicate subject that we discuss every now and again with Mapei Technical Services (See *Realtà Mapei International* no. 63). People living in apartment blocks in cities have to be prepared to adapt to the sounds and noises around them. By adopting the right construction systems, however, it is possible to contain the diffusion of noise to a level within the limits set by law according to the particular type of surroundings.

Where does the noise in our homes come from?

The sounds we hear in buildings, which is then perceived as noise if it disturbs or irritates us, come from the street, from plant systems running through the building and from neighbouring apartments. From a technical point of view, acoustic pollution can be airborne, from plant systems or from the noise of footsteps. Each of these sources of noise corresponds to a specific construction technique.

What is impact noise or footstep noise?

These types of noise are usually generated by

footsteps or by objects being dropped or dragged along the floor. Amongst the possible sources of disturbance, impact noise is the most common and the most irritating.

And what can we do to alleviate it?

In new builds, soundproofing material with the ability to dampen sound waves can be placed between the flooring and the load-bearing structure of the floor. The soundproofing system is placed underneath the screed so that you create a “floating screed” at least 4 cm thick. This solution is the most widely adopted because it is easy to install, pretty effective, quite cheap and it is easy to design using special acoustic prediction software. In these types of cases, MAPESILENT by Mapei is the ideal solution for newly constructed buildings to achieve a level of soundproofing against footstep noise in line with the legal requirements set, for instance, by Italian Ministerial Decree 5-12-97, and that can reach the higher levels of acoustic efficiency (Class I and Class II) specified in the new Italian standard UNI 11367 regarding footstep noise.

And when carrying out renovation work?

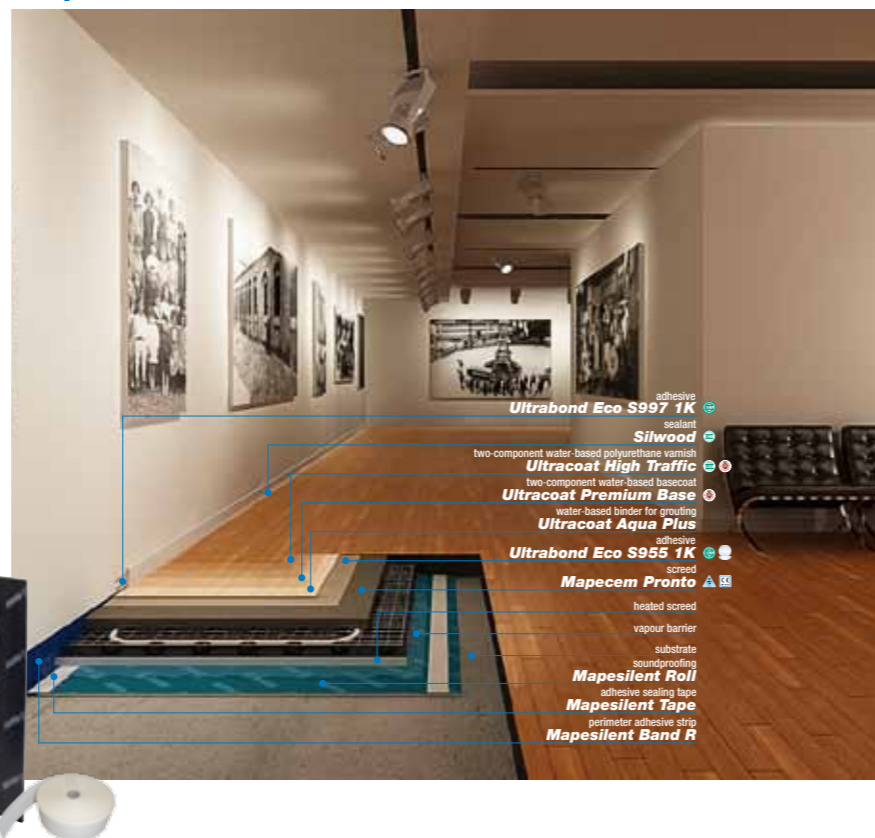
In the case of renovation work on existing buildings too, where you do not intend (or it is simply not possible) to remove the old flooring and screed, Mapei proposes MAPESONIC CR, a compact (2 or 4 mm thick) soundproofing membrane that is placed directly over existing cementitious substrates or old flooring before installing new ceramic, stone, multi-layered wood or resilient flooring.

Can the type of final flooring help with soundproofing?

Absolutely. Surfaces covered with carpet, resilient material (such as rubber, PVC or linoleum) and wood have a positive effect on the reduction of footstep noise transmission. No type of flooring, however, is sufficient to comply with the legal limits or to have a significant effect on reducing the transmission of noise, unless it is combined with an adequate soundproofing system.

Marco Albelice, Technical Services, Mapei SpA (Italy)

Mapesilent



Mapesilent is a high-performance modular system made up of an elastoplastomeric polymer bitumen membrane sandwiched to a polyester fibre backing. It is available in rolls and panels.

Mapesonic CR is an under-floor soundproofing system applied in a thin layer. It is manufactured using recomposed cork and rubber bound together with high-quality polyurethane composite.

Mapesonic CR





Products in the spotlight

ANCHORING, IMPROVING THE PERFORMANCES OF CONCRETE, INSTALLING SYNTHETIC GRASS: A FEW SOLUTIONS BY MAPEI



MAPEFIX UM-H 420

Chemical anchoring urethane methacrylate resin-based product for anchoring threaded bars, rebar, components and structures made from steel, galvanized steel, stainless steel and steel with high resistance to corrosion that transmit structural loads into solid and hollow-core substrates, including in areas at risk of seismic activity. It may be used to anchor metal bars in tension zones (cracked concrete) and compression zones (non-cracked concrete), as well as for permanently immersed and damp anchors, for surroundings exposed to aggressive chemicals, high design loads and high service temperatures or peak temperatures, etc. It is certified for performance classes C1 and C2 for use in areas at risk of seismic activity.

FOR CHEMICAL ANCHORS, INCLUDING IN AREAS AT RISK OF SEISMIC ACTIVITY



MAPEFIBRE ST 50 TWISTED

Class II structural polymer fibres, in compliance with EN 14889-2:2006, with a length of 50 mm respectively, developed to improve the performance characteristics of conventional concrete, pre-cast concrete and shotcrete. A valid alternative to traditional reinforcing techniques when used to distribute loads, to limit crack phenomenon due to plastic shrinkage and to produce high-ductility concrete and normal-setting, accelerated-setting shotcrete. They are resistant to alkalis and do not corrode, during both the storage phase and once added to the concrete mix, even in aggressive environments. They are characterised by a special surface treatment which guarantees excellent grip to the cementitious paste and an even distribution within the concrete mix.

FOR HIGH-PERFORMANCE CONCRETE WITHOUT REINFORCEMENT



ULTRABOND TURF 2 STARS PRO

Two-component, solvent-free polyurethane adhesive for last generation synthetic grass sports surfaces, particularly for playing surfaces requiring high elastic-mechanical performances. It is also suitable for installing acrylic resin sports surfaces, such as those from the MAPECOAT TNS range based upon wet and mat lay systems. Besides, this adhesive offers a very high level of tensile and peel strength, which makes it suitable for installing systems requiring approval by federations such as FIFA. When installing sports surfaces, this product makes it easier to lay synthetic grass, particularly during the delicate phase of cutting the lines to mark out the playing area.

FOR SPORT SURFACES WITH HIGH ELASTICITY

STRENGTHENING A FLOOR SLAB?

Planitop[®] HPC Floor
(High Performance micro-Concrete)



THE RAPID COMPACT SOLUTION

Mapei offers a revolutionary technology to strengthen slabs with only 1.5 ÷ 3 cm thickness thanks to the fibre-reinforced micro-concrete with very high mechanical strengths. **Planitop HPC Floor** is a cementitious mortar for strengthening floors during renovation, refurbishment or seismic upgrading interventions, with no need for electro-welded mesh.

EVERYTHING'S OK WITH MAPEI

Learn more on mapei.com



MAPEI FOR YOUR HOME

Choose reliability, durability and respect for the environment.

Restoring masonry, strengthening structures, waterproofing your terrace, installing flooring and paving, refurbishing your bathroom, painting and protecting your façades. Put your trust in **more than 80 years of experience** gained by Mapei on sites **all around the world.**

EVERYTHING'S OK WITH MAPEI

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

 **MAPEI**[®]
ADHESIVES • SEALANTS • CHEMICAL PRODUCTS FOR BUILDING

