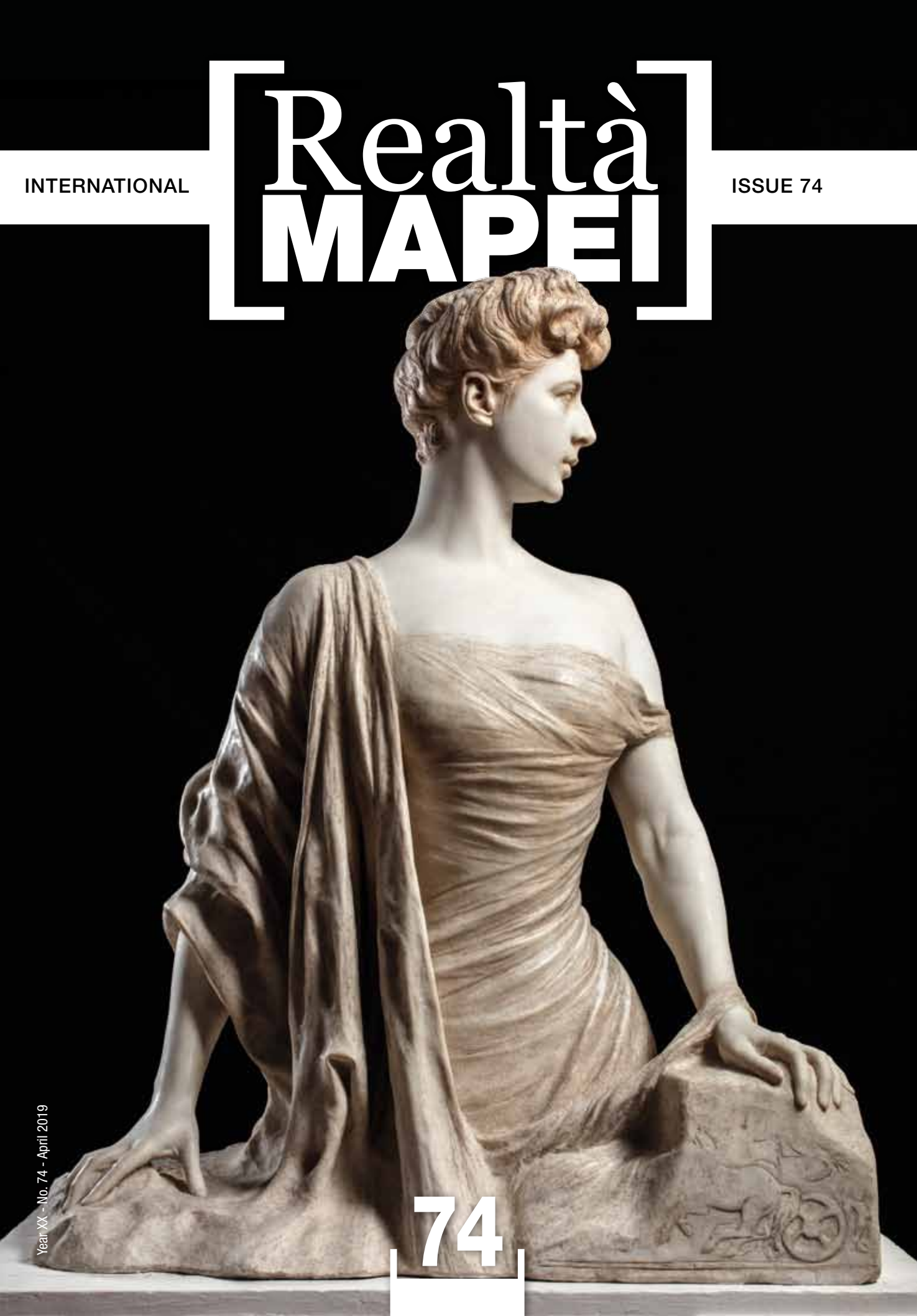
INTERNATIONAL

Realtà MAPEI

ISSUE 74



Year XX - No. 74 - April 2019

74

ADRIANA SPAZZOLI
Realtà Mapei International's
Editor-in-chief

READY TO GET BACK ON TRACK

Dear Readers,

This issue of *Realtà Mapei International* is very "Italian", but not exclusively "Italian". At a time of great global economic uncertainty and a general tendency to close ranks that many nations are showing, Italy has the chance to express its full economic-cultural potential. It is a nation of great excellence, with champions in many sectors of industry and manufacturing. The construction industry, which has historically been a driving force behind the nation, could play a central role in a new period of growth.

We are opening this issue by casting an eye across the Italian building market: leading players in the industry met together over recent weeks at Made Expo trade fair in Milan, showing they are ready for change in the name of innovation, sustainability and technology. In this context, Mapei presented an extensive "package" of new solutions to meet the demands of anybody operating in the industry.

AT A TIME OF GREAT UNCERTAINTY THE BUILDING INDUSTRY AND CULTURE CAN BE DRIVERS OF ECONOMIC GROWTH

The 10th anniversary of the earthquake in L'Aquila (Central Italy) in 2009 is a chance to take stock of the (still very incomplete) reconstruction programme under way and the many issues still unresolved. We have taken a look at the projects already carried out and those still to be implemented in the Abruzzo region, which extend to two other tragedies: the earthquakes in the Emilia region in 2012 and Central Italy in 2016.

Obviously, we have not overlooked Mapei's operations abroad with a special focus on Turkey, where the Group has left its "signature" on another prestigious project to supply materials and products to help build the new Istanbul Airport, which, once it is fully operational, will be the biggest hub in the world.

In our quest to find the latest trends that are changing our lifestyle and customs, we have spotted a further opportunity for nations to develop in their museum industry and culture in general. The number of visitors and takings at museums, a heritage unique of its kind, continued to rise in the latest few years. Mapei has not just helped renovate or build important exhibition facilities, it has always considered art to be part of its business "philosophy". Art and culture alongside all its other realms of action (starting with its commitment to sport); you will find all these matters examined in this latest issue of *Realtà Mapei International*.

Enjoy your reading everybody.

SUMMARY

MAPEI
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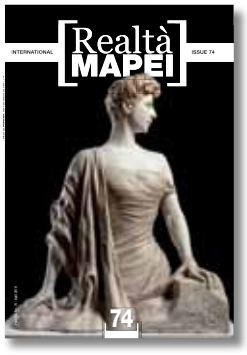

COVER STORY
Mapei is once again working as a Platinum Partner alongside San Domenico Museums in Forlì to help promote the exhibition "The 19th Century. Italian art from Hayez to Segantini". The exhibition opened on Friday, 8th February, and will be open to the public till 16th June 2019. In the picture: Pietro Canonica, "Donna Franca Florio", 1904-1907, Rome.

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MADE EXPO 2019
Quality living by Mapei

There were encouraging signs as the ninth edition of Italy's most important event for building and architecture drew to a close. MADE expo, a two-yearly event devoted to the building industry and architecture, which was held at Milan Rho Trade Fair from 13th to 16th March, focused on the issue of "Quality Living" to showcase various aspects related to urban and infrastructural regeneration. The building world is hoping to relaunch its industry by demonstrating it is ready to embrace innovation based around comfort, safety, sustainability and technology and thereby help boost the economy.

Featuring over 900 exhibitors (over an area of 47,500 m^2 of exhibition space) and over 130 international delegates, contractors and architectural designers from more than 20 countries, the 2019 edition of Made Expo was attended by over 90,000 people, approximately 10% of whom were foreign.

Debate about the need to relaunch construction work and inject fresh energy into the building industry has helped place these issues at the centre of the Italian government's political agenda. Lots of leading politicians were keen to express their support and backing for companies involved in Made Expo, such as the Undersecretary of State at the Presidency of the Italian Council of Ministers Giancarlo Giorgetti, the Italian Minister for the South of Italy Barbara Lezzi, the Deputy Minister for Economic Development Dario Galli, the President of the Lombardy Region Attilio Fontana, and the Mayor of Milan Giuseppe Sala.

MAPEI: INVOLVED ON VARIOUS FRONTS

Mapei was inevitably one of the main players at such an important event focused around architectural designers, businesses, buyers and professional operators of the building industry, taking this opportunity to display its full range of products and inform people about (and allow them to actually touch) everything that makes the company really stand out in the realms of building.

Mapei proposed new solutions and systems to meet the requirements of all those operating in this sector, from private and public building works to major infrastructure sites. Also highlighted at the trade fair were numerous solutions for the interior design sector; solutions that provide a combination of aesthetics and technical quality.

The MADE expo trade fair was also the perfect opportunity for Mapei to hold a series of product demonstrations showing how to apply materials correctly, and to host exclusive guided tours.

Mapei has always been particularly sensitive to the impact its products have on the environment and illustrated the results achieved and renewed its commitment to constructing a sustainable future. It develops products with very low emission of volatile organic compounds (VOC) certified as EMICODE EC1^{PLUS}; its operations comply with green building protocols adopted all around the world; it holds courses and workshops to help its employees, clients and professionals from the building sector learn more about sustainability.

PASQUALE ZAFFARONI - PRODUCT MANAGER: BUILDING PRODUCTS LINE

We noticed there was a "two-in-one" product. Would you like to tell us more about it?

The product is called MAPEGROUT ANCHOR & REPAIR. It can be used for anchoring metal structures, or it may be used to repair structures. It has been tested according to EN 1504-3 standard as a repair mortar and EN 1504-6 standard as an anchoring mortar. It has been designed mainly for the retail market to simplify stock control procedures for retailers.

Can you think of any other particularly innovative products?

We were the first company in Italy to have launched galvanic cathodic protection, which impedes corrosion by strategically placing specially designed pure zinc anodes that protect the steel reinforcement from aggression. Also, if corrosion has already started, the system re-passivates the steel. All this allows the durability of structures to be increased. At MADE, we are presenting a range of silanic products. The range includes a special gel (PLANISEAL WR85 GEL) that penetrates deep down into concrete and stops chlorides from entering, a very dangerous type of salt when it comes to corrosion in steel reinforcement. So, we can extend the service life of the structure. It is possible to achieve a service life that exceeds one hundred years.

WATERPROOFING SOLUTIONS

To waterproof roofs, terraces and balconies, Mapei proposed the PURTOP EASY range of ready-to-use polyurethane products. This is a family of one-component liquid membranes which are easy to apply on horizontal, vertical and sloping surfaces. They form a very strong bond with a multitude of substrates and feature a high level of elasticity. This range also includes the new one-component, transparent polyurethane membrane, PURTOP EASY T for a sound waterproofing in a very short space of time. For the new underground structures Mapei proposed MAPEPROOF FBT, a fully-bonded synthetic waterproofing membrane with non-woven fabric backing, for structures such as carparks and garages, swimming pools, storage tanks, underpasses and areas below grade in general. MAPEPROOF FBT is easy to apply and remains waterproof at pressures of up to 7 bars and also forms a highly effective barrier against groundwater, moisture in the ground, radon and methane. It is highly durable and resistant to ageing from UV rays while normal site activities are being carried out.

MORTARS FOR CONCRETE AND MASONRY

At MADE expo, Mapei also highlighted MAPEGROUT ANCHOR & REPAIR, the new fibre-reinforced compensated-shrinkage R4-class mortar for repairing concrete in compliance with EN 1504-3 standard and anchoring metal structures in compliance with EN 1504-6 standard. It is also recommended for the structural reintegration of reinforced concrete pillars and beams by pouring it into formwork, for reintegrating floor slabs after removing damaged areas by scarifying and for repairing concrete floors. As an anchoring product, for example, it is recommended for anchoring machine tools by casting the mortar below the machine base.

Amongst the ready-mixed mortars on

In the spotlight at MADE expo 2019: Mapei solutions for strengthening the extrados of floor slabs (PLANITOP HPC FLOOR), repairing concrete (MAPEGROUT FMR-PP) and urban design (MAPESTONE system).

show there was INTOMAP, a family of cementitious mortars for load-bearing, exposed-finish masonry and lime and hydraulic binder-based renders applied on internal and external surfaces.

DEHUMIDIFYING SYSTEMS

To combat the problem of rising damp, at MADE expo Mapei proposed POROMAP DEUMIDIFICANTE, a salt-resistant dehumidifying render for renovating all types of masonry, both internal and external, damaged by rising damp. This product is made from special Pozzolan-reaction, salt-resistant hydraulic binders, natural sand, lightweight aggregates and special additives. It has very low emission of VOC and is certified EMICODE EC1 R^{PLUS} by GEV.

On the other hand, MAPE-ANTIQUE is a line of 100% cement-free products made from lime and Eco-Pozzolan which are salt-resistant and specifically developed for particularly aggressive environments. It is ideal for consolidating, restoring, dehumidifying and rendering existing masonry buildings.

MAPESTOP is a range of products which is used to create horizontal chemical barriers against capillary rising damp and, when used in combination with dehumidifying render cycles, help improve durability, especially in structures suffering from damages caused by salts.

STRUCTURAL STRENGTHENING

Amongst its range of structural strengthening solutions for buildings, Mapei has developed cutting-edge, innovative solutions such as PLANITOP HPC FLOOR, to strengthen the extrados of floor slabs with just a compact layer without the need for electro-welded reinforcing mesh, and the MAPEWRAP EQ SYSTEM, to provide protection against the collapse of ceilings and non-structural walls.

At MADE expo, Mapei also presented the innovative, cement-free mortar with diffused micro-reinforcement, PLANITOP INTONACO ARMATO, for strengthening existing masonry without the need for reinforcing mesh.

New products!

Planitop Intonaco Armato

The innovative, cement-free mortar with diffused micro-reinforcement

For strengthening existing masonry without the need for reinforcing mesh

CONTAINS 30% RECYCLED RAW MATERIAL

PAOLO SALA - PRODUCT MANAGER: COATINGS LINE

What would you like to tell us about the new products on display?
Mapei decided to enter a new and prestigious sector: enamel paints. Coating an object with this kidn of paint means making it more attractive, making it precious. The DURSILAC line, in the three finishes proposed, aims to achieve this objective, to give more value to objects around us, not only in terms of colour, but also by using bright finishes.

Compared with other traditional paints, what else has this product got to offer?
With DURSILAC, we have introduced a modified acrylic urethane resin offering the maximum level of adhesion on all types of substrate. We obviously need to apply special primers on certain types of substrate. Blt features a low level of volatile organic compoundså. There are another two problems that traditional water-based enamel paints are unable to overcome. One of these is fresh corrosion: if we apply a product on a radiator and we see tiny yellow spots appear on the surface, it means that it is not suitable for treating the surface of metal. DURSILAC overcomes this problem. Besides, a water-based product usually creates residual tackiness, but the urethane-based modification in DURSILAC overcomes this problem, too.

COLOURS LIKE YOU WOULDN'T IMAGINE

The range of Mapei wall coatings features more than 1,000 original shades, all presented in the MAPEI MASTER COLLECTION colour chart.
At MADE expo Mapei presented the new DURSILAC family of water-based enamel paints for internal and external surfaces based on innovative acrylic urethane resins, selected fillers and the finest pigments. These enamel paints are available with a satin (DURSILAC SATIN), gloss (DURSILAC GLOSS) and matt finish (DURSILAC MATT).
To complete the range there is the anti-rust primer for external metal surfaces DURSILAC NO RUST and DURSILAC BASE FILLER undercoat with high filling properties, suitable to hide existing small imperfections.
Also featured were the Mapei solutions to prevent mould and mildew: a complete range of paints and coating products containing BioBlock® technology, with specific products for every situation, from internal surfaces in the food and drinks industry and sanitary areas, to finishing off external thermal insulation systems.

SYSTEMS FOR URBAN DESIGN

At MADE expo Mapei proposed the MAPESTONE system to create monolithic decorative stone paving, the MAPESTONE JOINT system for pervious and elastic decorative stone paving, the MAPEI COLOR PAVING system for decorative exposed-aggregate concrete surfaces and the MAPECOAT TNS URBAN multi-layered system made from acrylic resin in water dispersion for cycle paths, pavements and urban features.

MAPESHIELD: STOP CORROSION

To protect reinforced concrete structures and prevent the onset of corrosion, Mapei proposed MAPESHIELD, the galvanic cathodic protection system to prevent corrosion in steel reinforcement.

New products!

NEW

WATER-BASED ENAMEL PAINTS
FREE YOUR IMAGINATION

Dursilac is the new line of **water-based enamel paints**, studied for the protection and decoration of **wood**, **metal** and **rigid pvc**. They are easy and fast to use both **in interiors** and **exteriors**, do not cause unpleasant odours or harmful emissions and do not yellow. They are available in three types of finish: **Gloss**, **Satin** and **Matt**, and they can be tinted with the **ColorMap®** system

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

MAPEI®

Learn more on **mapei.com**

DINO VASQUEZ - PRODUCT MANAGER: WATERPROOFING LINE

What are the characteristics of the PURTOP EASY line?

The main characteristic of this range of polyurethane products is that they can be applied very easily using manual tools in various areas, such as balconies, terraces and hydraulic structures to hold drinking water, or be used to form a classic transparent coating. The system includes products to prepare substrates, waterproofing membranes, and finishing products. For example, when there are problems with a balcony, and we would rather not remove the ceramic tiles, you can apply an aliphatic polyurethane membrane from this line.

Why should we waterproof surfaces with Mapei products?

Because we have a really comprehensive range of products which allow you to start from the foundations and then work your way up to waterproof the roof.
As far as foundations are concerned, the products must be totally impermeable, adhere perfectly to concrete and be resistant to contaminants. We started off by using bentonite systems, following which we developed MAPEPROOF FBT, a synthetic membrane which is also resistant to seawater and does not need to be welded at the joints.

The system includes MAPESHIELD I pure zinc anodes coated with special conductive paste, MAPESHIELD E 25 self-adhesive zinc plates applied directly to the external surface of structures and MAPESHIELD S self-adhesive zinc plates.

DECORATIVE FLOORS

Amongst the solutions for cementitious floors, Mapei proposed ULTRATOP LOFT, a seamless cementitious coating product for contemporary interior design. ULTRATOP LOFT is a trowellable cementitious paste, available in a coarse-textured or a fine-textured finish, used for refurbishing existing surfaces and creating new decorative coatings. It is highly resistant to abrasion which makes it an ideal solution, for both residential and commercial surroundings.
Mapei also presented ULTRATOP EASYCOLOR, the new colouring system for ULTRATOP LOFT using the ColorMap® automatic colouring system. Thanks to Mapei's extensive range of exclusive colors, ULTRATOP EASYCOLOR is available in more than 200 different shades that can be used with ULTRATOP LOFT coatings to create seamless surfaces in which shade, texture and colour become obligatory aesthetic choices in the field of contemporary interior design.

ADHESIVES FOR CERAMIC AND STONE

At MADE expo Mapei also proposed the ULTRALITE family of one-component lightweight cementitious adhesives for installing all types of ceramic, mosaics and natural stone, and particularly recommended for installing porcelain tiles and large-size tiles or slabs. ULTRALITE adhesives contain recycled silica microspheres which helps to make the mix lighter. They include Low Dust technology to drastically reduce the amount of dust given off during mixing, and come in 15 kg bags with handles which, apart from making them easier to handle,

New products!

means that the same m² of tiles can be installed as with a 25 kg bag of conventional cementitious adhesive.

"SET THE MOOD" GROUTS

Mapei proposed at Made its range of SET THE MOOD colour collections of cementitious and epoxy grouts and sealants. 50 different colours, as well as a transparent version, divided into 5 separate collections to help designers and buyers recreate just the right atmosphere.

INSTALLING LVT AND SPC

To help install any type of resilient floor and wall covering, Mapei proposed ULTRABOND ECO V4 EVOLUTION, the new universal all-in-one adhesive particularly suitable for modular LVT.
ULTRABOND ECO MS 4 LVT WALL is a revolutionary Mapei adhesive, the only one of its kind in the sector, for installing LVT on floors and walls in damp surroundings. Its new, improved formula is easier to apply, which also makes it suitable for installing SPC and rigid LVT.
Mapei also proposed ULTRABOND ECO TACK 4 LVT permanent tack adhesive, now improved with a new formula: even more rapid, easier to apply and with better tack. Also showcased was SHOWER SYSTEM 4 LVT for waterproofing substrates and installing LVT, SPC and rigid LVT in bathrooms and damp settings in general: the three complete systems are made up of three different types of waterproofing product which are already part of the Mapei range, innovative ULTRABOND ECO MS 4 LVT WALL adhesive, KERAPOXY 4 LVT grout and MAPECOAT 4 LVT non-slip finish.

SILYLATED ADHESIVES AND COLOURED OILS FOR WOOD

For the wooden flooring market, Mapei presented the new silylated adhesives for the installation of all types and formats of wooden flooring on any type of substrate. These adhesives contain no water, solvents, amines or epoxy resins and have very low emission of volatile organic compounds (EMICODE EC1 R^{PLUS}). ULTRABOND ECO S958 1K is a one-component, silylated polymer-based adhesive; ULTRABOND ECO S LITE is an innovative silylated polymer-based lightweight adhesive with extremely low density; ULTRABOND ECO S PLUS is the only one-component, silylated polymer-based adhesive with no methanol emissions, a further safeguard for the health of floor layers and the environment. Amongst the other proposals at Made was ULTRACOAT OIL COLOR low-odour urethane oil finish for colouring wooden floors. ULTRACOAT OIL COLOR may be recoated with two-component finishing products from the ULTRACOAT line, 100% water-based, non-yellowing varnishes used in civil and commercial surroundings subjected to medium and intense volumes of traffic.

ELASTIC HYBRID SEALANTS AND ADHESIVES

At MADE expo Mapei also showcased its complete range of elastic hybrid sealants and adhesives which comprises ULTRABOND MS RAPID rapid-setting assembly adhesive with a high sucker effect; MAPEFLEX MS40 paintable hybrid sealant with low modulus of elasticity for joints subject to large amounts of movement and crystal-clear MAPEFLEX MS CRYSTAL elastic hybrid sealant and adhesive for "invisible" applications.
But the jewel in the crown of the range is undoubtedly MAPEFLEX MS45, a paintable, flexible hybrid sealant and adhesive compatible with damp and wet substrates, recommended for sealing expansion, fillet and distribution joints in civil and industrial floors.
All hybrid products from the MAPEFLEX and ULTRABOND MS range are characterised by being easy to extrude and smooth over, including at low temperatures, their very low emission of VOC and not requiring hazard symbols.

VAGA

HIGH-PERFORMANCE MORTARS WITH EXCEPTIONAL WORKABILITY

VAGA, the Mapei subsidiary specialised in the production of silica sand and gravel, was also present at the 2019 edition of MADE Expo. Technicians from the company, located in Costa de' Nobili (Northern Italy), were present on the Mapei stand to present the new product lines of renders, concrete, masonry mortar and materials for substrate preparation, which make VAGA a tried and trusted partner in the traditional building world.
The high visual impact of the corporate image emphasised the high quality of their products for making renders, screeds and concrete, "sound in the knowledge of a job well done".
Showcased products included MALTABASTARDA and FIBROMALTA, high-performance, fire-resistant mortars with exceptional workability for crack-free renders.

KLIMAHOUSE 2019

CERTIFIED INNOVATIONS FOR ENERGY SAVING AND MORE COMFORT IN BUILDINGS

Klimahouse takes place in Bolzano, Northern Italy. The strategic location of the trade show provides the perfect meeting point for Italian companies and those of the neighboring countries to exchange innovations and insights on the latest trends in the energy-efficient and sustainable construction sector. Thanks to a good mix of exhibition offerings presented by more than 450 exhibitors and 25 startups on about 25.000 m^2 exhibiting space, as well as a comprehensive side events program, Klimahouse positions itself as the leading trade show on sustainable construction in Italy.
The 2019 edition totaled 36,000 visitors.

MAPEI AT KLIMAHOUSE 2019

For this year's edition of Klimahouse, that was held from the 23rd to the 26th of January, Mapei proposed certified, cutting-edge solutions to help reduce energy consumption and improve the level of living comfort.
The solutions are the result of the work carried out by Mapei Research & Development laboratories and the company's consolidated experience in best practices in the construction sector on sites all around the world.
They are designed to respect the environment and comply with the most widely adopted international protocols for the design of energy efficient buildings with a low impact on the environment (LEED, BREEAM, WELL).

PROTECTION AND COLOUR

Amongst the various solutions available to help protect buildings in the event of seismic activity, Mapei presented certified solutions against the collapse of ceilings, such as the MAPEWRAP EQ SYSTEM. An innovative anti-seismic "wallpaper" made up of two products to help distribute dynamic stresses more evenly: the bi-directional, primed glass fibre reinforcing fabric MAPEWRAP EQ NET and the one-component, water- and polyurethane-based adhesive MAPEWRAP EQ ADHESIVE.
The finishing cycle involves the use of MAPETHERM FLEX RP elastic skimming paste and ELASTOCOLOR PITTURA PLUS elastomeric hygienic paint.

ANTI-MOULD TECHNOLOGY

The research and technology behind colours make Mapei wall finishes designed for internal and external use stand out from the crowd. The wall finishes have been formulated to protect surfaces against wear and aggressive atmospheric agents, guaranteeing a longer service life along with lower maintenance costs.
For internal surroundings, Mapei proposed at Klimahouse 2019 the PLUS range of wall finishes containing BioBlock® technology to combat the proliferation

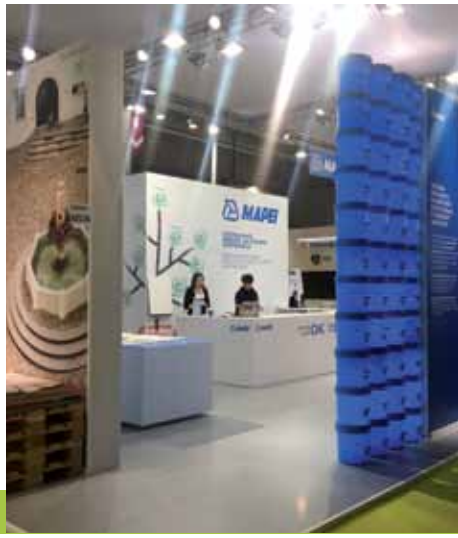
THE KEY PLAYERS AT KLIMAHOUSE

MAPETHERM FLEX RP
Cement-free, fibre-reinforced, lightweight, elastic skimming paste and base coat, resistant to biological agents, for creating or renovating insulating systems in interiors and exteriors

MAPETHERM AR1 LIGHT
Lightweight cementitious mortar to be applied in thick layers, for insulating panels and repaired masonry with embedded fibreglass reinforcement mesh.

MAPEWRAP EQ ADHESIVE
One-component, water- and polyurethane-based adhesive that helps protect buildings in the event of seismic activity

MAPECOAT ACT 021/ MAPECOAT ACT 196
Certified wall coatings designed to meet the requirements of high levels of hygiene and cleanliness in surroundings used for food and beverages and healthcare



At Klimahouse 2019 Mapei showcased innovative and certified solutions for energy saving and improved living comfort.

of mould and fungi.
The high level of protection they provide for surfaces, along with the attractive range of colours and effects it is possible to achieve by using them, make the PLUS range of finishes the ideal choice for decorating internal surroundings.
Also showcased was DURSILITE PLUS, a wall paint made from modified acrylic resin in water dispersion and selected fillers that give the coatings excellent resistance to mould, good covering properties, an uniform matt finish and high white balance.

ACT (ADVANCED COATING TECHNOLOGY)

Another important family of products created for internal surroundings that require a higher level of hygiene is MAPECOAT ACT (Advanced Coating Technology), certified wall coatings designed to meet this kind of requirements in surroundings used for food and beverages and healthcare.
MAPECOAT ACT 021 is a hard-wearing hygienic enamel paint, specifically developed for the food and beverage industry. It is resistant to mould and complies with HACCP requirements and UNI 11021 standards.
MAPECOAT ACT 196 is a hard-wearing hygienic enamel paint, ideal for use in interior environments in the health sector. It is resistant to bacteria and complies with ISO 22196 standards. It is ideal for protecting and decorating surfaces in schools and recreational facilities that require a high level of hygiene.
Coatings from the MAPECOAT ACT family were the subject of demonstrations carried out by Mapei Technical Services at the Mapei stand during Klimahouse 2019.

PROTECTING EXTERNAL WALLS

For external surfaces Mapei proposed coating systems that form a well-bonded, seamless coating on surfaces, protect them against wear and atmospheric agents and leave them with a highly attractive finish.
In the spotlight the range of mineral finishing products, which includes SILANCOLOR AC TONACHINO PLUS, a fibre-reinforced coating, based on acryl-siloxane resins with good water-repellent properties, protection against UV rays, vapour breathability and, thanks to the inclusion of BioBlock® technology, effective protection against microorganisms.
Amongst the acrylic polymer based coatings showcased at Klimahouse 2019 QUARZOLITE TONACHINO PLUS is a hygienising coating with BioBlock® technology that contrasts the formation and proliferation of mould, mildew and fungi.
And, last but not least, was the range of

DURSILITE PLUS
Resin-based wall paint in water dispersion with excellent resistance to mould, good covering properties, an attractive, uniform matt finish and high white balance

QUARZOLITE TONACHINO PLUS
Acrylic resin-based coating product in paste form with good filling capacity for a rustic finish on internal and external walls.

MAPESTONE JOINT
Solvent-free, one-component polyurethane binder for grouting joints for setts, blocks and pebbles for flexible and pervious architectural stone paving

20%

energy saved per year by installing a thermal insulation system

THERMAL INSULATION

The energy performance of a building is primarily determined by the insulating capacity of its shell. The aim of an efficient insulating system for buildings is to guarantee that not only the air, but also walls, floors and ceilings, reach the correct temperature. In fact, a cold sensation comes from both a low air temperature and a low temperature of the horizontal and vertical protective elements. The aim of a thermal insulation system is to prevent heat flowing from the inside towards the outside and from the outside towards the inside; it is highly effective in all seasons and in all climates. A thermal insulation system is essential for structures built according to the principles of environmental sustainability, energy savings and living comfort.

elastomeric products in water dispersion. ELASTOCOLOR TONACHINO PLUS is a fibre-reinforced, elastomeric plaster which, thanks to its high elasticity, including at low temperatures, has the capacity to absorb small deformations in substrates and protect and decorate all new, old or painted surfaces, and surfaces with hairline cracks.

MAPETHERM SYSTEM FOR THERMAL INSULATION

The MAPETHERM system is Mapei's answer to the problem of heat dispersion from buildings. It is an external thermal insulation system that has received European Technical Approval (ETA) and can be installed on new buildings or on old buildings to improve their energy efficiency.

The strength of the system lies in the adhesive, which effectively contrasts deformations generated by the different temperatures on the two faces of the insulating panels, enabling safe, innovative insulating systems to be installed.

In the spotlight at Klimahouse 2019 MAPETHERM FLEX RP - a cement-free, fibre-reinforced, lightweight, elastic, skimming paste and base coat used to create new external insulation systems and to repair damaged external thermal insulation – and MAPETHERM AR1 LIGHT a lightweight cementitious mortar specially developed to be applied in thick layers and recommended as reinforcing coat for insulating panels with embedded fibreglass reinforcement as well as for repaired masonry with embedded fibreglass reinforcement mesh.

Mapei's experience in structural strengthening, along with the company's extensive knowledge of materials and technologies used for the external thermal insulation of buildings, has given life to integrated Mapei systems for the combined strengthening and insulation of buildings and, as a result, access to tax incentives.

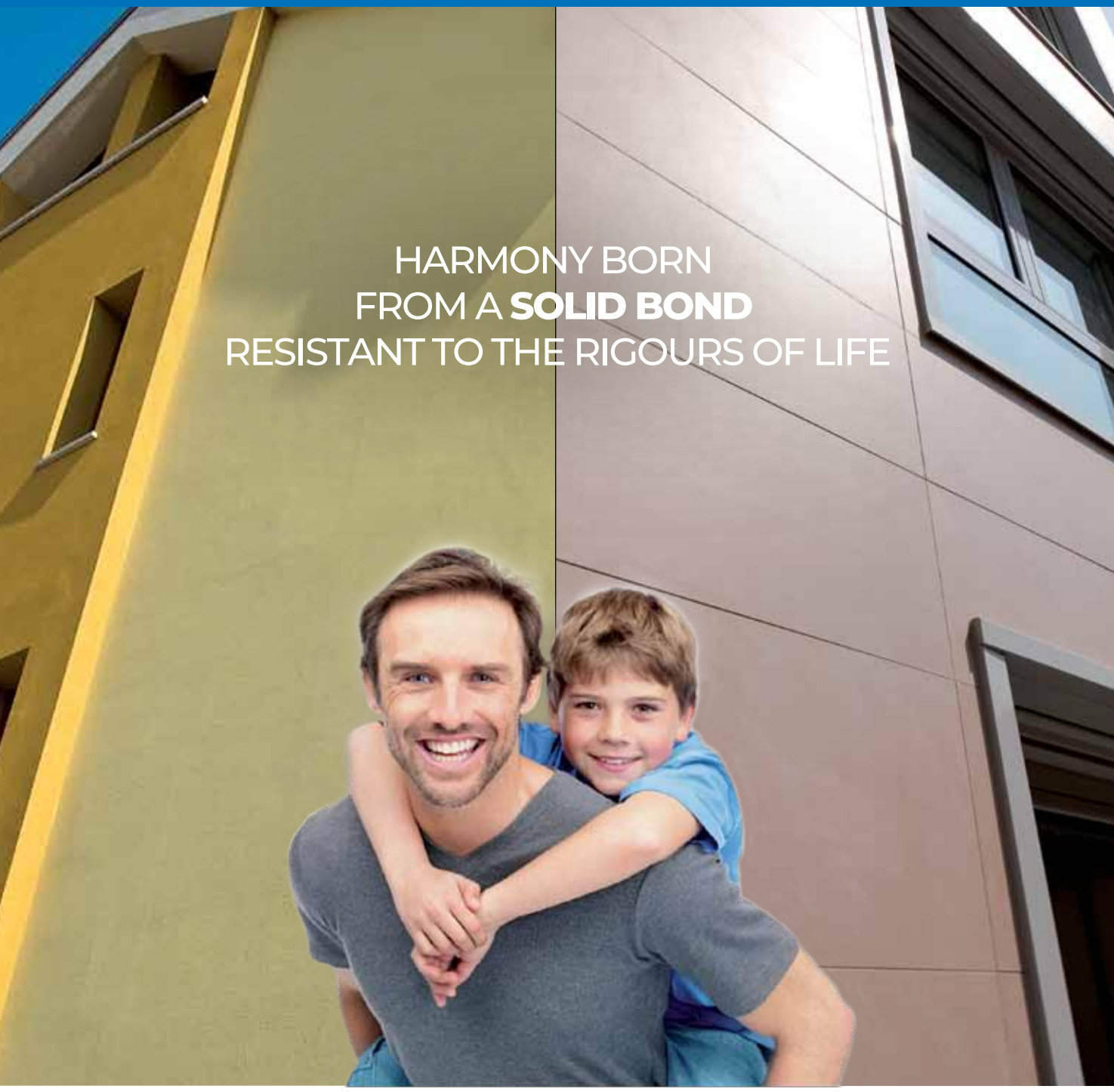
LONG-LASTING STONE PAVING

Mapei proposed the MAPESTONE and MAPESTONE JOINT systems for architectural stone paving for urban design; they are both fully compliant with the prescriptions of the new UNI 11714-1:2018 standard.

Thanks to their special properties (i.e. resistance to mechanical loads and stresses, temperature variations due to freeze/thaw cycles, and chemical aggressions due to de-icing salts and sea-water), the MAPESTONE systems lengthen the life cycle of paving, thus considerably decreasing maintenance costs.

For durable pervious and elastic stone paving Mapei proposed MAPESTONE JOINT, a one-component, solvent-free, non-flammable polyurethane binder, now also for low-thickness slabs with the so-called MAPESTONE JOINT SLAB system.

The next edition of Klimahouse will take place in Bolzano (Italy) from the 22nd to the 25th of January, 2020.



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Genova (Italy)

BISAGNO STREAM

MAKING THE STREAM SAFE BY WIDENING THE SECTION OF ITS BED AND PREVENTING CORROSION OF THE REINFORCEMENT RODS

After almost three years of work the upgraded Bisagno Stream, which flows lengthways through the city of Genova and cuts it in two, had been equipped with new safety features before being handed back to the city in January 2018. Work included the completion of a 200 m long channel along the stream for a cost of around 24.7 million Euros.

The work proved to be highly complex and had to be carried out in complete safety: in fact, the end part of the stream flows through a densely populated area with a highly frequented railway hub. The work was carried out in 3 separate stages and the traffic routes had to be modified 21 times.

The work was carried out by ATI-CSI (Consorzio Stabile per le Infrastrutture), SIRCE SpA, VIPP Lavori Speciali Srl and Trecolli SpA, and included the completion of work on the road going over the stream and increasing the stream's capacity to handle run-off water. The road going over the stream was also upgraded to withstand loads and to improve the flow of traffic.

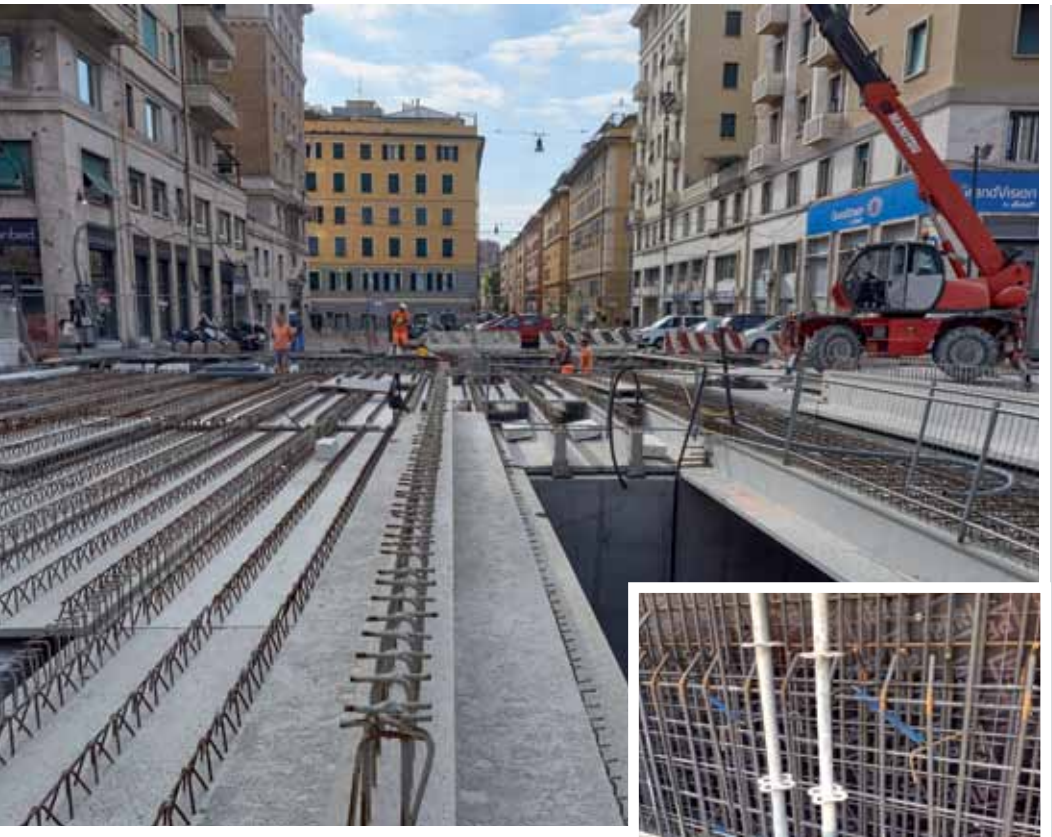
To obtain these results, ATI enlarged the hydraulic section of the stream by lowering the bed of the stream and reducing the thickness of the road deck, while maintaining the existing banks of the stream by increasing the section of the structural elements and reconstructing the internal cavity walls and the road over the stream.

The service areas were also reorganised, which included building tunnels for the various service equipment and new crossways inside the road deck.

Going into detail, work also included demolition of the old decking dating back to the 1930's, lowering the current level of the bed of the stream by around 2 m, building footings under the existing banks of the stream and building a new road deck, all in compliance with the latest norms and standards, including norms covering seismic upgrading interventions.

Thanks to the work carried out, the capacity of the stream was increased from 450 m^3/s to 850 m^3/s with a free-board (the gap between the surface of the water and the underside of the road deck) of 1 m.

ABOVE. An overall view of the area where the work was carried out. **IN THE FACING PAGE.** Excavation and construction work to widen the section of the bed of the Bisagno Stream. **BELOW.** Preparation work carried out before pouring the reinforced concrete for the new structures.



RIGHT. MAPESHIELD I anodes were applied on the reinforcement rods to be protected.

IN THE SPOTLIGHT

MAPESHIELD I

Pure zinc anodes coated with a special conductive paste, for galvanic cathodic protection. MAPESHIELD I is particularly recommended for protecting reinforcement rods against corrosion in structures requiring repair work and also offers a number of advantages if applied on new reinforced concrete structures. MAPESHIELD I is made up of a multi-layered zinc core with a large surface area, covered with a special conductive paste which keeps the system active over the years. After connecting it to the reinforcement rods with metallic stays, a difference in potential is created between the steel and the zinc which stops corrosion and impedes its formation.

MAPESHIELD: GALVANIC CATHODIC PROTECTION FOR THE REINFORCEMENT RODS

Around 20 specialised building companies took part in the work, including Mapei, with a workforce of more than 250 people.

Once demolition work was under way on the foundation slab of the road over the stream on the west bank, jet grouting and preparation work on the new foundation slab could commence. The new bearing walls for the new road over the stream were then built.

To protect the reinforced concrete abutments and bearing walls as prescribed in the technical specification, galvanic cathodic protection was ensured by using MAPESHIELD I 30/20. MAPESHIELD I is a solution developed by Mapei to protect reinforcement rods in repaired reinforced concrete structures against corrosion. It also offers a number of advantages if it is used to prevent corrosion in new reinforced concrete structures, particularly those that will be coming into contact with aggressive agents.

The area worked on in this phase was the first band of concrete around 2 m high from the bed of the stream. Three anodes were placed every metre along the abutments at a pitch of 0.7 m in a vertical direction.

Along the dividing walls, on the other hand, three anodes were positioned every 0.9 m, again at a vertical pitch of 0.7 m. In total, around 3,600 anodes were installed.

The new reinforced concrete structures were further protected by applying a specific Mapei coloured coating. Once the surfaces had been cleaned and checked to make sure they were sound, they were initially treated with the bonding promoter MALECH, an acrylic, water-based primer, and then painted with ELASTOCOLOR PAINT, an elastomeric paint for crack-bridging protection of internal and external surfaces, with long-lasting elasticity and high resistance to chemicals.

TECHNICAL DATA

Safety works on the Bisagno stream, Genoa (Italy)
Period of the intervention: 2016-2017
Intervention by Mapei: supplying products for the galvanic cathodic protection of reinforcement rods and protection of concrete surfaces with coloured coatings
Clients: Genoa City Council, Liguria Regional Council
Design: Studio Majone Ingegneri Associati, Piemontecnica Studio Associato
Works direction: Giovanni Frongia
Main contractor: ATI-CSI (Consorzio Stabile per le Infrastrutture), SIRCE SpA, VIPP Lavori Speciali Srl, Trecolli SpA
Mapei coordinators: Bruno Zamorani, Federico Laino, Gianpiero Peluso, Mapei SpA (Italy)

MAPEI PRODUCTS

Galvanic cathodic protection of reinforcement rods: Mapeshield I
Protective coating: Malech, Elastocolor Paint

For further information on products visit www.mapei.com

STOP CORROSION OF STEEL IN CONCRETE STRUCTURES

Mapeshield®

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

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Montefortino (Italy)

SANCTUARY OF THE MADONNA DELL'AMBRO

FOLLOWING THE EARTHQUAKE IN 2016, THE SANCTUARY UNDERWENT DELICATE RESTORATION AND CONSOLIDATION WORK BEFORE BEING HANDED BACK TO VISITORS AND WORSHIPPERS ON THE 24TH OF DECEMBER LAST YEAR

The Sanctuary was officially reopened last December, on the 21st.

Situated in the Monti Sibillini National Park, the Sanctuary of the Madonna dell'Ambro is the most ancient place of worship dedicated to the Madonna in the Marche Region (Central Italy). At the beginning of the 11th century a small church, the Church of Santa Maria in Amaro, was built in the place where the Madonna had made an appearance and was entrusted to Benedictine monks from the nearby Santi Vincenzo and Anastasio monastery. At the beginning of the 17th century, under the jurisdiction of the diocese of Fermo, it was decided to construct a larger church. The work was designed by the architect Ventura Venturi from the Santa Casa di Loreto, who was commissioned to design a church that incorporated the original Church of Santa Maria in Amaro and 6 lateral chapels alongside the aisle of the church.

Following the earthquake that struck the area on the 24th of August, 2016, the structure was badly damaged with serious cracks that compromised its general stability.

Montefortino City Council made the Sanctuary safe by implementing a project by Luigino Dezi, a professor in Construction Technology at the Polytechnic University of Marche, and the engineer Massimo Conti.

THE CONSERVATIVE RESTORATION AND SEISMIC UPGRADING PROJECT

The work on the structure included consolidation of the brick vaulted ceiling over the aisle; the insertion of 510 steel chains with 36 mm diameter around the main arches; the construction of a system of kerbs and tie-rods along the top of the roof, partly in breccia rock on the 1.5 m thick walls to avoid creating too much transversal stiffness, and partly in reinforced masonry; the positioning of steel bars in the openings of the upper altar wall and of an embedded tie-rod to counteract out-of-plane loads; consolidation of the lateral chapels and the walls of the upper tombs; stitching of the dividing walls in the chapels; positioning of a band of carbon fibre to prevent the apse from collapsing; the insertion of dywidag anchor bars to prevent the tympanum of the main facade collapsing; the insertion of chains around the belfry and in the filler material used to stitch various cracks.

THE MATERIALS USED FOR THE RENOVATION

The sponsor of the initiative, the Cassa di Risparmio di Fermo bank, asked for Mapei's collaboration to carry out the work and Mapei, as Technical Partner for the project, supplied experts from the company's Technical Services Department and various cutting-edge product systems.

Consolidation of the vaulted ceiling was carried out in two phases. Firstly, the damaged areas were repaired with a product chosen for its compatibility with the existing mortar's mechanical properties and level of porosity, its resistance to physical and chemical aggression (freeze-thaw cycles) acting on the ceiling and its compatibility with the frescoed surfaces. A product suitable for repairing frescoed surfaces was chosen so that, during its application, the substrate would not need to be wetted and, while it was setting, it would not give off free lime that would have caused the formation of efflorescence and potentially damage the decorated surface. The ceiling was then consolidated by applying on the outer face a composite system with an inorganic matrix. All the products used contained no cement, as specified by the local Heritage Board. For the upper part of the apse, a composite system with an organic matrix was proposed, which consisted of car-

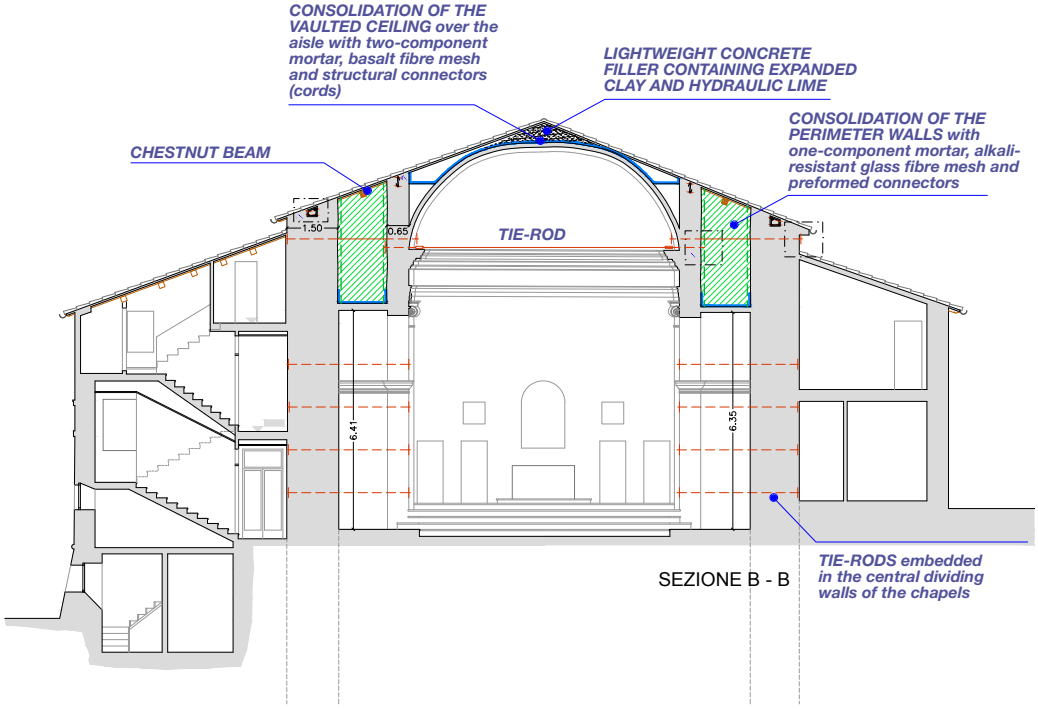
LEFT. The Sanctuary dedicated to the Madonna dell'Ambro upon completion of the work.
RIGHT. The Sanctuary had to be shored up following the earthquake in 2016.

Restoration work on the Sanctuary was also used to carry out training in collaboration with the Fermo Association of Engineers (and particularly Antonio Zamponi, Marco Meconi and Daniele Ulissi). On the 26th of May last year, around 100 professionals took part in a special day to learn more on the project and to visit the site where the work was being carried out.

bon fibre fabric and epoxy resin to guarantee a constraint on mechanisms out-of-plane of the macro-element.

INTERVENTION WITH MAPEI SYSTEMS

To consolidate the outer face of the existing vaulted roofs PLANITOP HDM RESTAURO was used, a product made of an inorganic matrix of natural hydraulic lime and Eco-Pozzolan. This product, which was applied in an even layer using a flat, metal trowel, allows to smooth and level off masonry surfaces such as stone, brickwork and tuff. When used in combination with MAPEGRID B 250 alkali-resistant basalt fibre mesh, as in this case, it has the capacity to strengthen masonry and reinforced concrete elements. To ensure the strengthening of the side walls, MAPEWRAP B FIOCCO high-strength basalt fibre cords were prepared and then bonded in place with MAPEFIX EP 470 SEISMIC pure epoxy resin-based chemical anchor for structural loads. MAPE-ANTIQUE F21 super-fluid, salt-resistant, fillerized hydraulic binder made from



RIGHT.
The design project for the renovation and seismic upgrading of the Sanctuary.
PHOTOS 1 and 2.
The vaulted ceilings before and after the renovation works.

IN THE SPOTLIGHT

MAPEWRAP C UNI-AX

High strength, uni-directional carbon fibre fabric with high modulus of elasticity. It is suitable for the repair of reinforced concrete elements damaged by physical-mechanical action, for the confinement of axial loaded or bent concrete elements and for seismic strengthening of structures in earthquake zones.
It can be also used for the reinforcement of load bearing elements in buildings that have been restructured for architectural reasons or change of use.

PHOTO 3. The FRP SYSTEM was used to strengthen the apse.
PHOTO 4. The outer faces of the ceilings were consolidated by pouring in MAPE-ANTIQUE F21 and then applying PLANITOP HDM RESTAURO and MAPEGRID B 250 basalt fibre mesh.
PHOTO 5. The masonry was strengthened with MAPE-ANTIQUE STRUTTURALE NHL and MAPENET EM40.

lime and Eco-Pozzolan was poured into the masonry, including the masonry decorated with frescoes.
To strengthen the masonry, it was rendered with MAPE-ANTIQUE STRUTTURALE NHL high-performance mortar made of hydraulic lime and Eco-Pozzolan, reinforced with MAPENET EM40 alkali-resistant glass fibre mesh and L-shaped MAPENET EM CONNECTOR fasteners made from alkali-resistant glass fibre and thermosetting vinylester-epoxy resin.

In the apse area of the Sanctuary, the FRP SYSTEM was applied, consisting of MAPEWRAP C UNI-AX 600 high-strength, unidirectional, carbon fibre fabric with a high modulus of elasticity, MAPEWRAP PRIMER epoxy primer, MAPEWRAP 31 medium viscosity epoxy resin, which was used to impregnate the fabric, MAPEWRAP 11 thixotropic epoxy paste and MAPEWRAP C FIOCCO unidirectional, high-strength carbon fibre cord to form structural ties.
Afterwards, the FRP system was protected with a layer of MAPE-ANTIQUE ECOLASTIC two-component, elastic, salt-resistant, cement-free, lime and Eco-Pozzolan based coating which is used for waterproofing and protecting construction elements, including those in listed buildings.

TECHNICAL DATA
Sanctuary of the Madonna dell'Ambro, Montefortino (Italy)
Original design: Ventura Venturi
Period of construction: 17th century
Year of the intervention: 2018
Intervention by Mapei: supplying products for consolidation and structural strengthening, as well as for renovating the renders
Design: Diego Damen, Giulia Alessandrini, Luigino Dezi
Client: Cassa di Risparmio di Fermo, Amedeo Grilli
MIBACT (Marche Regional Office for Archaeological and Landscape Heritage and Fine Arts) supervisor: Domenico Cardamone
Works direction: Diego Damen, Giulia Alessandrini
Main contractor: AR Alessandrini Nello Srl
Mapei coordinators: Pasquale Zaffaroni, Daniele Arnone, Lorenzo De Carli, Massimiliano Petti, Dominica Carbotti, Stefano Geminiani, Luca Consorti, and Francesco Carboni, Mapei SpA (Italy)

MAPEI PRODUCTS
Statical consolidation: Mape-Antique F21, MapeWrap B Fiocco, Planitop HDM Restauro, MapeGrid B 250
Structural strengthening: Mape-Antique Strutturale NHL, Mapefix EP 470 Seismic, Mapenet EM40, Mapenet EM Connector, MapeWrap 11, MapeWrap Primer 1, MapeWrap 31, MapeWrap C UNI-AX 600, MapeWrap C Fiocco
Protecting masonry surfaces: Mape-Antique Ecolastic

For further information on products see www.mapei.com

Reconstruction work after the

SCHEDULES, INVESTMENTS AND PROBLEMS
THAT STILL NEED TO BE OVERCOME IN THE AREAS
HIT BY THE EARTHQUAKES IN 2009, 2012 AND 2016

L'Aquila **2009**: slowly rebuilding the old city centre

At 3.32 on the morning of the 6th of April, 2009, a large part of the old town centre in L'Aquila (Central Italy) was destroyed in just a few minutes when it was hit by a 5.8 magnitude earthquake. The final balance: 309 people were killed, 1,600 injured, tens of thousands were left without a roof over their heads and homes, ancient buildings, public buildings and churches were destroyed or left inaccessible.

The city extends over a very large area (around 473 km²) and many of the suburbs and surrounding areas were badly damaged or cut off. After the first earthquake, over the next two months L'Aquila continued to tremble and more than 3,000 tremors were registered.

This year marks the tenth anniversary of the earthquake and reconstruction of L'Aquila and the surrounding areas.

Even though the redevelopment of areas takes a very long time, the forecast is to reconstruct private buildings by 2022, while the public buildings will not be completed until at least 2025.

Reconstruction of the city and the surrounding areas has also included incentives for the local economy, local tax subsidies and reconstruction of the university buildings.

According to a report published in June 2017, 21 billion Euros have been allocated so far and a further 4 billion Euros will be needed, a total of 25 billion Euros.

CONSTRUCTION SCHEDULES

According to the website of the special authority Usra (Ufficio per la ricostruzione de L'Aquila, L'Aquila Reconstruction Works Department), the rebuilding of private homes financed by the Italian state – what is known as private reconstruction – got under way within just a few months and a large part of the work has been completed.

According to figures released at the end of 2017, more than 80% of houses outside the old town centre had been rebuilt and today this figure has probably risen to more than 90%.

Before the earthquake, the old town centre of L'Aquila had more than 10,000 inhabitants out of a total of 70,000 city inhabitants, which included around 6,000 students from outside the area. Reconstruction is behind schedule compared with the rest of the city and, at the end of 2016, only around 15-20% of the houses damaged by the earthquake had been repaired. This is also due to the complexity of the reconstruction work, because it also involves buildings of historical and artistic interest that require more complex work that takes much more time.

Reconstruction of buildings for the private sector will not be completed until 2022. As far as the reconstruction of buildings and structures for public use is concerned, progress has been slower, and the completion is forecast after 2025. According to the most recent figures in 2018 for the L'Aquila area, 284 interventions had been completed on public buildings and infrastructures, 207 were at an advanced stage and another 107 had just been started.

THE C.A.S.E. PROJECT

The C.A.S.E. Project (Complessi Antisismici Sostenibili Ecocompatibili, or Eco-compatible Sustainable Anti-seismic Complexes), which are also known as New Towns, is made up of 19 settlements with a total of 4,500 houses that were built very quickly to house part of the population left homeless.

They were only intended to be used temporarily for a limited amount of time and, as for the future, they might be fitted out and turned into permanent structures, or demolished.

latest earthquakes in Italy

The condition of some of the historic buildings in L'Aquila after the earthquake on the 6th of April 2009.

PRIVATE RECONSTRUCTION WORK

Figures in Euros updated to 29/03/2019

AMOUNT APPLIED FOR	APPLICATIONS GRANTED	SITES COMPLETED
6,145,453,054	24,945	8,263

Total approved/total applied for

73.26%

PUBLIC RECONSTRUCTION WORK

Public works interventions up to 31/12/2018

AMOUNT APPLIED FOR (in Euros)	AMOUNT GRANTED (in Euros)
2,319,424,849	1,414,440,980

Total approved/total applied for

60.97%

AMOUNT OF RUBBLE REMOVED

Figures in tonnes updated to 28/02/2019

3,521,357

AMOUNT COMMITTED TO EXPROPRIATIONS

Figures in Euros updated to 31/03/2018

65,960,131.30

MAPEI CONTRIBUTION

Following the earthquake in L'Aquila, right from the very start Mapei guaranteed its assistance on site and the company's engineers and technicians have helped designers and local authorities by supplying cutting-edge systems and products for the repair, structural strengthening and seismic upgrading of buildings. Materials and techniques developed in the Mapei R&D laboratories, proposed to designers and local authorities following the earthquake that hit L'Aquila, have played a vital part in helping to make public, private and religious buildings stronger and safer.

Apart from reconstruction work on old buildings hit by the earthquake, Mapei has also supplied cutting-edge technological solutions for the construction of new buildings with the latest anti-seismic features within the framework of the C.A.S.E. Project (see *Realtà Mapei International* no. 60).

Emilia **2012**: homes and businesses reconstructed

7 YEARS AFTER THE EARTHQUAKE MANUFACTURING ACTIVITIES HAVE STARTED UP AGAIN AND MOST OF THE FAMILIES HAVE BEEN ABLE TO RETURN TO THEIR HOMES

Rubble after the earthquake in 2012: the remains of the bell-tower of the church in Correggioli (Ostiglia).

20th of May 2012: at 4:03 in the morning, a 5.9 magnitude earthquake lasting 20 seconds hit the Emilia Romagna region (Central Italy) which left 7 people dead, 50 injured, 5,000 homeless and caused enormous damage to the local cultural patrimony and manufacturing sector. The areas most affected by the earthquake were the Provinces of Modena, Ferrara and Bologna (Central Italy) in the Emilia Romagna region, Rovigo in the Veneto Region (Northern Italy) and Mantua in the Lombardy Region (Northern Italy).

On the 29th of May, there was another earthquake with a magnitude of 5.8. The epicentre was in the Province of Modena and resulted in the deaths of 20 people, with 15,000 more left homeless, and the collapse of numerous factories and buildings of historical and cultural significance.

Yet another 5.1 magnitude earthquake, at 9:20 in the evening of the 3rd of June 2012, with an epicentre in Novi di Modena, hit the southern area of the Province of Modena and the upper banks of the River Po in the Province of Mantua.

Unlike the earthquakes in Italy in 2009 and 2016, the earthquakes in 2012 affected a much larger and more densely populated and industrialised area, with a florid agricultural sector and a high level of occupation accounting for around 2% of Italian GDP. The earthquakes caused widespread damage to agricultural buildings, factories, irrigation channels and buildings of historical and civil interest, as well as serious damage to monuments and places of artistic interest.

Following the earthquake, however, there have been positive outcomes: in the area of the crater – which covers 59 towns and villages – there is now a higher level of occupation, there has been a growth in exports, GDP has increased at a higher rate than the regional average and most families have been able to return to their homes.

Funds for all the projects for local businesses had been approved by the Commissioner delegated by the Italian Government, the President of the Emilia Romagna Region Stefano Bonaccini, a total of 1.9 billion Euros, of which 1.1 billion has already been issued. Funds have been released for more than 10,000 local businesses.

Following the earthquakes, 16,500 families were forced to abandon their property and, by 2018, more than 14,800 had returned to their own home. As far as houses are concerned, almost 14,000 had been made accessible again, while more than 4,000 economic and commercial activities had been repaired and more than 6,100 sites had been completed.

In total, the funds set aside to reconstruct private homes and manufacturing activities amount to more than 4.3 billion Euros, of which 2.8 billion have already been paid out to local residents and companies.

In addition to this sum, 1.3 million Euros have been allocated to the reconstruction of public buildings of cultural, historical and architectural interest and public works. 345 million Euros were also allocated for the repair or construction of school buildings.

The total invested into the reconstruction of public and privately-owned buildings in old town centres amounts to almost one billion Euros for 2,600 projects awarded financial support, of which 60% have either been completed or are close to being completed.

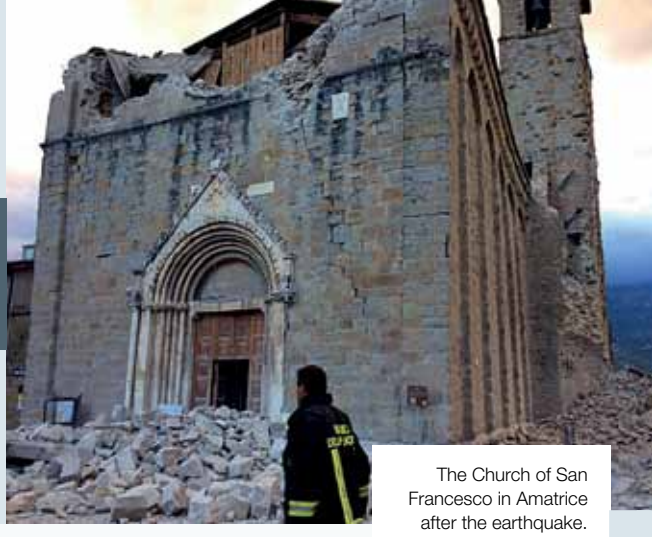
Over the last year, the Italian Government has authorised an extension to the state of emergency until the 31st of December 2020, so that the Commissioner, Stefano Bonaccini, as well as other local organisations and bodies, can continue working within the framework of a regime with extraordinary powers.

MAPEI CONTRIBUTION

In the wake of the earthquake that struck part of the Emilia Romagna region in May 2012, Mapei has set up an emergency response team of five technicians headed by the engineer Mr Giulio Morandini, Product Manager of the company's Structural Strengthening Line. Mapei's great expertise in repairing, maintaining and strengthening buildings was immediately made available to architectural designers and technicians and a fruitful working partnership was set up with the local Superintendent's Office for Cultural Enterprises and Assets, specialised search and rescue teams from the Fire Department and the Modena Association of Engineers. Among the buildings Mapei has taken action on, it is worth mentioning Ca' de Coppi Church in Camposanto, Santa Maria Church in Rivara and various private homes in the province of Modena.

Central Italy **2016**: on going state of emergency

NUMEROUS PROBLEMS STILL NEED TO BE OVERCOME FOLLOWING THE EARTHQUAKE THAT HIT ABRUZZO, MARCHE AND LAZIO



The Church of San Francesco in Amatrice after the earthquake.

On the night of the 24th of August, 2016, Central Italy was hit by an earthquake with a magnitude of 6.0. Numerous buildings collapsed causing 299 deaths and numerous injuries. The entire area was seriously damaged, particularly the towns of Amatrice and Accumoli in the Province of Rieti and Arquata del Tronto in the Province of Ascoli Piceno. More tremors were registered up until the end of October, when a particularly strong tremor, with an epicentre in the Marche Region, caused further serious damage in a number of towns and villages, including Camerino, Norcia in Umbria and three towns in Abruzzo. This last earthquake caused the collapse of buildings, churches, bell-towers and centuries-old town centres.

Between the 24th of August and the end of October 2016, 93,000 tremors were registered in the area between Abruzzo, Lazio, Marche and Umbria, a figure that had never been registered in Italy before then.

The status of the ongoing work in the area was verified last October by the outgoing Commissioner Paola De Micheli, with an end-of-term report presented to the Italian Parliament. The overall balance highlighted both the few positive aspects and the many negative aspects of the situation and the very slow progress in reconstruction work. This was due mainly to a lack of knowledge in the procedures that need to be followed before approving reconstruction work, which have been changed various times and made an already complex situation even more difficult, and to the fact that, over the previous years, many owners had carried out building work without planning permission, which means they haven't even been able to apply for reconstruction work.

More than 220,000 surveys had been carried to verify the condition of buildings and structures and an estimated 76,000 had been declared unsafe. When the report was presented, engineers qualified in carrying out AEDES surveys (Post-seismic Safety and Damage Assessment, a kind of report to record the level of damage after an earthquake, define the actions that need to be taken and assess whether a building is fit for purpose), had completed 67% of the surveys and the funds released based on these surveys amounted to around 293 million Euros.

As far as urbanisation work was concerned, 50 million Euros had been set aside for 33 projects in the public works sector. Around 21 million Euros had been spent on consolidation and reconstruction work on school buildings, 27 million Euros had been invested in more than 20 projects in work on structures of cultural significance, 12 million Euros had been spent on buildings for the emergency services, 28 million Euros had been allocated to 38 projects to improve geological stability and 5 million Euros had been allocated to other projects.

In the private residential sector, 5,000 requests had been presented and 402 sites had been completed: this means only around one in ten of homes that had either collapsed or had been demolished because they were too badly damaged had been rebuilt. This means that around 90% of the applications for reconstruction work are still waiting to go through the process, either because they do not meet the criteria or because they do not comply with the required standards.

According to the latest figures, 602 buildings have been demolished and more than 150,000 tonnes of rubble have been removed.

MAPEI CONTRIBUTION

The powerful tremors that hit central Italy in 2016 destroyed many schools or left them completely inaccessible. Mapei has taken part in the reconstruction of a new, temporary elementary school in Norcia, which was inaugurated on the 31st of March 2017, by supplying products free of charge for the external thermal insulation system and the installation of PVC coverings. Mapei also supplied the company's product systems and personnel from the Technical Services Division for the seismic upgrading and consolidation of Camerino Cathedral (see *Realtà Mapei International* no. 72) and the Sanctuary of the Madonna dell'Ambro (see the article on the previous pages).

MUSEUMS: A RESO

A LEGACY TO BE MAINTAINED AND FURTHER DEVELOPED, SO THAT IT CAN CONTINUE TO OFFER VALUE

Museums are typically places where members of the public can view objects of significance from a variety of disciplines, such as historical, cultural, artistic or even scientific artifacts. Along with the dramatic rise in cultural tourism in recent decades, the number of museums around the world has increased from 22,000 in 1975 to 55,000 today, according to UNESCO. Museums are of the utmost importance due to several reasons.

VISITORS LOVE MUSEUMS

Museums and galleries are popular. Eight of the top ten visitor attractions in the UK are museums. According to Satista (The Statistics Portal), over 14 million American households visit art museums every year and 63% of Americans saw visiting an art/design museum as a cultural activity. Last year 55 million Italian people visited museums, with takings rising from almost 194 million Euros in 2017 to over 229 in 2018.

COMMUNITIES LOVE MUSEUMS

Museums can be a place to help shape community identity and bring different community groups together, a catalyst for regeneration through the creation of new venues and civic spaces, and a resource for developing the skills and confidence of members of those communities. They showcase the best of the nation's history and culture to the widest possible audiences. Through the money they spend these museum visitors deliver economic benefits to local economies.

IN THE PICTURES. The Mapei Group has been involved in building and renovating numerous museum facilities over the years, such as the Guggenheim museums in New York and Venice, Athens Museum, the National Museum of Science and Technology in Milan, FramMuseet in Oslo, and the Museum of the Innocents in Florence, to mention just a few. This is mainly due to the extensive range of product developed for often extremely complex work carried out on museums.

ECONOMY LOVES MUSEUMS

The creative and cultural industries are booming. These sectors have undergone rapid growth and are bright prospects for future economic prosperity in several countries. They make an important contribution to the economy, comparing favorably to the financial services sector. For instance, in 2007, the creative and cultural industries accounted for 7.3% of the British economy (source: www.museumsassociation.org). In the U.S., museums and historical sites generate more than 13 billion U.S. dollars in revenue annually and this number is expected to edge closer to 15 billion by 2020, according to statista.

With their income museums and galleries generate vast economic benefits, through areas such as jobs, tourism, inward investment and regeneration. For instance, the Louvre Museum in Paris has income of 205 million Euro and the highest number of museum visitors in the world (10 million) with ticket office takings alone amounting to 72 million Euro. This economic return often levers significantly higher economic benefits. Museums and galleries are a sound investment and well placed to help the economy recover from a recession that has profoundly changed the economic landscape. Museums and galleries have not been immune from the impacts of the recession but are still delivering impressive economic benefits thanks to increased tourism and an ever-growing public appetite for culture.

It is therefore essential that not only are these 'products' maintained, cared for and further developed, but also that they continue to offer the visitor value for money and a quality experience.

The Mapei Group has been involved in providing materials and solutions for building and renovating numerous museum facilities over the years, as well as sponsoring prestigious exhibitions as you can read in the following pages.

URCE TO BE CARED FOR

OTTOCENTO. Italian art from Hayez to Segantini

ONCE AGAIN THIS YEAR MAPEI IS THE PLATINUM PARTNER IN AN EXHIBITION TAKING PLACE AT SAN DOMENICO MUSEUMS IN FORLÌ

Mapei is once again working as a Platinum Partner alongside San Domenico Museums in Forlì (Central Italy) to help promote an exhibition entitled *"OTTOCENTO. L'arte dell'Italia tra Hayez e Segantini* (The 19th Century. Italian art from Hayez to Segantini)". The exhibition is being organised by Fondazione Cassa dei Risparmi di Forlì e della Romagna in partnership with Forlì City Council. The exhibition opened on Friday, 8th February, and will be open to the public till 16th June 2019.

This project further strengthens Mapei's ties with art and culture, a corporate credo deriving from the firm belief of its founder, Mr Rodolfo Squinzi, that "work can never be separated from art and passion".

Mapei is strengthening its bonds with the city of Forlì and its most renowned museum institute by sponsoring an exhibition for the fourth year running: in 2016 Mapei was involved in the exhibition entitled *"Piero della Francesca. Exploring a legend"*, in 2017 it sponsored *"Art Déco. Its roaring years in Italy"* and in 2018 it lent its support to *"Eternity and time from Michelangelo to Caravaggio"*.

Mapei is continuing its close ties with the city and surrounding territory by sponsoring an exhibition of extraordinary impact, which, as the Mayor of Forlì, Davide Drei, pointed out, is "an opportunity to remember that major exhibitions raise the city's national profile while helping educate the local community about art and culture".

As in previous years, a percentage of the ticket takings will be donated to Mediafriends Onlus to support projects specifically chosen for the Fabbrica del Sorriso fundraising campaign that is intended to provide very young children in Italy and around the world with the chance to escape poverty, disadvantage and social exclusion.

"AN EXHIBITION ABOUT THE HISTORY OF OUR FAMILIES"

At the exhibition's press presentation, which was held on Friday, 8th February, Mr Fernando Mazzocca, one of the curators of the exhibition, provided an overview of the ten sections combining to form the exhibition, stressing how the layout helps provide a better understanding of art during the period from the Unification of Italy to the First World War.

Mr Gianfranco Brunelli, director of the exhibition, pointed out that many of the works are being displayed for the first time, and others are back on show to the public after a long break.

The President of Fondazione Cassa dei Risparmi di Forlì e della Romagna, Mr Roberto Pinza, stressed that "these exhibitions provide the chance to think about art, particularly since they are innovative and experimental, not commercial". "The feeling you get – so Mr

IN THE FACING PAGE.
FRANCESCO HAYEZ,
Ruth, 1835.
This painting was commissioned by Severino Bonora and is one of the most famous works by the Venetian painter (1791-1882).

ABOVE.
ANGIOLO TOMMASI
The emigrants, 1896,
Rome, National Gallery of Modern Art.

RIGHT.
VITTORIO MATTEO CORCOS,
Young countess Carolina Sommaruga Maraini, 1901,
Swiss Institute in Rome.

Pinza noted - is of being in the midst of something that belongs to us, it is the rediscovery of the history of our families, captured both during heroic periods and at times of widespread poverty and misery".

The exhibition's scientific director, Mr Antonio Paulucci, pointed out the peculiarity of the exhibitions on display at the San Domenico Museum complex: "The San Domenico is not like the Uffizi, which receives works on loan because it has others to loan out. The only means the San Domenico Museum has of repaying a major museum for loaning it a work is to guarantee the work will be treated and displayed with the utmost attention and care. Something that now tends to be taken for granted but should not be". Referring to the previous exhibitions Mr Paolucci went on to say: "It is now the 19th-century's turn, which, in some sense, marks the conclusion of a fifteen-year period. You can get an idea of the quality of this exhibition from the biblical figures painted by Hayez, the women sewing red shirts by Borrani, Signorini's painting *L'Alzaia* and Tommasi's *Gli Emigranti* that may be interpreted as critiques of the society of the day. Significantly, an entire section of this exhibition has been dedicated to women".

The professor concluded by saying: "This exhibition will be a great success with the public, because people will identify with the paintings on display as if they were looking in a mirror".

TOP OF THE FACING PAGE.
FRANCESCO LORD MANCINi, *The road between Torre Annunziata and Pompei*, about 1874, Bottegantica Gallery, Milan.

LEFT.
UMBERTO BOCCIONI, *Three women,* Banca Commerciale Milano, Milan.

ABOVE.
VITTORIO MATTEO CORCOS, *Reading by the sea*, 1910, private collection.

94 ARTISTS FOR A TOTAL OF 160 WORKS

The exhibited paintings and sculptures retrace the history of 19th-century Italian art from the end of romanticism to the artistic experimentation of the early 20th century.

Hayez, Segantini, Fattori, Signorini, Pelizza Da Volpedo and De Nittis are just some of the 94 artists corresponding to a total of 160 works.

The installation project was designed by Studio Lucchi e Biserni from Forlì in partnership with the Wilmotte & Associés design studio from Paris and focuses on creating a linear display with occasional intense shades to spotlight certain intriguing and dramatic aspects of the period in history covered by the exhibition.

This is an engaging layout, partly due to the peculiarity and high quality of the installation. The scene changes constantly, so that visitors are treated to plenty of surprises as they suddenly come face-to-face and close-up with the 19th-century as they have never encountered it before.

Most of the works on display are large-sized and look at issues of universal significance to create a visual short-circuit of unforgettable masterpieces. The subject matter is the latter years of romanticism and artistic experimentation in the new century from the Unification of Italy to the Great War, which saw both intellectuals and artists engaged on the common front of creating a new communal psyche, a national identity mirroring the political unification of the country that had taken place. The range of languages used for creating these works allows us to retrace a period when great visionary changes took place from the twilight of Romanticism to the rise of Purism and Realism, from historicist Eclecticism to Symbolism, from the 'revolutionary' Macchiaioli group to the cutting-edge experimentation of the Divisionists.

COMMUNICATION AND SOCIAL RESPONSIBILITY

Mapei is a Gold Partner in sponsoring the Italian TV channel Sky Arte's special program on the exhibition, which was broadcast during prime time in the first week in March and repeated 20 times.

Mapei's partnership with San Domenico museums in Forlì, as well as further promoting the company's name in the world of culture and art, reasserts Mapei's commitment to projects bringing together culture and solidarity.

It is worth remembering that Mapei has been supporting various musical evenings for charity for many years now, raising funds to be donated for scientific research projects carried out by such important enterprises as LILT (Italian Anti-Tumour League), the Milan Committee of the Italian Red Cross and the Umberto Veronesi Foundation.

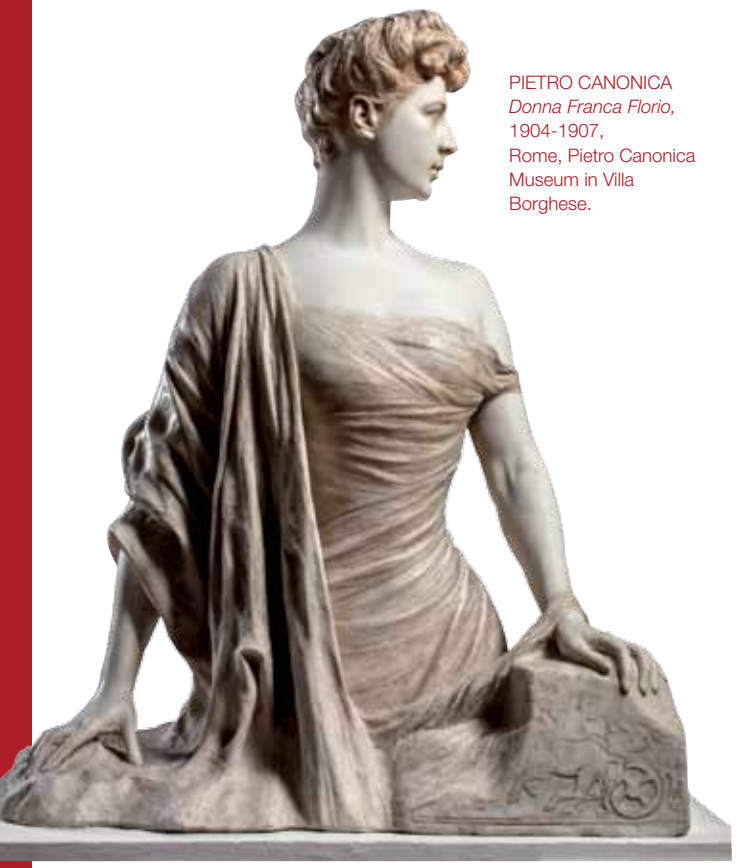
Among the projects Mapei supports is 'Celebrity Fight Night Italy' promoted by the famous Italian singer Andrea Bocelli to raise funds for projects organised by the Andrea Bocelli Foundation and Muhammad Ali Parkinson Center.

The company's support for socio-cultural projects also takes the form of supplying technical assistance, technology and materials for renovating buildings, as it was the case for the works on the theatre in the Cesare Beccaria Young Offenders Institute in Milan.

Tradition and modernity in "new" Italy

A SPEECH BY GIANFRANCO BRUNELLI, GENERAL DIRECTOR OF THE EXHIBITION

The 2019 exhibition being held at San Domenico Museums in Forlì focuses on great 19th-century Italian art during the period from the end of Romanticism to the artistic experimentation of the new century. Italians are all familiar with the famous saying by one of the leading figures of the Risorgimento period leading to the Unification of Italy, Massimo d'Azeglio, "We have made Italy, now we must make Italians", still more poi-gnant than ever when studying Italian history. We need to learn what it means to be Italian, discovering that our nation shares the same language, the same geography, the same religion and the same culture, history and civilisation composed of men of letters, artists, heroes and events that tell of a long period in slavery and a yearning for freedom. And so, we have a rereading of the great figures of the Roman Republic and the battles between city states in the Middle Ages, while Christ's sacrifice is reinterpreted in a secular and civil key. Next came the mythography of the Italian state, which attempts to bring together stories from the past and leading figures of the present while also trying to create a civil religion based around pilgrimages, tombs to be visited and commemorative monuments.



PIETRO CANONICA
Donna Franca Florio,
1904-1907,
Rome, Pietro Canonica Museum in Villa Borghese.

Recent events also took on a certain historical status. During the first art exhibition held in Florence in 1861, artists were asked, amongst other things, to paint subjects celebrating the triumphant battles of 1848 and 1859. So Fattori, the Induno brothers, Borrani, Lega and Cammarano drew on the new artistic language of 'Macchia' (literally patches of colour) and post-academic forms to recount recent history as it happened. Paintings of battles, but also scenes of women busy at work as they await their menfolk and images of suffering and sacrifice rather than military victories. More than just celebration.

The 2019 exhibition aims to use painting, sculpture, architecture and the decorative arts to reconstruct the main events in Italian art in the half-century before Futurism burst onto the scene. It provides a critical insight into how art was not just a wonderful means of celebration and commemoration aimed at creating consensus, but also the most popular means of informing Italians about the inspiring and contradictory events of both ancient and recent history and of restoring Italy to the European status it deserves. Art was a fabulous workshop for promoting and rediscovering the naturalistic wonders of Italy, the "bel paese" which was still the destination of Grand Tours, as well as the artistic marvels of cities that were being transformed by the needs of modernity; it also conveyed the excellence of art techniques ranging from sculpture and goldsmithery to craftsmanship of the very highest calibre, which were still very much in demand all over the world.

Though a selection of extraordinary works, particularly those presented and awarded prizes at the great National Exhibitions - from the one held in Florence in 1861 to those held in Rome, Turin and Florence in 1911 to celebrate the 50th anniversary of the Unification of Italy - the various sections of the exhibition set out to provide a reconstruction of different artistic genres ranging from historical art to the depiction of modern life, art as a critique of society, portrait painting, landscape painting, and new forms of experimentation. An immersive journey through time and space presents us with some brand-new socio-cultural themes of great popularity and universal significance.

The range of languages used for creating them allows us to retrace the stylistic experiments characterising Italian art in the latter half of the 19th century and beginning of the new century through an engaging blend of tradition and modernity. It progresses from the late period of Romanticism and Purism to Realism, Eclecticism, and Symbolism, from the Neo-Renaissance style to Divisionism, presenting a collection of master-

pieces, many of which still to be rediscovered.
The exhibition features over 160 of the most important works by painters such as Hayez, Induno, Faruffini, Cremona, Maccari, Fontanesi, Grosso, Morelli, Costa, Fattori, Cammarano, Lega, Ussi, Signorini, Ciseri, Corcos, Michetti, Mancini, Favretto, Previati, Carcano, Longoni, Morbelli, Nomellini, Tito, Sartorio, De Nittis, Pellizza da Volpedo, Segantini, Boccioni and Balla; and sculptors like Vela, Cecioni, Monteverde, Gemito, Ximenes, Trentacoste, Canonica, Bistolfi, and Medardo Rosso.
The exhibition also focuses on the importance of Pellizza da Volpedo's painting and his own form of pictorial construction. A kind of pictorial framing, which, like for instance in *Fiumana* (1895-98), or *Il quarto stato* (1901), places figures horizontally alongside each other. A way of framing subject matter that is inspired by Raphael's *School of Athens* and Vatican rooms and by the dictates of modern paratactic composition.
Focusing back on people, things and nature. Idyllic life and the art of ideas. The focus on pure landscape coincided with the perfecting of a poetics of nature encompassing "ideas" in the highest and most modern meaning of the word. Painting as a mirror of nature. The nature of life.
The two great figures bookending this period, Hayez and Segantini, draw a symbolic boundary. A boundary that evokes both the restoration of classical myths and fresh start of a brand-new century. Both aspects crop up in both of these artists. Hayez is the first and last of the Romantics, he is the leading painter in the Italian art of the Risorgimento period as the nation's art, the person who developed Italy's own figurative style with the realms of European painting. If there was ever an artist who managed to rework the canons of the 16th and 17th centuries during the long 19th century, elaborating upon Raphael and Titian, Reni and Tiepolo, then that was Hayez.
Segantini was influenced by the revolutionary modernity of Divisionism. And as he gradually conformed to the great European postimpressionists and measured up to Millet and, as Arcangeli noted, as soon as he "began to master the phrasing", suddenly "Italian painting made up all its lost ground through him". In this respect, the similarities and comparisons with Pellizza da Volpedo, Previati and Michetti showcased in this exhibition are of the utmost significance. Whereas Hayez made Milan, the true cultural capital of 19th-century Italy, the

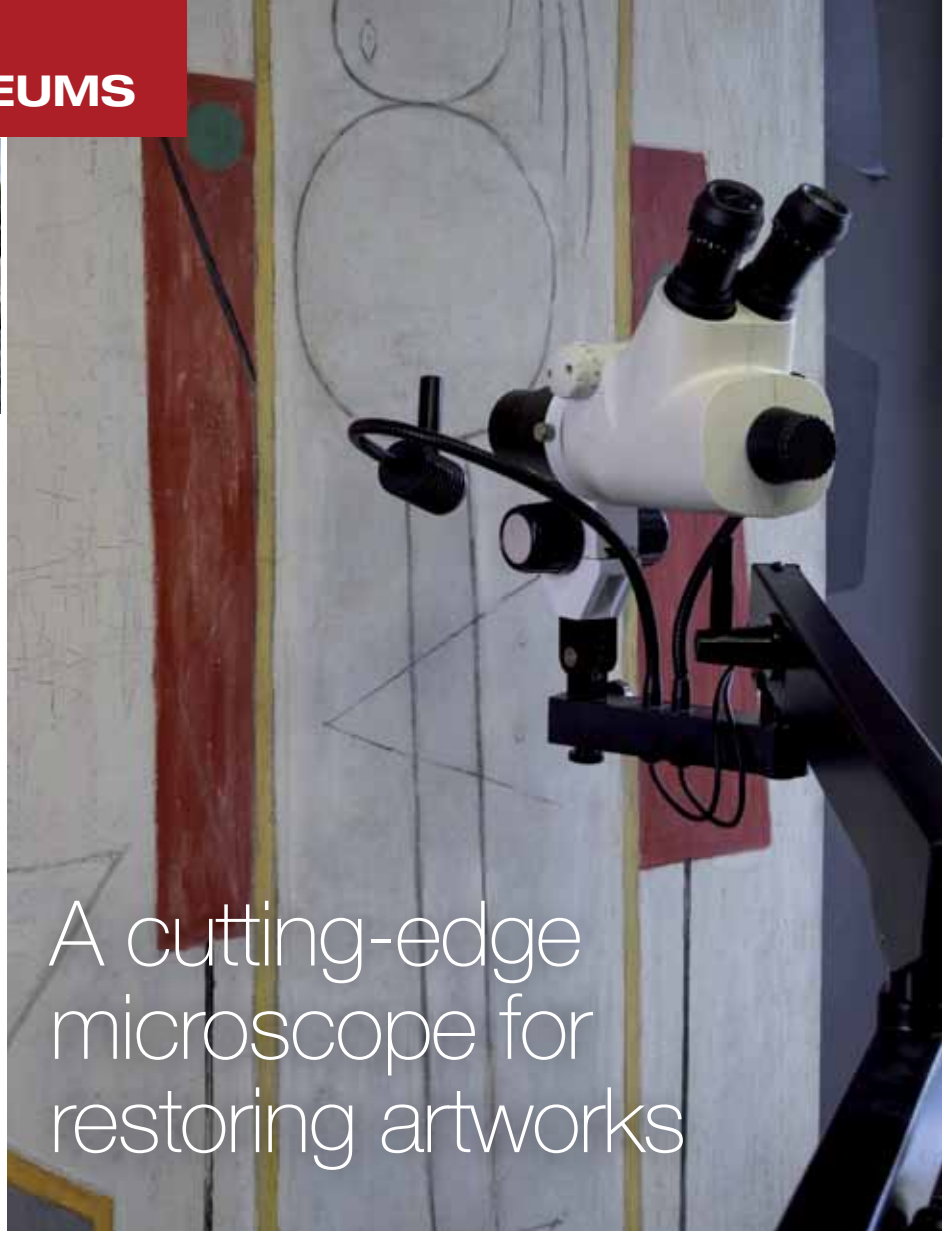
The opening of the exhibition was attended by Davide Drei, Mayor of Forlì, Roberto Pinza, President of the Fondazione Cassa dei Risparmi di Forlì e della Romagna, Bishop Livio Corazza, and Gianfranco Brunelli, General Director of the exhibition.

focus of his revolutionary artistic militancy, Segantini chose the solitary eternal amphitheatre of the Alps in all their epic splendour as the inspiration for his innovative depictions. One working closely with history in the making, the other much further away.
"Here in Savognin – so Segantini would write - my art took on the character it still conserves. That mysterious dividing up of colours you can see in my work is just a natural quest for light". And the way his palette of colours grew lighter in his natural quest for light, his sky-blue contemplation of the sky, the whiteness of his snow-capped mountain tops, and his descending into the grey of rock and green of fields, allowed him to open up to the new century and experimentation, to devise his very own plot of modernity.
Both of these painters helped regenerate Italian art. An art of Italy that wanted to be and was European.

"ETERNITY AND TIME FROM MICHELANGELO TO CARAVAGGIO" WINS THE GLOBAL FINE ART AWARDS

The exhibition held in Forlì in 2018 entitled "Eternity and Time from Michelangelo to Caravaggio" won its category ("Best Renaissance, Baroque, Old Masters, Dynasties-Group or Theme") in the international Oscars for exhibitions. Gianfranco Brunelli was awarded a commendation of the very highest level on 12th March in New York: the fifth Global Fine Art Awards. 94 art events were selected from 6 continents, 49 cities and 31 countries worldwide. The exhibition held in Forlì came first in the category "Best Renaissance, Baroque, Old Masters, Dynasties-Group or Theme", ahead of Los Angeles County Museum of Art (LACMA), the Metropolitan Museum of Art in New York, Palazzo Pitti in Florence and the Hermitage in Amsterdam. The Global Fine Art Awards are an international art competition for

the year's most innovative and important art exhibitions and cultural events judged by an international panel of curators and art historians.
You can read a comprehensive report on this exhibition in issue no. 68 of *Realtà Mapei International*.



A cutting-edge microscope for restoring artworks

MAPEI IS CONTINUING ITS PARTNERSHIP WITH THE PEGGY GUGGENHEIM COLLECTION HELPING DEVELOP TECHNOLOGY FOR CONSERVATION PURPOSES

Mapei first encountered the Peggy Guggenheim Collection in 2009 when, driven by the firm belief that "work cannot be separated from art" (as its founder, Rodolfo Squinzi, used to say), it decided to join the museum's Corporate Membership project called 'Guggenheim Intrapresæ'. Every year Mapei takes an active part in the Collection's life with the same efficiency, flexibility and durability characterising the materials it manufactures worldwide, supporting the Collection's gradual process of change and development. This was exemplified in 2009 by the renovation of Palazzo Venier dei Leoni hosting the Collection and also by its involvement in the Capital Campaign (2014-2016) aimed at acquiring and converting spaces that now host temporary exhibitions, the Venetian museum's first room offering children and families free educational activities, and a new coffee bar (see *Realtà Mapei International* no. 31, 60, and 62).

In 2019 Mapei is helping purchase a latest-generation optical microscope to help the institution's conservation laboratory restore important works of art. This provided an invaluable contribution to the process of technological advancement in the realm of conservation that the Peggy Guggenheim Collection began a few years ago. This vital instrument will allow the museum laboratory to carry out work internally and help the museum compete with other important international enterprises in the field of conserving modern and contemporary works of art, such as the Tate Museums in London and Opificio delle Pietre Dure in Florence.

An optical microscope is a non-invasive high-precision diagnostic tool for studying surfaces to analyse a painting's construction, any layers that may have been added on at a later date, and its state of conservation. Thanks to its extremely high magnifying power, this instrument is extremely useful for studying pictorial techniques and painting textures and is vital for the analytic study of 20th-century works that are composed of various materials applied to canvases using innovative pictorial techniques.

This binocular microscope will be used for the first time on a set of four works by Edmondo Bacci, a Venetian artist who drew on the physicality of Action Painting and mixed oil colours with sand to form ripples. This technique is particularly evident in *Avvenimento #247*, the first of his works planned to be restored with the aid of the new microscope. *Avvenimento #247* will be on display in an exhibition entitled *Peggy Guggenheim. L'ultima Dogaressa* (Peggy Guggenheim. The Last Dogaressa) which will open on 21st September 2019, alongside works by other Italian artists from the 1940s, such as Tancredi Parmeggiani and Emilio Vedova. The exhibition will be a tribute to Peggy Guggenheim's post-1948 collections, the year when the "dogaressa" moved to Venice: paintings, sculptures and paper works acquired between the end of the 1940s and 1979. This will be the crowning moment in an entire year aimed at commemorating two crucial dates that left their mark not only on the Collection's own history but on the history of 20th-century art as a whole: 1949, the year when Peggy bought Palazzo Venier dei Leoni where she then hosted her first exhibition of contemporary sculpture, opening its doors to the general public, and 1979, the year when she passed away.

Support from business and private parties is vitally important for culture

INTERVIEW WITH KAROLE VAIL, THE DIRECTOR OF THE PEGGY GUGGENHEIM COLLECTION IN VENICE

Peggy Guggenheim bought Palazzo Venier dei Leoni along Canal Grande in Venice in 1949 to hold her collection. In 1976 she handed over ownership of the collection to the Solomon R. Guggenheim Foundation on the proviso that the works remained in Venice. After her death in 1979, the Foundation also took over the ownership of Palazzo Venier, Philip Rylands became its Director and converted the Collection into a museum proper. In 2017 Peggy Guggenheim's granddaughter, Karole Vail, who studied art in the United Kingdom before working for the International Centre for Documentation on the Arts in Florence and the Solomon R. Guggenheim Museum in New York, took charge of the Collection.

You have been in charge since 2017. As Peggy Guggenheim's granddaughter, did you feel any special responsibility when you took over?

Let's say I feel doubly responsible: both from a professional viewpoint and also personally. I will certainly do my very best to fully respect the great legacy Peggy Guggenheim has left us and, at the same time, I will continue the work of a museum which, thanks to all its exhibitions and other events, is one of the best loved and most visited in Italy.

How would you sum up your two years in charge: overall assessment, problems you have encountered and your achievements? And what are the Collection's future goals?

These first two years have been extremely intense and interesting. 2018 was my first full year in charge at the museum and I am proud to say that we put on three top-quality exhibitions for public, which were extremely well-received both by the critics and general public.

With the help of my assistants and partners, for the first time ever we have been able to organise a full and carefully planned schedule of Public Programs, which are free side events closely connected to our temporary exhibitions and have engaged both museum visitors and local people.

My plan is to maintain a high standard of exhibitions in the future and ensure close ties are maintained with the permanent collection and the artists it represents.

Being able to manage an important collection like this through a private foundation allows plenty of freedom in decision-making, as well as administrative-financial independence. Nevertheless, management cannot be easy with very little public funding. How do you deal with this problem and where does most of your income come from?

Most of our income comes from entrance ticket sales to the museum, as well as crucial support the Collection has been receiving for many years now from businesses and private parties. In this respect, Mapei has been a faithful fellow traveller for a long time, supporting the museum as a member of Guggenheim Intrapresæ and backing important projects aimed at developing the museum and protecting our artworks.

The cultural industry is growing in Italy, but it is still below European standards. Do you think we can turn this around and get more people to visit museums? Is it important for culture to be provided through a private foundation?

Most certainly! I firmly believe that culture provided by both public and private institutions that focuses on quality and research is the right way to get people more interested in culture.

Over the last few years, the Collection has been modernised, extended and redeveloped, work that the Mapei Group has also been involved in. Do you have plans for further work in the near future?

For the time being, no major work is scheduled, but the museum requires constant care and attention and so I cannot exclude further modernisation and maintenance work on existing structures being required in the near future.

During your first two years in charge, how much have you focused on partnerships and interaction with Venice's other cultural institutions? More specifically, which institution have you worked with most or do you have most in common with as regards your aims and goals?

Before I took over, the museum had already developed excellent relations with other city cultural institutes, such as the university and other cultural-museum enterprises. I think Venice has plenty of high-quality culture to offer and is open to both the modern and contemporary, paying special attention to up-and-coming young artists.

Nowadays, it is hard to find a city in Italy that can offer everything from the mediaeval treasures of Palazzo Cini, the Renaissance art of the Gallerie dell'Accademia or Palazzo Ducale, the modern art in our Collection and Ca' Pesaro's, and the contemporary works of the Pinault Collection and Bienniale exhibitions.

We have developed excellent relations with all these enterprises so that we can offer a broad range of high-quality culture.

Peggy Guggenheim: is there anybody around today who makes art dealing and a love of art the very focus of their life the way she did?

This year, as the museum celebrates the 70th anniversary of when Peggy Guggenheim organised her first exhibition of contemporary sculpture at Palazzo Venier dei Leoni and also commemorates the 40th anniversary of her death in 1979, we are organising a schedule of Public Programmes entitled "The Continuity of a Vision". Among these events and following in Peggy Guggenheim's footsteps as a courageous art dealer unique of her kind, the Peggy Guggenheim Collection plans to hold a series of events throughout the year to which we will be welcoming a number of philanthropists and collectors, who, like Peggy Guggenheim, have made art their mission in society.

INAUGURATED TWO YEARS AGO FOLLOWING THE RESTORATION OF THIS FORMER PRISON, THE MUSEUM OF JUDAISM IS NOW EAGERLY AWAITING THE OPENING OF THE GREAT MEIS IN 2020

Ferrara (Italy)

MEIS – NATIONAL MUSEUM OF ITALIAN JUDAISM AND THE SHOAH

The former Ferrara prison, where Jews used to be imprisoned during the Fascist era, is now home to the first section of the National Museum of Italian Judaism and the Shoah, which will be completed in 2020.

Administered by a Foundation formed by Mibac (Italian Ministry of Cultural Heritage and Activities), Ferrara City Council, CDEC (Foundation Jewish Contemporary Documentation Center) and ECEI (Union of Italian Jewish Communities), at the end of 2017 with an exhibition entitled "Jews, an Italian story: the first thousand years", the first block of MEIS, the National Museum of Italian Judaism and the Shoah, was inaugurated in Ferrara (Central Italy), while eagerly awaiting inauguration of the modern Great MEIS complex.

An international tender was issued in 2011 looking for designers to turn the former prison into a museum and, at the same time, to propose a new architectural complex.

The tender documents divided the prison complex into three main blocks: an entrance building, the main cell block and a building for the various services.

The first two were covered by a decree issued by the Regional Heritage body as examples of modern penitentiary structures, and their exterior could not be modified or altered. As far as the service building was concerned, participants in the tender were left free to choose whether to keep it or replace it: the choice proposed by the Arco design studio, which was awarded the tender, was to replace it with a structure made up of five parallelepipeds, a number to remind us of the five books of the Torah.

The five new buildings, which are scheduled to be completed in 2020, have a total surface area of 2,700 m^2 and feature exhibition spaces, a restaurant, an auditorium, a bookshop, classrooms, a library and an archive room.

THE FIRST PHASE OF THE MUSEUM

Construction of the entire MEIS complex is one of the largest ongoing museum projects in Italy and, in this first phase, restoration work on the two existing buildings was completed. The former Ferrara prison, which is now home to the first section of the museum, extends over an area of 1,269 m^2 divided into exhibition spaces, a library and an archive centre. The prison was built in 1912 and then decommissioned in 1992. During the fascist era, anti-fascists and Jews were imprisoned and executed here. The building was redeveloped by a work group requested by the Emilia Romagna Regional Council, the local Architectural and Enviromental Heritage Body and Ferrara City Council.

The building and the main cell block in Via Piangipane 81 was restored according to GBC (Green Building Council) Historic Building certification guidelines, which are applied to restoration work carried out on buildings of historical interest in order to respect the value of the original building while also implementing measures that reflect the culture of sustainability. To house the visitors' reception area, service areas and a flight of stairs leading to the floor with the main cell block, a temporary pavilion was built in the garden positioned halfway between the two existing buildings, the site for the next central sections of the new museum.

The permanent exhibition, which has more than 200 items on display from archaeological and historical collections from all around the world, is also being used to evaluate the cognitive impact of visitors for further design work.

MEIS and GBC (Green Building Council) Italy

The MEIS is one of the first museums in Italy to follow the protocol issued by the GBC (Green Building Council) Italy to obtain environmental certification for historic buildings. The assessment system created by GBC is the only one of its kind, in that its aim is to certify the sustainability of a building during its entire life cycle and also involves the manufacturers of materials, building contractors and suppliers. Amongst the different types of certification issued by this body, the one aimed specifically at historic buildings was created to cover entire territories, such as Italy, where a large number of sites are involved in restoration work on old buildings, often of particular architectural, historic or artistic significance. In Italy, in line with figures for the rest of Europe in general, 30% of existing buildings were built before 1945.

The floors in the corridors on the ground floor were completed with MAPEFLOOR SYSTEM 35 F. The ULTRATOP LOFT system was chosen for the floors on the ground floor, first floor and second floor.

THE MAPEI INTERVENTION

The flooring company working in the museum asked Mapei Technical Services the most suitable products to create a "terrazzo-alla-veneziana" floor and another floor in micro-cement laid over an underfloor heating system made from metal panels.

Corridors. The client and designers opted for MAPEFLOOR SYSTEM 35 F epoxy coating system for around 200 m^2 of corridors on the ground floor. After the mechanical preparation of the substrate, the surface was grinded over with a grinding machine fitted with a diamond disk. After removing all the dust, the surfaces of the metal panels used for the heating system were treated with a coat of PRIMER EP RUSTOP, two-component epoxy primer. Once dry, the substrate was then treated with PRIMER SN, two-component, fillerized epoxy resin primer, mixed with QUARTZ 0.5 quartz sand. The primer was then broadcast, while still wet, with QUARTZ 0.9. The "terrazzo-alla-veneziana" flooring system was then spread over the surface, by applying MAPEFLOOR I 350 SL, a two-component, multipurpose, neutral-coloured epoxy formulate with excellent resistance to chemical agents and abrasion, mixed with white MAPECOLOR PASTE coloured paste and DYNASTONE TZ, 8 mm thick aggregates.

The flooring was finished off with MAPELUX LUCIDA, double-reticulation, high-strength, shiny metallic wax, which provides a high level of resistance to intense traffic and frequent cleaning.

Ground floor, first floor and second floor. For the offices on the ground floor (200 m^2), and the exhibition spaces on the first and second floors (300 e 500 m^2), the ULTRATOP LOFT system was proposed. After grinding the substrate, it was treated with PRIMER SN fillerized with QUARTZ 0.5, followed by a full broadcast of QUARTZ 0.5. On the tiled substrates, MAPENET 150, alkali-resistant fibre glass mesh, was embedded in the primer.

The next step was to apply ULTRATOP LOFT F, trowellable coarse-textured cementitious paste mixed with white ULTRATOP COLOR PASTE. After 6 hours, the coating was sanded and a layer of ULTRATOP LOFT W, fine-textured cementitious paste, was applied. Once this was dry, it was sanded and treated, firstly with a coat of MAPEFLOOR FINISH 630, two-component, protective acrylic filming agent, and protected, after a few hours, with two coats of MAPEFLOOR FINISH 58 W, two-component, aliphatic, polyurethane finish to give the floor a matt effect. The expansion joints on all the floors were sealed with MAPEFLEX PU 45 FT, polyurethane sealant, after the application of MAPEFOAM foam cord in the place of the joint.

IN THE SPOTLIGHT

ULTRATOP LOFT F AND ULTRATOP LOFT W

One-component, trowellable, coarse-textured (ULTRATOP LOFT F) and fine-textured (ULTRATOP LOFT W) cementitious pastes, applied in layers up to 2 mm thick to create decorative floors with a trowelled or mottled effect finish.

TECHNICAL DATA

MEIS (National Museum of Italian Judaism and the Shoah), Ferrara (Italy)
Year of construction: 1912
Period of the intervention: 2011-2020
Year of the Mapei intervention: 2017
Intervention by Mapei: supplying products to create cementitious floors
Design: D'Arco
Client: Mibac
Main contractor: Edil Frair S.p.a
Flooring contractor: Linoleum Lanza
Mapei distributor: Saces Srl
Mapei coordinator: Fabio Perillo, Mapei SpA (Italy)

MAPEI PRODUCTS

Preparing the subtrates: Primer EP Rustop, Primer SN, Quartz 0.5, Quartz 0.9, Mapenet 150
Laying cementitious floorings: Dynastone TZ, Mapefloor Finish 58 W, Mapefloor Finish 630, Mapefloor I 350 SL, Mapelux Lucida, Ultratop Color Paste, Ultratop Loft F, Ultratop Loft W

For further information on products see www.mapei.com

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Varano de' Melegari (Italy)

THE DALLARA ACADEMY

THE COMPLEX ENCLOSES AN EXHIBITION AREA AND AN EDUCATIONAL AND TRAINING CENTRE TO HELP CONVEY THE KNOWLEDGE AND PASSION FOR ENGINEERING IN RACING CARS

2

Inaugurated in the autumn of last year, the Dallara Academy is right next to the historic headquarters of Dallara Automobili in Varano de' Melegari (central Italy), which has been building racing cars since 1972. The structure has an audacious design, just the sort of look the founder and President of the company, Gian Paolo Dallara, had been aiming for: a research centre and a design centre, as well as a place for enjoyment and exhibitions. And it was thanks to the innovative nature of its design that led to the Dallara Academy winning the 2017 "Best Future Building of the Year – Under Construction" at the ABB Leaf Awards in London, a competition that acknowledges the designs chosen as a point of reference in architecture.

A MULTI-FUNCTIONAL STRUCTURE

The actual building of the Dallara Academy extends over two levels, connected together by a curvilinear ramp providing access for visitors to walk in. On the ground floor you can find reception spaces for visitors and laboratories for local schools, while the first floor is the home of an area dedicated to graduate training courses and the auditorium. From a volumetric point of view, the structure is a collection of intertwined, primary geometric figures made up of cones, trapezoids and parallelepipeds, where the different volumes create connection points or develop into open spaces dedicated to the general public. A great deal of importance was also given to the various materials used to identify the different areas, from local natural stone to brass trims, finishing with a three-dimensional ceramic covering for the three cones.

PHOTO 1. An external view of the Dallara Academy.
PHOTO 2. The display area in the ramp.
PHOTO 3. A close-up view of the cones.
PHOTO 4. The three-dimensional ceramic tiles were bonded to the external facade with KERABOND mixed with ISOLASTIC.

Display ramp. The display ramp, which is open to visitors, features the cars that have played such an important part in the history of Dallara Automobili. You pass from the Miura to the X1/9, from the Sport models built in collaboration with Lancia to the IndyCars that race in the Unites States, from prototypes for Le Mans right up to cars designed for the Formula 3 and Formula E championships, to arrive at the latest model, the "Dallara Stradale".

Teaching laboratories. An area on the ground floor is dedicated entirely to the Training Workshops, designed for students from local middle and secondary schools, where they can experiment for themselves the laws of physics applied to the design and development of cars. Based on a philosophy of "edutainment", or learning while having fun, the aim of the laboratories is to directly involve youngsters in activities inspired by the three main activities of the Dallara company: the design and production of composite materials, aerodynamics and vehicle dynamics.

University area. On the upper floor, the Academy has reserved an area dedicated to graduate level studies. This is where they hold the second year of the MUNER (Motorvehicle University of Emilia-Romagna) degree course in "Racing Car Design", a partnership so strongly desired by the Emilia-Romagna Regional Council between local universities and the ten historic engine manufacturers from what is known as "Motor Valley": HPE, Dallara, Ferrari, Lamborghini, Pagani, Magneti Marelli, Haas, Toro Rosso, Maserati and Ducati.

Auditorium. Inside the Dallara Academy there is also a 350-seat space designed to host conferences, meetings, presentations and team-building activities. The structure also has a bookshop and a cafeteria for its guests.

HIGH TECHNOLOGY INTERVENTION

Mapei Technical Services took part in the site work, initially by carrying out a series of surveys, and then by working alongside the contractors to help them choose the suitable products.

Installation of ceramic coverings on the sloping roof. To waterproof the roofs of the three structures, PURTOP 1000 two-component, pure polyurea-based membrane was applied by spray with a bi-mixer pump. Before applying it, the surface was treated with PRIMER SN epoxy primer, which was then broadcast while still wet with QUARTZ 0.5 quartz sand. Special three-dimensional tiles (10x10 cm) were used to cover the roof, which were bonded in place with ULTRABOND ECO PU 2K two-component, solvent-free, high-performance, slip-resistant polyurethane adhesive with very low emission of volatile organic compounds (VOC). The joints were then filled with ULTRACOLOR PLUS grouts. Expansion joints were created in the covering at a pitch of 3x3 m and sealed with MAPESIL LM neutral mould-resistant silicone sealant.

Installation of ceramic covering on the facades. To install the three-dimensional tiles on the facades, Mapei Technical Services proposed a high-performance adhesive system made up of KERABOND powdered cementitious adhesive mixed with ISOLASTIC latex instead of water to improve its elasticity and characteristics.

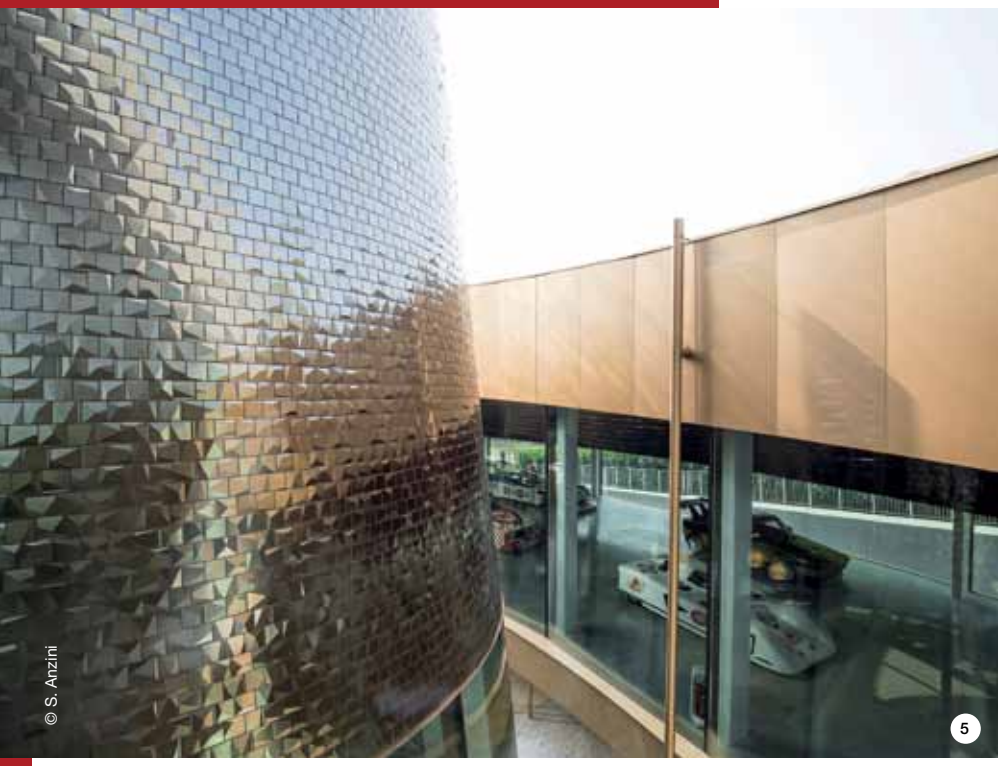


PHOTO 5. The substrates of the cones were waterproofed with PURTOP 1000. The 3D ceramic tiles were installed with ULTRABOND ECO PU 2K and the joints were grouted with ULTRACOLOR PLUS.

IN THE SPOTLIGHT

PURTOP 1000

Two-component, solvent-free pure polyurea membrane applied by spray with a high-pressure, bi-mixer type pump, to form waterproof coatings for hydraulic works, roofs and bridge decks directly on site. Thanks to its high chemical resistance, exceptional flexibility and tear strength, PURTOP 1000 is suitable for waterproofing membranes on storage tanks, basins and hydraulic works in general as well as for the type of structure that requires a high-performance waterproofing membrane.

The joints were then grouted with ULTRACOLOR PLUS mortar and the expansion joints were sealed with MAPESIL LM.

Internal floorings. Mapei systems were also used to prepare 2,000 m^2 of concrete floors inside the Academy and the mix used included DYNAMON FLOOR 10, an acrylic-based, super-plasticising admixture. The surface was then consolidated with MAPECOAT I 600 W, two-component, transparent epoxy primer in water dispersion.

For the floors in the bathrooms, the MAPEFLOOR SYSTEM 51 was chosen (average thickness 3 mm), a multi-layered epoxy system used to form water vapour-permeable floors which are moderately resistant to chemical products, frequent cleaning operations and wear and impermeable to oil and aggressive substances. Floorings made using MAPEFLOOR SYSTEM 51 also have an attractive finish. Before applying the coating, the substrate was mechanically prepared to ensure a perfect bond with the coating. After applying, by scratching, MAPEFLOOR I 500 W epoxy formulate, the surface was fully broadcast with QUARTZ 0.5 while still wet. The following day, the surface was lightly sanded in order to eliminate the quartz sand that was not perfectly bonded. The work was completed by applying another scratch coat of MAPEFLOOR I 500 W.

For the stairs, on the other hand, the preferred solution was MAPEFLOOR SYSTEM 32, a multi-layered epoxy system used to make 3.0-3.5 mm thick coatings on floors that are highly resistant to chemical products, frequent cleaning operations and aggressive substances. After the mechanical preparation of the surface, it was treated with PRIMER SN, two-component, pre-fillerized epoxy primer, prepared by adding about 20% by weight of QUARTZ 0.5. While the surface was still wet, it was fully broadcast with QUARTZ 0.5.

After the removal of the excess quartz by vacuum cleaner followed by a light sanding of the surface and a subsequent removal of the produced dust, MAPEFLOOR I 300 SL, two-component, neutral-coloured, multi-purpose formulate, was applied with a straight steel trowel. The product was coloured on site by using MAPECOLOR PASTE. While the surface was still wet, it was fully broadcast with QUARTZ 0.5. The following day, the excess quartz sand was removed with a vacuum cleaner, the surface was sanded again and all traces of dust were again removed. A final coat of MAPEFLOOR I 300 SL was applied, again using a straight steel trowel.

TECHNICAL DATA

Dallara Academy, Varano de' Melegari (Italy)
Period of construction: 2017-2018
Year of the Mapei intervention: 2018
Intervention by Mapei: supplying products for bonding ceramic tiles in exteriors, admixtures for concrete, waterproofing compounds, systems for resin floors
Design: Atelier(S) Alfonso Femia AF517
Client: Varanobox Srl
Contractor: Mario Neri SpA
Resin flooring contractor: Resinsystem Italia
Ceramic installation company: Technoriunite
Mapei coordinators: Carlo Alberto Rossi, Francesco Di Chiara, Andrea Bettini, Mapei SpA (Italy)

MAPEI PRODUCTS

Installing ceramic tiles: Kerabond, Isolastic, Ultrabond Eco PU 2K
Grouting and sealing joints: Ultracolor Plus, Mapesil LM
Preparing and waterproofing substrates: Primer SN, Purtop 1000, Quartz 0.5
Laying resin floors: Mapecoat I 600 W, Mapefloor System 32, Mapefloor System 51, Dynamon Floor 10

For further information on products see www.mapei.com

Perception-based architecture

INTERVIEW WITH THE ARCHITECT ALFONSO FEMIA, WHO DESIGNED DALLARA ACADEMY


© F. Avandero

After graduating in architecture from Genoa University, Alfonso Femia taught architectural design at Kent State University in Florence and in the faculties of architecture at Ferrara and Genoa universities. He set up studio 5+1 in 1995 and then studio 5+1AA in Milan in 2005, also opening a branch in Paris in 2007. In 2017 the firm was renamed AF517 (Atelier(s) Alfonso Femia), its present name.

In 2017 your project entitled Dallara Motorsport Academy won the prestigious prize for "Best Future Building of the Year - Under Construction" at the ABB Leaf Awards. Do you see that as a crowning point in your career or a new beginning?
All projects are a continuation of those that preceded them and a stepping stone towards those that follow, so it is just a stage in a journey giving me the enthusiasm and courage to experiment and dialogue with architectural design.

During the presentation you described the Dallara Academy as "a complex focusing on the topography of the land, its incorporation in the landscape, and the two ways it can be perceived (from the outside and from the inside)".
Is the surrounding landscape always an important part of a project?
We love to imagine, to treat a project as the desire and responsibility to create a landscape within the landscape or, in other words, to attempt to interact and converse with the setting, a way of attaching to it and revealing its traces or the ways in which it might evolve. The setting is important because it forces us to think, to slow down and open our eyes to see places and territories, i.e. the community.

The Academy is not just an exhibition space, it is above all a training centre. How much did that affect your project?
It is the most important part of all, because it brings into play the future in constant interaction with the past (history) and the present (experimentation). It is the pulsating heart and soul that we attempted to turn into something almost sacred, enveloping it in a space that only takes in light from the sky. A pause, a slowing down in the mechanical dynamics of the other spaces.

The other striking thing about Dallara Academy is the use of only very "stony", textured materials and the incorporating of natural light and glass on the inside. Is this a leitmotif in your projects or is it just a one-off?
We always engage directly with materials. Every material has a soul and architectural design is the coming together of people and the soul a place has. Material reacts and interacts with light. It can make a building and its spaces either full of life or ascetic. It takes constant research and experimentation to bring together thought and action.

The importance of building materials in architecture. How have the selecting and introduction of new materials changed building work? How much does it help to be able to count on fully-tested cutting-edge products like those Mapei manufactures?
Focusing on materials means constant interaction with research carried out by companies investing in innovating, providing and developing products and solutions really in synch with projects, their intrinsic qualities and durability over time. This kind of interaction needs to return to how it was in the Renaissance, when everything was fundamental and related to everything else.

In this project, a notion of high-quality architecture takes precedence, partly underlined by the products used.
Do clients realise the importance of good architecture and quality products?
Good architecture means good design, good design means quality interaction between thinking, action, materials and dreams. We believe in perception-based architecture in which "all our actions come from perceptions" as Leonardo da Vinci taught us.

Pietrarsa (Italy)

ITALIAN NATIONAL RAILWAY MUSEUM

OVERLOOKING THE GULF OF NAPLES, THE MUSEUM CONTAINS A UNIQUE COLLECTION OF HISTORICAL RAILWAY CARRIAGES AND LOCOMOTIVES

The first stretch of the Italian rail network was inaugurated on the 3rd of October, 1839 by King Ferdinand II of the Two Sicilies. The stretch was a little more than 7 km long and the journey from Naples to Portici took 11 minutes, with passengers travelling in two trains designed by the engineer Armand Bayard de la Vingtrie, based on a prototype of the Rocket locomotive designed by George Stephenson. The first of 7 workshops specialised in the building, maintenance and repair of rail stock was built in 1842 in the Pietrarsa area of Portici. Following the Unification of Italy, the workshops were taken over by the Italian Government and continued their activity as a building, maintenance and repair centre for the large steam trains in use at the time.

The workshops were finally closed down in 1975 and, in 1989, to celebrate the 150th anniversary of the Italian railway network, the Italian National Railway Museum was inaugurated inside the workshops complex.

RESTORATION AND REDEVELOPMENT PROJECT

The National Railway Museum in Pietrarsa has been given a new lease of life: on the 31st of March, 2017, the President of the Italian Republic, Sergio Mattarella, inaugurated the newly-restored museum complex.

The complex is made up of seven structures extending over an area of 36,000 m², of which 14,000 are covered. Inside the museum there are 55 steam trains, Fiat Littorina trains and carriages, models of trains, a large, 18 m-long model called "Trecentotreni" (three hundred trains), the official state carriage of the President of Italy, an imposing statue of King Ferdinand II and the Liberty-style royal state-room with its pure gold ceiling.

After 20 years of deterioration caused by the salty air and a lack of maintenance, around 15 million Euros were invested to restore the museum.

The most significant work included restoration work on the buildings where the trains and carriages are displayed,

IN THE SPOTLIGHT

MAPE-ANTIQUE INTONACO NHL

It is a transpirant base render based on natural hydraulic lime and Eco-Pozzolan. It is ideal for rendering old stone, brick, tuff and mixed walls, including decorative walls and those of historical interest. It can be also used for rendering down to the level of the stone on walls not subject to capillary rising damp or else rebuilding old lime-based render deteriorated by the action of atmospheric agents or by ageing. It has very low emission level of volatile organic compounds (EMICODE EC1 R Plus) and is classified as GP according to EN 998-1 standards.

new lighting systems, refurbishment of the stone floors outside and around the museum, the installation of a new glass parapet along the promenade, restoration work on the nineteenth-century, cast-iron platform, a new layout for the gardens, restoration work on the building and platform at the train stop in Pietrarsa, restoration work on the large cast-iron statue of King Ferdinand II, refurbishment of the convention centre and a restyling of all the internal areas.

SAFE FAÇADES BY MAPEI

Mapei products were used for the macro-porous dehumidifying render and the coloured coatings on the façades. The first step was to remove all the old, deteriorated render right down to the masonry underneath.

This was then washed with water to remove all the soluble salts, dust, grease, efflorescence and any loose material.

Any gaps or breaks in the masonry were repaired using MAPE-ANTIQUE ALLETTAMENTO salt-resistant mortar and other building materials, such as stone and bricks, with characteristics as similar as possible to the original materials.

Mapei Technical Services recommended MAPE-ANTIQUE RINZAFFO salt-resistant, breathable, lime and Eco-Pozzolan-based scratch-coat mortar used as a base layer before applying MAPE-ANTIQUE MC macro-porous, dehumidifying render which is highly resistant to various chemical-physical aggressive phenomena, such as the presence of soluble salts in the surrounding air.

The surfaces above this level were treated with a system made up of MAPE-ANTIQUE RINZAFFO and MAPE-ANTIQUE INTONACO NHL transpirant base render. After saturating the substrate with water, a 5 mm thick layer of MAPE-ANTIQUE RINZAFFO mortar was applied over the entire surface to improve adhesion of the render and slow down the transfer of salts towards the de-humidifying render during the first few days of curing while it was still too “weak”.

Then, starting from the lower part of the masonry, MAPE-ANTIQUE MC MACCHINA macro-porous dehumidifying render was applied to form a layer at least 20 mm thick. While the dehumidifying render was curing, any areas directly exposed to the sea air were protected with sheets to limit as much as possible the amount of salt deposited on their surface.

The façades of the 7 workshops were renovated using solutions from the MAPE-ANTIQUE line.

Once the render was fully cured, the surface was protected and painted with SILANCOLOR BASE COAT, a water-repellent, coloured siloxane undercoat with good filling and defect-covering properties, and SILANCOLOR TONACHINO, a water-repellent, transpirant, siloxane plaster with high filling properties, in the colour specified by the client.

TECHNICAL DATA

Italian National Railway Museum, Pietrarsa (Italy)
Year of construction: 1840
Period of the intervention: 2015-2018
Intervention by Mapei: supplying products for renovating and protecting the facades
Design: Angelo Boemio
Client: RFI Fondazione FS Luigi Francesco Cantamessa
Contractor: CEFI - ACMAR
Works director: Angelo Boemio
Mapei distributor: Saces Srl
Project manager: Sabato Gargiulio, Riccardo De Massimi
Mapei coordinators: Antonio Fimiani, Giuseppe Mastroianni, Davide Bandera, Francesco Di Chiara, Mapei SpA (Italy)
Photos: Gianni De Gennaro

MAPEI PRODUCTS

Renovating the façades: Mape-Antique Allettamento, Mape-Antique Intonaco NHL, Mape-Antique MC, Mape-Antique MC Macchina, Mape-Antique Rinzaffo
Wall coatings: Silancolor Base Coat, Silancolor Tonachino

For further information on products see www.mapei.com

Milan (Italy)

MILAN WATER TREATMENT PLANT

AN ANTIQUE BUILDING, NOW WORKING AS A MUSEUM, HAS BEEN BROUGHT BACK TO LIFE THANKS TO THE USE OF SPECIAL PRODUCTS FOR THE RENOVATION OF MASONRY

On the 4th of July last year, a new polyfunctional centre was inaugurated in Milan with water as its central theme, a basic commodity for mankind and a renewable resource for our planet (World Water Day was celebrated on the 22nd of March). We're talking about the Milan Water Treatment Plant near Piazza Firenze, where, at the end of the last century, the last remaining fountain within the Navigli canals area was shut down.
The Milan Water Treatment Plant is a space extending over three floors that has been created by transforming a historic water pump-house, built between 1905 and 1906 with the aim of making the Milan water network even more efficient. Inside the building – which is once again open to the public, in a museum-like setting which forms a perfect backdrop to a host of educational activities and information on the subject of water, promoted by the University of Milan and the Giangiacomo Feltrinelli Foundation – the basement is used to display old equipment from the water plant.

MAPE-ANTIQUE: TECHNOLOGY WITH RESPECT FOR TRADITION

The structure's underground masonry was renovated by applying a specific product system combined with a dehumidifying cycle.
Once the badly damaged cementitious render had been removed and the sur-

PHOTOS 1 and 2. After cleaning the surfaces, they were levelled with MAPE-ANTIQUE STRUTTURALE NHL, treated with PRIMER 3296 consolidator, and protected with MAPE-ANTIQUE ECOLASTIC coating.
PHOTO 3. The exposed beams of the timber roof truss were consolidated with MAPEWOOD PRIMER 100, MAPEWOOD PASTE 140 and MAPEWOOD GEL 120.
PHOTO 4. The facades were finished with SILEXCOLOR PRIMER and SILEXCOLOR PAINT.

faces had been carefully cleaned to remove any loose or detached material, a 2 cm layer of MAPE-ANTIQUE STRUTTURALE NHL mortar was applied to level the surfaces, followed by a coat of PRIMER 3296 consolidating primer, diluted 1:1 with water, and two coats of MAPE-ANTIQUE ECOLASTIC coating, to form a 2-3 mm thick layer. MAPE-ANTIQUE ECOLASTIC is an elastic coating protecting the surface of rendered masonry (including in listed buildings) from seawater, deicing salts or soluble salts in general. A base layer was created thereupon using MAPE-ANTIQUE ECO RINZAFFO salt-resistant, natural hydraulic lime and Eco-Pozzolan scratch-coat, an ideal base for dehumidifying, breathable and "structural" renders. The next step was to apply MAPE-ANTIQUE ECO RISANA dehumidifying rendering mortar, followed by two coats of MAPE-ANTIQUE ECO RASANTE CIVILE fine-grained, smoothing and levelling mortar.
The facades were finished off with silicate-based SILEXCOLOR PRIMER and SILEXCOLOR PAINT, an one-component modified potassium-silicate-based paint for internal and external vertical surfaces.
The same finishing treatment was also adopted for the internal walls of the building. After removing the existing damaged render and film of paint with power tools, the first step was to treat the surfaces with PRIMER 3296 primer before smoothing over with MAPE-ANTIQUE ECO RASANTE CIVILE.
The facades were finished off with silicate-based SILEXCOLOR PRIMER and SILEXCOLOR PAINT paint.
The exposed beams of the timber roof truss were consolidated and strengthened by treating the surfaces with MAPEWOOD PRIMER 100 and applying MAPEWOOD PASTE 140, a thixotropic epoxy adhesive for restoring timber structural elements, and then MAPEWOOD GEL 120 epoxy-based adhesive, this time in the form of gel.
The last step was to provide protection for the facades, which was guaranteed by applying ANTIPLUVIOL, a colourless, water-repellent impregnator treatment made from silicon compounds in water solution, which forms an efficient barrier against aggressive agents present in the atmosphere, which are carried into the material by rainwater.

IN THE SPOTLIGHT

SILEXCOLOR PAINT

It is a one-component modified potassium-silicate-based paint with selected fillers and pigments resistant to natural light for internal and external vertical surfaces. Once it has completely dried, SILEXCOLOR PAINT forms a coat without forming a surface skin and which is permeable to vapour. It has excellent resistance to ageing, freezing weather conditions and deicing salts and surfaces treated with this product have a very low capacity of attracting dirt.
Thanks to its special silicate-based formulation, SILEXCOLOR PAINT may be used to create fine, delicate shades that give surfaces a natural-looking finish.

TECHNICAL DATA
Water treatment museum, Milan
Year of construction: 1906
Period of the renovation: 2016-2017
Period of the Mapei intervention: 2016-2017
Intervention by Mapei: supplying products for masonry renovation and consolidation of the timber roof truss
Client and design: MM Metropolitana Milanese SpA (M. Maccagni and G. Ferrante)
Contractor: Moire Srl
Mapei distributor: Centroedile Milano Srl
Mapei coordinators: Davide Bandera, Daniele Sala, Fabio Bergamaschi and Massimiliano Nicastro, Mapei SpA (Italy)

MAPEI PRODUCTS
Masonry renovation: Mape-Antique Eco Rinzaffo, Mape-Antique Eco Risana, Mape-Antique Eco Rasante Civile, Mape-Antique Ecolastic, Primer 3296
Wall coatings: Silexcolor Primer, Silexcolor Paint
Strengthening the timber roof truss: Mapewood Primer 100, Mapewood Paste 140, Mapewood Gel 120, Antipluviol

For further information on products see www.mapei.com

Ottawa, Ontario (Canada)

CANADA SCIENCE AND TECHNOLOGY MUSEUM

NEW FUNCTIONAL AND RESISTANT FLOORS FOR A SUPER MODERN SCIENCE MUSEUM

Durable and resistant floors were completed with ULTRATOP PC.

On November 17, 2017, the Canada Science and Technology Museum marked a pivotal moment in its history.
The museum reopened its doors to the public, following a three-year closure and a 105-million-Canadian-dollar (about 70-million-Euro) renewal of its entire building, which originally opened in 1967. The renovation intervention was mostly due to the fact that the administration discovered mold and a looming collapse due to an asbestos-infested roof. The manager described the museum, as "tired and in need of a reboot". The renovation included transforming the 10-acre front lawn into a park, raising the entranceway roof by 12 m, adding a 360 m^2 canopy, along with a 76 m façade for visual projections.
The new museum features more than 7,400 m^2 of completely redesigned space, including a temporary exhibition hall to accommodate travelling exhibitions from around the world. Combining everything visitors liked about the previous incarnation—locomotives and the Crazy Kitchen—with more artifacts and interactives, the museum tells Canada's innovation story in an immersive, educational, and fun way. Visitors are invited to discover, play, and experience how people—through curiosity, observation, and creativity—have made Canada and continue to shape its future. When visitors walk through the museum's 11 exhibitions, visit the demonstration stage, or tinker in Exploratek, they are allowed to experience science and technology first-hand.

FLOORS FOR INTENSE TRAFFIC

One of the biggest parts of the job involved renovating the 30,000 m^2 of concrete flooring, a high level foot-traffic area for pedestrians throughout the day. The contractors knew they needed a product that could withstand constant high volumes of traffic while maintaining a beautifully polished finish. First, PLANIBOND EBA was laid out over the old concrete. This is a two-component, multipurpose, high-modulus, epoxy bonding agent which is manufactured and distributed in Canada by Mapei Inc. The surface was then sand blasted to ensure the proper adhesion of the resurfacing product, ULTRATOP PC. This is a self-leveling, cementitious topping optimized for polishing. It is manufactured and distributed in Canada by Mapei Inc. and is used to provide a thin resurfacing material that is extremely hard and durable. This is the reason why ULTRATOP PC, a was an easy choice to use across the entire 30,000 m^2. concrete surface flooring in the museum.

IN THE SPOTLIGHT

ULTRATOP PC

It is a self-leveling, cementitious topping optimized for polishing, which is manufactured and distributed on the Canadian market by Mapei Inc. ULTRATOP PC is engineered to provide a thin resurfacing material that is extremely dense, hard and durable. It is easily installed from 10 mm to 5 cm neat and up to 12.5 cm Extended. It is polishable in as soon as 24 hours and suitable for both new (28-day cured) and existing concrete. It allows floors to accept light vehicular traffic in commercial, light industrial and residential applications. It is suitable for light industrial floors, commercial, retail and residential applications.

TECHNICAL DATA
Canada Science and Technology Museum, Ottawa, Ontario (Canada)
Year of construction: 1967
Period of the intervention: 2016-2017
Intervention by Mapei: supplying products to build cementitious floors
Client: Government of Canada
Contractors: Pomerleau Inc., BTM Construction
Design and works direction: Norr Architects Engineers and Planners
Mapei distributor: Reno Direct
Mapei coordinator: Justin Lafontaine, Mapei Inc. (Canada)

MAPEI PRODUCTS
Preparing the substrates: Planibond EBA*
Laying cementitious floors: Ultratop PC*

*These products are manufactured and distributed in Canada by Mapei Inc.

For further information on products see www.mapei.com


1


2

Mapei "on display" in museums all over the world

FROM CUBA TO RUSSIA, MAPEI PRODUCTS ARE USED FOR BOTH MODERNISATION PROJECTS AND CONSTRUCTING NEW BUILDINGS HOSTING MUSEUMS

1. GLASS HOUSE SÁZAVA
Sázava, Czech Republic

The museum is housed in a building dating back to 1835 and demonstrates glass-making methods, a typical Czech tradition. Inside the building there are special machinery and galleries with displays of objects made from glass, as well as other areas where cultural events and workshops are held to show the techniques used to make glass. New basalt and cementitious floors were installed in various parts of the museum in 2013 using PRIMER SN, KERACOLOR GG, ULTRATOP, MAPEFLOOR FINISH 630 and MAPELUX OPACA.

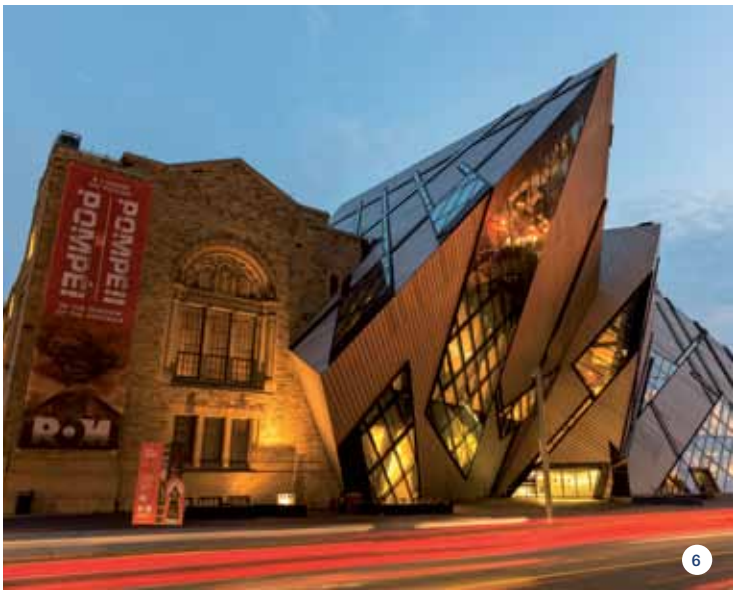
2. KAISER WILHELM MUSEUM
Krefeld, Germany

The Kaiser Wilhelm Museum, one of the oldest museums in Germany, is spread over three storeys and exhibits examples of German art from the 19th century up to the period of the pop-art movement. It was inaugurated in 1897 but, because of the limited amount of space available, it was extended in 1910. An underfloor heating system was installed in 2016 using FASERFLIESS SPACHTEL*, GRUNDIERUNG* and VARIOFLEX, which are manufactured by Sopro, a company belonging to the Mapei Group.
* Manufactured and distributed on the German market by Sopro

3. MUSICAL INSTRUMENT MUSEUM
Phoenix, USA

The museum was inaugurated in 2010 and is a legendary haunt of music lovers, with 2 floors and 5 exhibition galleries (for an area of around 18,000 m^2) housing more than 10,000 instruments from different eras and 200 different countries. The ceramic tiles were bonded to the floors and walls in the various areas using ULTRACONTACT*, KERACOLOR S*,


5



6

OPTICOLOR*, KERAPOXY IEG, ULTRAFLEX LFT* and ULTRAFLEX*, while the stone slabs in the auditorium were bonded with ULTRAFLEX 3*.

4. BOLGAR HISTORICAL ARCHITECTURAL MUSEUM RESERVE
Bolgar, Tatarstan, Russia

The Memorial Sign was inaugurated in 2012 within the confines of this archaeological site to commemorate the people of Volga adopting the Muslim faith in 922. This large, octagonal structure, with a gold domed roof, has its own museum and conference rooms on the ground floor. The walls were decorated with mosaics installed by Italian craftsmen. KERABOND T adhesive mixed with ISOLASTIC latex instead of water was used to install the glass mosaic tiles.

5. MUSEO NACIONAL DE LA MUSICA
Havana, Cuba

This elegant, Italian Renaissance-style building was constructed in 1905 in the old part of Havana and, since 1981, it has been the home of a museum dedicated to musical instruments. The museum was completely restored a few years ago and the work included using Mapei systems to anchor and consolidate the structure, carry out waterproofing work, renovate the masonry, render the walls and decorate the facades with several products including those from the MAPE-ANTIQUE and SILEXCOLOR lines.

6. ROYAL ONTARIO MUSEUM
Toronto, Canada

Founded in 1914, the Royal Ontario Museum was extended in 2010 according to a design by the architect Daniel Libeskind. The new Michael Lee-Chin Crystal wing, characterised by a stupefying structure in glass and steel, contains an entrance, seven exhibition galleries and a shop.
MAPECEM QUICKPATCH*, PLANICRETE W*, GRANIRAPID SYSTEM*, ULTRACONTACT RS* and ULTRACOLOR PLUS were supplied to install ceramic tiles on floors and walls.

7. ANCHORAGE MUSEUM
Anchorage, USA

This museum is dedicated to the study of the art and history of Alaska and was opened in 1968. In 2008 a new wing hosting the Arctic Studies Centre, designed by the architect David Chipperfield, was inaugurated. The extension to the museum included the addition of new exhibition galleries, a library, a restaurant and a bookshop.
Before installing new flooring, the substrate was initially treated with PLANIBOND EBA*. Seamless cementitious flooring was then created using grey ULTRATOP self-levelling mortar.

8. IQLANDIA SCIENCE CENTER LIBEREC
Liberec, Czech Republic

iQLANDIA, the first of its kind in the Czech Republic, is a scientific educational centre aimed at both children and adults. Apart from the planetarium, the four floors of the centre are also home to various spaces dedicated to laboratories, interactive games and exhibition galleries.
Various Mapei products were used to waterproof surfaces (MAPELASTIC, MAPEBAND and MAPELASTIC SMART) and to install ceramic tiles (ADESILEX P9, KERABOND, ISOLASTIC, GRANIRAPID and ULTRACOLOR PLUS).

* Manufactured and distributed on the North-American market by Mapei Corp. (USA) and Mapoei Inc. (Canada)


1

New product lines and more training

MAPEI YAPI KIMYASALLARI IS DETERMINED TO GROW EVEN MORE ON A MARKET WITH ALTERNATING FORTUNES

Turkey is nowadays a promising economy on the modern Euro-Asian scene. Over the last few years the nation's economy has really progressed, climbing up the rankings of the world's leading economies, showing growth in its GDP, population and average income, and attaining some quite notable results in its national building industry.

Turkey continued to grow even in the first part of 2018 with its GDP closing the year at 2.9%. However, the country went into financial and economic difficulties towards the end of the year, with the added risk of a further slowdown in 2019. Nevertheless, forecasts by the Ocse and International Monetary Fund suggest the country may get back on its feet again in 2020. Turkey has great potential, thanks partly to the notable rise in its population and the necessary modernisation of its infrastructure.

The Turkish building industry has already started to be affected by the national economic crisis and, according to forecasts, it will be the only Eastern European country to reduce investment in housing. Nevertheless, there are plenty of positive signs. Over the last two years, Turkey's share of the global ceramics industry has remained the same and sales of ceramic tiles have reached a total of 271 million m², increasing by 2% compared to the previous year. Although we can expect sales to drop in 2018, they are expected to rise again by +2% in 2020. These long-term forecasts are based on government spending plans for the transport, housing and energy-infrastructures sectors. These plans may have to be postponed or scaled down but, in any case, it is believed that they will eventually be implemented. This means there is reason to believe that the market will start growing again after overcoming the 2019 slowdown.

SINCE 2013 IN THE COUNTRY OF THE HALFMOON

Mapei Yapı Kimyasallari A.S., the Mapei Group's Turkish subsidiary, was set up in 2013 after the acquisition of Wallmerk Construction Chemicals. This provided the Mapei Group with a manufacturing plant in Polatli Industrial Park in close proximity to the capital, Ankara.

This plant, which covers an area of approximately 22,000 m² (8000 m² of which is covered space), has a manufacturing output of approximately 48,000 tons-a-year of materials in powder form and approximately 4,800 tons of liquids.

The Mapei Group recently made a further investment in the plant to construct a new manufacturing line for grinding additives for cement and a new storage facility. On one hand, this will allow the subsidiary to increase its sales in new market segments and, on the other, to continue supporting the Group's export operations to bordering nations.

The subsidiary has always tried to meet the Turkish market's needs as best possible, partly by designing customised solutions. For a long time now it has been resupplying local customers with thermal

Mapei Yapi Kimyasallari A.S. at Unicera 2019

UNICERA, one of the biggest international trade fairs in the ceramics industry, was held in Istanbul from 5th to 9th February. 350 exhibiting companies and over 1200 brands in the industry showcased their latest innovations in the realm of ceramic coverings and wooden materials, as well as bathroom accessories and supplies. A total of 91,502 people attended the event, over 18000 of which were foreigners. This year the Mapei Group's Turkish subsidiary took part in UNICERA for the first time, focusing on its vast repertoire of solutions and, more specifically, its range of materials for installing ceramics and natural stones. Mapei Yapı Kimyasallari A.S also made a real impact with its banners and panels on display outside the trade fair.

Bearing in mind that large-size ceramic tiles are in vogue in Turkey at the moment, Mapei Yapı Kimyasallari A.S showcased its systems for this kind of application, including a display of a 120 x 240 cm slab placed on one of the stand's walls: the highlighted product was KERAFLEX MAXI S1.

The wide range of "SET THE MOOD" coloured grouts was also in the spotlight, together with MAPELASTIC SYSTEM for waterproofing substrates in damp settings, GRANIRAPID adhesive, and MAPETHERM TILE SYSTEM for installing ceramics on thermally insulated walls. Not everything focused on ceramics: Mapei Yapı Kimyasallari A.S also presented its complete systems for installing LVT in bathrooms and showers and its solutions for cementitious and resin floors (ULTRATOP, ULTRATOP LOFT and MAPEFLOOR I 320 SL).

insulation systems due to the fact that so many redevelopment/renovation operations are carried out on residential buildings in Turkey every year, particularly in major cities. Mapei Yapı Kimyasallari A.S. has also been manufacturing solutions for the PURTOP line locally, which has made it a market leader in the industry for polyurea waterproofing membranes applied by spray. A new and highly innovative coatings range for outdoors was also launched in 2018 designed to meet the Turkish market's specific needs. The Turkish subsidiary also has head offices in Ankara and regional offices in Istanbul and Izmir, equally important areas of Turkey. Partly thanks to these facilities, over the last few years Mapei Yapı Kimyasallari A.S. has performed admirably on the Turkish market, continuing a carefully targeted process of growth. The subsidiary is also carrying out intensive training operations and organising regular courses and seminars in every region of Turkey, so that the professionals in the industry can be taught the benefits of Mapei products and how to use them properly. All this is offered by the local Mapei Academy, which during the three-year period from 2015-2018 alone attracted almost 5500 people to its training sessions. But that is not all.

The Turkish subsidiary's marketing operations also include targeted marketing work focused, for example, on architects and designers: e.g. so-called 'Happy Hours', short 30-minute sessions during which the distinctive features and traits of a certain product or Mapei system are illustrated to professionals in an informal setting.

The most important events in the Turkish building industry are also cleverly targeted by Mapei Yapı Kimyasallari A.S, which was actively involved in the Turkey Build Istanbul trade fair in 2018 and Unicera trade fair in 2019 (see the section devoted to it in the facing page), as well as special events like Architect@ Work Istanbul and Selection 2018, and academic conferences.

So, it is hardly surprisingly that Mapei's sales figures are good in Turkey (in 2018 its income was approximately 11 million Euros) and the staff it employs has risen from 56 in 2013 to 88 today. This is a sign that the Turkish subsidiary's operations are expanding and that Mapei has a promising future in the Land of the Halfmoon.

MAPEI CEMENT ACADEMY

To further promote the investment in a new line of additives for cement at Mapei Yapi plant, a special training course was held last March at the Mapei Auditorium in Milan entitled the "Mapei Cement Academy", specifically aimed at leading Turkish cement manufacturing groups. The Mapei Cement Academy brings together experts in manufacturing procedures and quality control processes from various cement works, who follow technical training sessions and talk about issues of primary relevance in the manufacturing of cement and concrete. The day's events concluded with a visit to the Mapei manufacturing plant in Robbiano di Mediglia, near Milan.

PHOTO 1 and 2. Mapei Yapı Kimyasallari A.S.'s manufacturing plant in Polatli Industrial Park, not far from Ankara where a production line for additives for cement has recently been set up.
PHOTO 3. The Turkish subsidiary's offices in Istanbul.
PHOTO 4. "Happy Hours" are special events Mapei Yapı Kimyasallari A.S organises for architects and designers.

THE FIGURES for Mapei in Turkey

11 MILLION
TURNOVER IN 2018 (IN EUROS)

48,000 TONS
(MANUFACTURING OUTPUT) OF MATERIALS IN POWDER FORM AND APPROXIMATELY **4,800 TONS** OF LIQUIDS

1 MANUFACTURING PLANT
IN POLATLI

1 HEAD OFFICE
IN ANKARA

2 OFFICES
IN ISTANBUL AND IZMIR

88 STAFF

Istanbul

THE NEW ISTANBUL AIRPORT

IN THE FACING PAGE.
A view of the whole Istanbul Airport.
BELOW. KERACOLOR FF grout was used to grout the joints in in all the ceramic coverings of the project.

FROM TERMINAL 1 TO THE AIR TRAFFIC CONTROL TOWER: MAPEI PRODUCTS IN THE WORLD'S LARGEST AIRPORT WORLD

The 1st section of Istanbul's new airport, designed to become the world's largest airport in terms of annual passenger capacity, has been officially inaugurated on 29th October 2018. From soft launch till full completion, the airport is expected to open in four phases. Phase 1 was completed with 1.4 million m^2 of terminal space, an ATC (Air Traffic Control) tower, support facilities and two runways.
Between 2021 and 2022, phases 2 and 3 will be completed, featuring two additional air traffic control towers and two additional runways. By 2028, the airport is expected to be fully completed with the sixth runway, as well as the opening of a satellite terminal. It will offer flights to more than 350 destinations with an annual capacity of up to 200 million passengers. Istanbul's new airport will also be home to the world's largest duty-free shopping complex. The 53,000 m^2 shopping complex will consist of six sections, including luxury stores and bazaars.

AN UNPRECEDENTED PROJECT

Istanbul new airport aims to establish itself as a major travel hub and a key player on the world aviation stage: once completed, it will be spread over 76 km^2, having the world's largest terminal under one roof.
"From an airport planning perspective, the project is unprecedented, both in terms of its size and the speed with which the project was attempted.' said Dr Thomas Budd, Lecturer in Airport Planning and Management, Centre for Air Transport Management, Cranfield University, UK.
Mapei Yapı Kimyasalları A.S, the Turkish subsidiary of the Group, began supplying products to the project in 2016 and continued in 2017 with a broader scope, providing products and systems for several applications.
MAPEFIX VE SF chemical styrene-free vinylester anchor was chosen for bars which had been applied throughout the project. Due to its quicker setting time, this product provided great advantage in comparison with traditional epoxy based chemical materials.
MAPELASTIC FOUNDATION two-component, flexible cementitious mortar was used for waterproofing concrete surfaces in the water tanks, which were subject to both posi-

LEFT. AQUAFLEX ROOF PREMIUM was used for waterproofing several surfaces in the ATC Tower.
BELOW. MAPELASTIC FOUNDATION was chosen to waterproof concrete surfaces in the water tanks.
IN THE FACING PAGE. PURTOP 400 M hybrid polyurea membrane was used for waterproofing the substrates in the green terraces.

IN THE SPOTLIGHT

AQUAFLEX ROOF PREMIUM

It is a ready-to-use, solvent-free, liquid waterproofing membrane, without VOC emissions. Once applied, it forms a seamless membrane with 400% elongation capacity that is resistant to atmospheric agents, UV rays and ponding water. It is resistant to foot traffic and may be applied on all walkable areas without an additional protective layer. Its excellent mechanical characteristics remain stable over the years which makes the product highly durable.

tive and negative water pressure. Prior to the application of MAPELASTIC FOUNDATION, PRIMER 3296 acrylic primer with strong penetrating action had been applied to level off the surface and improve its bonding properties.

After applying MAPELASTIC FOUNDATION, either MAPECOAT I 24 or MAPECOAT DW 25 were used for the protection of the waterproofing layers during their service life. MAPECOAT I 24 two-component epoxy paint has a high resistance to aggressive chemical agents. MAPECOAT DW 25 is a two-component epoxy paint used to form a coating on concrete surfaces that are in contact with drinking water and foodstuffs.

MAPEPROOF SWELL single component hydro-expansive paste was used to solve the delicate problem of waterproofing pipe inlets and outlets. MAPEPROOF SWELL has been specially developed to form flexible, waterproof seals in cracked reinforced concrete or in precast elements with infiltration of water.

THE AIR TRAFFIC CONTROL TOWER

The site's landmark air traffic control tower has been designed by Pininfarina and Aecom, selected from six solutions proposed by international architecture studios, including Zaha Hadid, Fuksas, Moshe Safdie, Grimshaw Architects and RMJM.

The project has won the prestigious International Architecture Award 2016, promoted by the Chicago Athenaeum: The Museum of Architecture and Design and the European Center for Architecture, Art Design and Urban Studies.

The design concept of the tower features elements evocative of Turkish culture and is inspired by the tulip, which has been a symbol of Istanbul for many centuries and an important

cultural reference in Turkish history. The shapes of the flower were redesigned and reinterpreted through Pininfarina's identity, based on its profound knowledge in automotive design and wind tunnel modelling, as well as on the influence inherited from aerodynamic shapes used in aeronautical design.
AQUAFLEX ROOF PREMIUM ready-to-use, water-based polyurethane waterproofing membrane was used for waterproofing several surfaces in the ATC tower as it was the best solution for both old and new surfaces with slopes or irregularities.
MAPECOAT I 600 W two-component transparent epoxy primer in water dispersion was used on the surfaces as an adhesion promoter and MAPEFLEX PU 40 polyurethane sealant with a low modulus of elasticity was chosen for sealing expansion and contraction joints.
KERACOLOR FF high performance, polymer-modified, water-repellent, cementitious mortar was used for grouting joints in all the ceramic tile coverings of the project. ELASTORAPID ,high-performance, two-component, highly deformable, cementitious adhesive with extended open time, was used for bonding ceramic tiles in some piers.

WATERPROOFING THE TERRACES

For waterproofing the green terraces which cover about 75,000 m² in the departures area, PURTOP 400 M two-component, solvent-free, spray applied, hybrid polyurea membrane was the selected product. It has an excellent resistance to alkalis and diluted acids and an elongation capacity higher than 400%. Besides, it can boast the certification for resistance to root penetration according to CEN/TS 14416 which was mandatory for green terrace application in this project. Before using PURTOP 400 M, PRIMER SN two-component fillerized epoxy primer was applied on the substrates.
MAPEFLOOR FINISH 55 highly flexible polyurethane finish was finally used as a protective layer for a 2000 m² area where colour protection was needed.

TECHNICAL DATA

Istanbul Airport, Istanbul, (Turkey)
Period of construction: 2016-on going, scheduled to be completed in 2028
Period of the Mapei intervention: 2016-2018
Intervention by Mapei: supplying products for substrate preparation, waterproofing surfaces in tanks and terraces, chemical anchoring, installing and grouting ceramic tiles, sealing joints, coating walls
Design: Nordic Office-Grimshaw-Haptic Architecture; Pininfarina-Aecom
Client: IGA-Istanbul Great Airport
Works direction: Horizontal
Main contractor: CMLKK JV – Cengiz Mapa Limak Kolin Kalyon Joint Venture
Installation company: Umut Yalitim
Mapei distributors: Umut, Himerpa, Pelenkoğlu
Mapei coordinator: Emrah Karatas, Mapei Yapı Kimyasalları A.S (Turkey)

MAPEI PRODUCTS

Preparing substrates: Primer SN, Primer 3296
Sealing joints and anchoring: Mapeflex PU 40, Mapefix VE SF
Installing and grouting ceramic tiles: Elastorapid, Keracolor FF
Waterproofing substrates: Mapelastic Foundation, Mapelastic, Mapeproof Swell, Purtop 400 M, Aquaflex Roof Premium
Coatings: Mapecoat I 24, Mapecoat DW 25, Mapecoat I 600 W
Finishing floors: Mapefloor Finish 55

For further information on products see www.mapei.com

From the mosque to the mausoleum

MAPEI PRODUCTS ARE USED IN TURKEY FOR RESTORATION WORK ON PRESTIGIOUS PLACES OF WORSHIP AND MONUMENTS, AS WELL AS FOR BUILDINGS BRIDGES, RAILWAY LINES, RESIDENTIAL BUILDINGS, SHOPPING CENTRES

ATATÜRK MAUSOLEUM
ANKARA

The mausoleum is dedicated to Mustafa Kemal Atatürk, founder and President of Turkey, and was built between 1944 and 1953. It is situated in one of the highest points of Ankara, which meant it had been exposed for many years to atmospheric agents and the city's harsh continental climate, which had left the structure badly damaged and in need of waterproofing work. After removing the roof, the external insulation and the top layers of concrete and bitumen, the uneven areas of the concrete substrate were repaired with PLANITOP SMOOTH & REPAIR R4 mortar, while the micro-cracks in the concrete were filled with PRIMER SN mixed with QUARTZ 0.5. The sections that had been damaged by expansion were waterproofed by bonding MAPEBAND TPE tape over them with ADESILEX PG4. The old filters were then replaced with new ones, which were applied with PLANITOP SMOOTH & REPAIR and MAPEPROOF SWELL. The substrate was then treated with PRIMER SN and QUARTZ 0.5, before applying PURTOP 1000 two-component, solvent-free, pure polyurea membrane, which was chosen for its flexibility, high mechanical strengths and quick reaction times.

GALATAPORT PROJECT
ISTANBUL

The idea behind the Galataport project was to renovate an area of Istanbul around 1.2 km long along the Bosporus Straits and turn it into an important hub for tourism and shopping. The footprint of the zone where construction work is being carried out extends over an area of more than 112,000 m^2, and also includes 10,000 m^2 of docks, a 20,000 m^2 container terminal and 30,000 m^2 of gardens and parkland. The work also involves extending the customs areas in the part of the port reserved for cruise ships. In this particular area, steel piles had to be embedded in the seabed so preparation work could be carried out before draining it off to create even more space. MAPEPLAN WTS 40 and MAPEPOXY were used to waterproof the steel piles. The MAPEPLAN compartmentalisation system (which includes products such as MAPEPLAN TU WL 20, MAPEPLAN PROTECTION 15 and MAPEPLAN WATERSTOP) was also used to waterproof more than 40,000 m^2 of foundations of the various buildings.

RAILWAY LINE
SAMSUN - KALIN

A comprehensive infrastructure project got under way in 2015 to connect the city of Samsun, on the Black Sea, to the main Turkish rail network. The 378 km long railway line was completed in 2018, thanks also to a grant of 220 million Euros from the European Union. The project also included the consolidation, conservative restoration and structural strengthening work on forty bridges that had been built in the first decades of the 20th century. Numerous Mapei products were used: MAPE-ANTIQUE I-15 to make injection slurries to consolidate masonry; MAPE-ANTIQUE ECOLASTIC to waterproof masonry after it had been strengthened with MAPE-ANTIQUE STRUTTURALE NHL, MAPENET EM 30, MAPENET EM CONNECTOR and MAPEFIX PE WALL; MAPE-ANTIQUE LC mixed with locally-sourced aggregates to make renders and masonry mortars; MAPEFER 1K to protect reinforcing rods; MAPEGROUT THIXOTROPIC to repair various concrete elements and features; MAPELASTIC SMART to waterproof the surface of concrete.

FATIH MOSQUE
ENEZ

The city of Enes, which was once called Ainos, is in northern Turkey near the estuary of the River Evros, which in that particular stretch also forms the border with Greece. One of its legacies from the past is the church of Haghia Sofia, which was built in the 12th century and then turned into a mosque. Consolidation and restoration work on this place of worship, to make it more accessible again, got under way in 2016. The first step was to remove all the rubble and debris. Then, the walls just below roof-level were cleaned and, to finish off, the load-bearing walls were consolidated by injecting them with highly-fluid slurries. MAPE-ANTIQUE I-15 salt-resistant, fillerized hydraulic binder, based on lime and Eco-Pozzolan was used to make the injection slurries.

The correct distribution of adhesive and the double-buttering technique

THE IMPORTANCE OF BUTTERING, PARTICULARLY IN THE CASE OF LARGE SIZE CERAMIC TILES

In the era of large-size ceramic tiles (up to 320x160 cm), the correct distribution of adhesive has become a highly debated issue. This concept was introduced a number of years ago and is now mentioned regularly in technical specifications and guidelines from leading manufacturers of ceramic tiles and products used for their installation. While experts consider it a very important issue, operators from the sector have always been reluctant to fully accept it. Let's try to shed some light on what we are talking about.

When installing ceramic tiles with adhesive (classified according to EN 12004 and with CE marking), one of the main objectives to be achieved is to make sure the adhesive covers as large an area of the tiles as possible, so that their performance characteristics are exploited as much as possible. In simple terms, it seems obvious to everybody that, the higher the amount of surface covered by the adhesive (that is, the contact area between the adhesive and the rear side of the tiles), the higher the performance characteristics and properties of the finished covering. Let's remember that, with the term tile covering, we mean a system comprising ceramic tiles installed on a suitable substrate with their relative adhesive or mortar and grout for the joints – a definition that appears in Italian standard UNI 11493-1.

What has made this issue even more important as tile sizes have increased, has been the increasing difficulty in fulfilling this requirement, particularly with tiles that have an increasingly large surface area which, at times, is not perfectly flat. If we consider that adhesion (bonding strength) is one of the most important tests adhesives have to undergo when they are going through the classification process to comply with international standards (which is measured through direct tensile pull-off tests according to the method described in EN 1348), it becomes clear that, in order to exploit the performance properties of the adhe-

sive declared by the manufacturer and tested according to the relative standards, it is important that as much of the surface as possible of the tile is covered by the adhesive (ideally 100%).
The final performance of the tiled surface, therefore, is directly proportional to the area of contact surface between the adhesive and the tiles.

THE IMPORTANCE OF BUTTERING TILES

What are the other main reasons that make the amount of contact surface between the adhesive and the tiles so important? First and foremost, having no air pockets in the layer of adhesive can prevent tiles breaking if they are subjected to concentrated loads, especially in the case of thin tiles that have a lower level of flexural strength compared with traditional thicker tiles (N.B. according to aforementioned UNI 11493-1 standards, thin tiles/slabs are those with a maximum thickness of 5 mm). A full layer of adhesive (which means a layer with no air pockets) guarantees that loads are distributed evenly throughout the support layers which, if compliant with the specifications of the relative standards, have the capacity to withstand such loads.
Buttering tiles correctly is also significant when they are installed on external surfaces or on surfaces constantly in contact with water. The buttering of the tiles with the adhesive is inversely proportional to the amount of air pockets; the fewer air pockets in the surface, the lower the amount of space where standing water could collect and lead to problems/risks connected with freeze-thaw cycles (in the case of external tiling), leaching and aggression to the layer of adhesive (if we consider that water is also a vehicle for transporting substances that could potentially damage the adhesive used to install the tiles).
For all these reasons, it is clear that, the higher the percentage of the rear side of the tile/slab covered by the adhesive, the better the end result. A full installation bed (100% buttering), on the other hand, is a very important aspect when installing large-size tiles (according to the above-mentioned standard, large size tiles are those with one side measuring more than 60 cm) and/or thin tiles, and when installing tiles on external surfaces (including on facades) or on surfaces in constant contact with water.

DOUBLE-BUTTERING

In order to achieve full installation bed, the double-buttering method is prescribed to install tiles, that is, applying the adhesive on both the substrate and on the rear side of the tiles with a suitable notched trowel.
The double-buttering method is recommended when the compactness of the layer of adhesive and the absence of air pockets under the tiles – that is, to have a "full" installation bed – are essential requirements, which is generally difficult to achieve using the conventional single-buttering method, that is, by applying the adhesive only on the substrate.
It is important to point out that the creation of a "full" installation bed can also be achieved, or made easier, by prescribing the use of adhesives with high wettability: adhesives specially formulated to increase their buttering capacity and, as a result, increase the amount of contact area, under the same conditions, compared with traditional adhesives. This result is obtained by developing adhesives with modified rheology, that is, adhesives that are distributed over the rear side of

MAPEI ADHESIVES FOR TILES FOR AN EASY AND ECO-SUSTAINABLE INSTALLATION

Over the years, Mapei has formulated an increasingly large number of low-viscosity, highly-thixotropic adhesives characterised by their ease and speed of application. Adhesives such as ADESILEX P9 (particularly since recently changing its formula), KERAFLEX, KERAFLEX MAXI S1, ULTRALITE S1 and ULTRALITE S1 QUICK are very soft and creamy during application, but are still resistant to vertical slip, have excellent rib stability and slip-resistance, even when installing heavy tiles.

This is the result of the amount of effort and resources put into Research & Development by Mapei, which amounts to 5% of annual turnover and 12% of its workforce. This means intensive research and development in the name of innovation and sustainability, themes which Mapei pays great attention to. Mapei is also particularly committed to the health and safety of both the applicators and the final users of the products.

Mapei products do not affect the indoor air in our homes and guarantee health and comfort. The whole installation system is evaluated by LCA (Life Cycle Assessment), in order to measure the impact of the products on the environment throughout their whole life cycle: from extraction of the raw materials to their transport to the plant, the production, packaging, waste materials, the delivery to the distributor up to their final disposal.

Most of Mapei adhesives and grouts are certified with the EMICODE EC1 PLUS logo, which guarantees products with very low emission of volatile organic compounds (VOC). The LCA approach allows us to measure how sustainable a product is for the environment, and the results are communicated through Environmental Product Declarations (EPD), documents verified and certified by a third party body.

Mapei's commitment to sustainability also means using recycled materials. Innovative products with high quality and high durability, minimising the production of waste to be disposed and reducing the demand for natural materials, which contain no hazardous substances and have very low emission of VOC: these are all aspects that make Mapei products for ceramics more sustainable.

Adhesives with improved rheology make it easier to create a full installation bed

the tiles more easily during application and then when the tiles are tapped into position after being installed, without affecting either their rib stability or the thickness of the layer of adhesive, including when installing heavy tiles.

The key aspects to take into consideration when prescribing the double-buttering method or, more in general, when the objective is to create a "full" installation bed, are the following:

- the type and size of the tiles (length of the sides, thickness, the profile of the rear side): a full bed needs to be prescribed for large size tiles, tiles with uneven rear side and for thin tiles;
- characteristics of the installation surface (a full bed should be prescribed, for example, when installing tiles on facades);
- high mechanical loads and stresses acting on the tiles (areas subjected to heavy and/or intense traffic);
- high thermal-hygrometric loads and stresses acting on the tiles;
- particular durability and safety requirements;
- heated substrates: heat is transmitted more efficiently through a full bed.

In order for the double-buttering method to be more effective it must be carried out correctly. Various test campaigns have been carried out in order to define the most effective method and to get the most benefit possible.

It was found that it is better to apply the adhesive parallel to the short side of the tile (for tiles that are not square) and in the same direction on the substrate and on the rear side of the tile (do not apply the adhesive in a criss-cross pattern between the substrate and the tile; air bubbles could become trapped in the criss-crossed areas).

The reason why it is better to apply the adhesive parallel to the short side is that it helps expel any air when tapping the tiles into position by creating a shorter escape route. It was also found that the latest generation of notched trowels (with diagonal notches) are better at distributing the adhesive and can spread more adhesive than traditional trowels with square, triangular or semi-circular notches, particularly when applying adhesive on substrates. The shape of the trowel to use depends on the factors mentioned previously (the flatness and characteristics of the substrate, the size of the tiles and the thickness required for the layer of adhesive).

For example, from a series of tests carried out in Mapei Research & Development laboratories, it was found that, to install tiles with a longest side of more than one metre, the best results (on a flat substrate) were obtained by using a trowel with 10 mm square notches for the substrate and a trowel with 3 mm square notches for the rear side of the tiles. The level of buttering was obviously verified after tapping the tiles into position with hand tools or power tools (such as a vibrating plate).

The concepts discussed are contained in national standards in many countries, such as the standards DIN 18157 Part 1 or DIN 18157 Part 3 in Germany.

Enrico Geronimi. Mapei SpA Technical Services

THINGS TO KNOW

✔ It is not always necessary to install tiles using the double-buttering method. In many cases, applying adhesive to the substrate only is enough to obtain sufficient covering of the rear side of the tiles, particularly when using adhesives with high wetting capacity (e.g. for small or medium size tiles, to install tiles on internal surfaces subjected to light traffic or to install tiles on internal vertical surfaces).

✔ Irrespective of any other factors that come into play, installation of large size tile is more effective when the double-buttering method is employed.

✔ It has been noticed that, if the adhesive is applied in a criss-cross pattern, air pockets are formed in the adhesive; this application method, therefore, should be avoided.

✔ Using the correct size trowel is very important in order to create a full bed of adhesive. A smaller trowel should be used for the rear side of the tiles, also to reduce their weight and make handling easier.

✔ Using a trowel smaller than required could leave areas without a proper amount of adhesive.

✔ Adhesives with improved rheology make it easier to create a full installation bed. Thanks to their particular consistency they have excellent rib stability and slip-resistance, they can be applied in thicker layers (up to 15 mm, depending on the type of adhesive), they have better wetting capacity and they have better performance properties and deformability (class S1 or S2 according to EN 12004).

✔ Take the open-time of the adhesive into consideration in order to avoid "skin" forming before the tiles are installed, which would then have a negative effect on its final bonding strength (particularly in the case of large size tiles in hot and/or dry weather). It is better to use adhesives with extended open time (class E according to EN 12004), particularly in hot weather. During cold weather, on the other hand, and when installing tiles on non-absorbent substrates, it is better to use fast-setting adhesives (class F), otherwise it could take too long for the adhesive to dry out and set completely when installing large size tiles on non-absorbent substrates.

Keraflex® Maxi S1

Ultra WHITE
Excellent WORKABILITY

Keraflex Maxi S1 is a high-performance, deformable, ultra-white cementitious adhesive with extended open time and Mapei Low Dust® technology recommended for installing porcelain tiles and natural stone, including large formats. This new **ULTRA WHITE** version, thanks to its improved formula containing special binders, is characterised by an even whiter paste and better workability, which also makes grouting operations easier.

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

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VERONICA SQUINZI IS AMONG THE "AMBASSADORS", WHO WILL PROMOTE THE CATHEDRAL'S PROJECTS WORLDWIDE

A new Advisory Board for the Veneranda Fabbrica del Duomo

© Fotogramma

Veronica Squinzi – Mapei Group's Global Development Director - is one of the members of the new Advisory Board responsible for promoting the Milan Cathedral in all its beauty right across the globe: a network of "ambassadors" for Milan's most distinctive landmark promoting numerous projects concerning the Cathedral. This will further strengthen Mapei's close and direct bonds with the city of Milan, as they continue to get involved in projects aimed at supporting the Cathedral, the city's most symbolic building for which Mapei products have been used in the past to repair and waterproof the terraces and protect the marble on the facade. It is also worth mentioning that last year Mapei was involved in the Veneranda Fabbrica del Duomo's (the organization in charge of conserving and enhancing Milan Cathedral), project entitled: "Get a Spire. Carve your Name in History", becoming one of the Golden Donors and a member of the exclusive Spires Club (see *Realtà Mapei International* no.69).

The first meeting of the newly established Advisory Board was held on 18th February; it was set up thanks to a working partnership with leading business players.

It is the Advisory Board's job to work with the Presidency of the Veneranda Fabbrica in setting strategic guidelines for the Association's annual schedule of national and international fundraising, promotional and improvement projects.

In addition, as regards the United States of America, the Board will operate in close partnership with the International Patrons of Duomo di Milano, a public charity with head offices in New York City, established in 2014.

Veronica Squinzi said she was delighted to join this new association set up to manage the intricate "machinery" of Milan Cathedral and help it run even more smoothly. "I will do my very best to honour this position - so she stated - offering all the expertise I have acquired internationally in the spirit of contributing to the conservation and promoting of information regarding the beauty and central importance of our Cathedral, a symbol of Milan and being Milanese that my family and I have always identified with".

The first meeting was held at the home of the Veneranda Fabbrica del Duomo in the presence of the President of the Board of Directors, Fedele Confalonieri, who stated: *"I am certain that these "Ambassadors for the Duomo", whom I would like to thank for their willingness to get involved, will provide invaluable support in taking on the challenges we will be facing"*.

THE ADVISORY BOARD MEMBERS

- SIMONE CROLLA (Coordinator), Managing Director at American Chamber of Commerce in Italy
- DANIELA BOLLINO, Founder of Key2People
- MARIO BOSELLI, Honorary President of the National Chamber of Italian Fashion
- JAMIE GERARD, Managing Director of Hycroft Advisors
- STEFANO LUCCHINI, Chief Institutional Affairs and External Communication Officer at Intesa Sanpaolo
- LUCIA MORSELLI, Founder of Franco Tatò & Partner consultancy agency
- ANTONIO PEDERSOLI, Equity Partner at Pedersoli legal firm
- VERONICA SQUINZI, Mapei Group's Global Development Director

15,800 notes for Milan Cathedral

A FUNDRAISING CAMPAIGN HAS BEEN LAUNCHED TO HELP RESTORE MILAN CATHEDRAL'S GRAND ORGAN

The future of an extraordinary masterpiece of art and mechanics is under threat: we are talking about the Grand Organ in Milan Cathedral.

A project entitled "15,800 Notes for Milan Cathedral" was presented in the 'Weekday Chapel' of Milan Cathedral on Tuesday 5th March 2019, with a view to saving this masterpiece (an operation destined to cost over 1 million Euros). The project, promoted by the Veneranda Fabbrica del Duomo (the organization in charge of conserving and enhancing Milan Cathedral), is a fundraising campaign to pay for restoration work on the Cathedral's Grand Organ, appealing to anybody interested in ensuring this great musical instrument keeps on playing its melodies and offering the chance to be invited to attend organ concerts held in the Cathedral and miscellaneous other projects. A rallying call to the people of Milan, music lovers, tourists and anybody else interested in making a contribution.

Milan Cathedral's Grand Organ is a technological giant of enormous complexity: it has 15,800 pipes (the tallest measuring over 9 m in height and the smallest just a few centimetres) and 180 registers making Milan's organ the biggest in Italy and one of the 15 biggest musical instruments in the world.

While these facts are in themselves quite amazing, the artistic aspect of this great musical instrument is even more important. The current instrument dates back to 1938, but the Cathedral's magnificent "spaceship" of notes has parts dating back as far as the 16th century. It is an authentic box of art treasures and wonders, such as its extremely elegant front panel decorated with canvases depicting scenes from the Old and New Testaments created in the 16th-17th centuries by artists of the calibre of Giuseppe Meda and Camillo Procaccini, just to mention a couple.

Dust, oxidisation and other forms of decay are threatening the instrument's future. Sudden changes in temperature and humidity levels are causing serious damage.

During the presentation of the restoration project, Fedele Confalonieri, President of the Veneranda Fabbrica del Duomo, pointed out that Milan Cathedral's Organ is "the biggest organ in Italy in terms of the number of its pipes and registers and has been giving voice to the city for over six centuries". He went on to thank Ms. Diana Bracco for "always focusing on the world of art and music and providing an initial major donation through her Bracco Foundation in the hope that other enterprises will follow suit".

"Sharing this important project for our Cathedral fills me with joy" - so Monsignor Gianantonio Borgonovo announced, Archpriest of Milan Cathedral. Monsignor Borgonovo also noted that "this instrument has provided musical accompaniment to Milan Cathedral ever since it was first built".

The most urgent restoration operations, designed to at least make sure its electro-mechanical parts work properly, will begin during the latter half of 2019 and will be commissioned to the Veneranda Fabbrica del Duomo's Building Management Team. But it will take a monumental effort to save the organ's ornamentation requiring the help of the general public in a heart-stopping battle against passing time.

FOR INFORMATION AND TO MAKE A DONATION

Veneranda Fabbrica del Duomo di Milano Ufficio Donazioni
Via C. M. Martini, 1 20122 Milan (Italy)
Freephone 800.528477
donazioni@duomomilano.it and www.duomomilano.it

Sustainability: a commitment for the most evolved businesses

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THE STRATEGIES OF BUSINESSES BELONGING TO SODALITAS FOUNDATION IN THE REALMS OF "YOUNG PEOPLE AND EMPLOYMENT", "SOCIAL INCLUSION" AND "SUSTAINABLE TERRITORY"

Innovation. Business ethics. Developing human resources. Diversity, equal opportunities and inclusion. These are the most significant topics in the sustainability strategies of businesses belonging to Sodalitas Foundation.

This is what emerges from research carried out by Sodalitas Foundation into its member companies: the results were presented at a meeting held for these businesses on 7th February, 2019.

The businesses in question are both multinational (44%) and Italian companies with headquarters exclusively in Italy or also abroad (48%). They are small and medium-sized businesses. All the main market sectors are represented: industry and manufacturing; finance, banks and insurance companies; chemical-pharmaceutical companies and ICT (Information and Communications Technology) firms.

Adriana Spazzoli has been President of Sodalitas Foundation since 2016. *"I decided to take on the Presidency of Sodalitas Foundation because I was (and still am) convinced that it is important to grow and acknowledge the hard work of businesses capable of generating shared social value for the benefit of the community, surrounding territories and people"*. – so Adriana Spazzoli stated at the meeting held on 7th February.

Nowadays an increasing number of companies consider their own corporate responsibility to include the decision to help come up with solutions to what are generally considered to be the most urgent and important needs: improving the future prospects of young people, promoting equal opportunities and diversity on a widespread basis, fighting poverty and social fragility (which, sadly, are becoming increasingly widespread), and tackling major issues associated with climate change. Companies that genuinely and effectively take on this commitment are rewarded: for instance, according to the latest figures *(2019 Edelman Trust Barometer)*, Italians have faith in those companies most aware of their social role and consider them to be potential players in bringing about the change the country needs. Research carried out by Sodalitas Foundation also confirms that the most evolved businesses now focus on Sustainability: it is fully incorporated in their business strategies; it covers a wide range of issues and realms that need to be monitored; it is considered to be an important driver for innovation as regards both products, processes and businesses as a whole; it is a key factor in business reputation. Sustainability is also a realm in which businesses have a very special aptitude for developing solutions through joint-ventures and partnerships with other companies and relevant stakeholders. As regards this, the meeting held on 7th February also provided the opportunity to present companies belonging to Sodalitas Foundation with some projects and ideas to be developed in 2019 based around sharing and with their support and involvement. More specifically, Sodalitas Foundation's plans for 2019 focus on three issues that research has confirmed to be of priority interest for member businesses and closely linked to some of the Sustainable Development Goals set down in the 2030 United Nations Agenda.

Last October, during the 25th Assembly of ANCI (Italian City Councils Association) the Sodalitas Foundation awarded the Cresco Prize to city councils promoting sustainable development.

ABOUT SODALITAS FOUNDATION

Sodalitas Foundation was first established in 1995 by Assolombarda (the largest employers' association in Italy) and an initial group of business people and managers, soon becoming Italy's leading organisation in promoting Corporate Sustainability.
It is a network of businesses, volunteers and other partners committed to generating shared social value by focusing on partnerships aimed at constructing a future based around development, sustainability, inclusion/cohesion and widespread development in the community.
Sodalitas Foundation is a National Partner Organization of CSR Europe, the leading network of businesses committed to Corporate Social Responsibility in Europe.

FOCUS ON THREE THEMES

YOUNG PEOPLE, EMPLOYMENT

Goal:

Bringing together the realms of education and business, developing plans to help people enter the job market and improve their future prospects, improving job opportunities and working conditions in general.

Unemployment among young people in Italy is 33% (Istat, 2019) and over two million young people are "NEET" (not in education, employment or training), the highest figure in Europe (Eurostat 2018). Partnerships between schools and businesses is vitally important for reducing the so-called skill mismatch and adapting expertise to changes on the employment market.

SOCIAL INCLUSION

Goal:

To work more closely with the community in tackling emerging social needs and reducing inequality between people.

14 million people live in poverty in Italy (Istat, 2018). Getting businesses involved will help integrate the welfare system and enhance its ability to reduce situations of social fragility.

SUSTAINABLE TERRITORY

Goal:

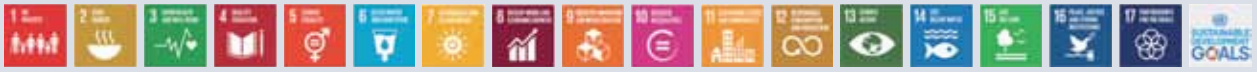
To strengthen resilience and sustainability in urban environments through partnerships between businesses, institutions and the Third Sector.

82% of Italians believe that city councils and local administrations are amongst those most responsible for ensuring sustainable development (Sodalitas-GfK, 2016). Innovative solutions for regenerating areas can come from partnerships between local businesses, institutions and stakeholders.

Alessandro Beda. Managing Director of the Sodalitas Foundation

THE UN'S 2030 AGENDA 2030 FOR SUSTAINABLE DEVELOPMENT

The United Nation's 2030 Agenda for Sustainable Development was approved in September 2015.
The Agenda contains and refers to 17 Sustainable Development Goals (SDGs) to be reached by 2030.
Each of these 17 SDGs refers to key issues in devising a growth model that is sustainable from an economic, social and environmental viewpoint: eliminating poverty and hunger; good health and well-being; quality education; gender equality; reducing all forms of inequality; decent work and sustainable production/consumption processes.
The 2030 Agenda is global. All nations are being asked to work together to meet it.
This is not confined to just governments and public institutions but applies to all private stakeholders, starting with businesses.



SOROPTIMIST a hundred-year-old story

A "WOMEN'S CLUB FOR WOMEN" FOUNDED IN THE UNITED STATES AND OPERATING IN ITALY SINCE 1928

The First World War was not just a watershed in history and the world's geopolitical equilibrium, it also marked a turning point in our way of life and various other aspects of society, including the role of women, which rose even stronger from the ashes of the global conflict. The war had seen women very much to the fore in many different roles and allowed them to show what they could do when given the chance. Without actually taking up arms, women had been engaged in the war and helped save their homeland by getting actively involved in various realms of society. The deep wounds left by the war still needed to be healed, even in the field of health and medicine, and once again women made a notable contribution. Suzanne Noel was not a nurse, she was a French doctor, one of the first female surgeons in history in plastic and reconstructive surgery, a branch of medicine that was still in its infancy. She managed to overcome all the prejudices and stereotypes that prevented women from having their own professional careers: "People said I was crazy", she once said. Suzanne invented special scalpels for "repairing" soldiers' lacerated and burnt limbs and devoted all her energy to carrying out lots of facial reconstruction operations. For this, she was the only woman awarded The Legion of Honour in the First World War.

It was her idea to bring the Soroptimist movement to Europe, founding the first club in Paris in 1924 and the fourth in Milan in 1928 with the help of her friend Alda Da Rios Rossi, the first president of the association in Milan.

The idea of creating a women's club for women was new both in France and Italy, where women had very few political rights and very little professional freedom, but Suzanne and Alda were determined and the SIA (Soroptimist International Association) began to grow. "Even the word Soroptimist made people laugh", so Suzanne once said, a word that was actually coined when the first club opened in Oakland, California, on 3rd October 1921. Soroptimist International was set up and spread globally from that original group of eighty Californian women inspired by their own president's enthusiasm, Violet Richardson Ward, a dynamic teacher of the motor sciences (as we would call them today), who introduced physical education into schools in Berkeley and even back then was already fighting for equal pay for women! This is where the Soroptimist's name and emblem came from, a name with Latin roots in a mainly Anglo-Saxon world like the USA back in the 1920s: "sorores optimae" or, as I prefer to say, "sorores ad optimum", women who want the best for women!

The "early" Soroptimists were most certainly up-and-coming women, who held important positions in business and were well aware of their role and rights; just like the men who had set up the Rotary and Lions clubs, they wanted their own club, too, so that they could act independently, plan projects, discuss issues and share experiences. These female "pioneers" of the Soroptimist movement had all kinds of interests and worked in various realms of society and culture: let's not forget that one of the first projects of the Oakland club was to defend the Sequoia trees in a Californian Park that were under threat from the relentless expansion of inhabited areas. A modern vision projected into the future, ecological-friendly as we would describe it today, which fortunately managed to win the day and save the old trees in a park which, ever since then, has been indelibly linked with the Soroptimist.

Violet, Suzanne, Aida and lots of other women are our roots, they are the "noble mothers" of an idea for a better world, visionaries envisaging a new kind of society capable of taking on the challenges the future holds because it is always one step ahead!

Wilma Malucelli. Past President of Soroptimist International d'Italia

SOROPTIMIST INTERNATIONAL

Soroptimist International is an association of women highly qualified in their professions, that acts through projects for the promotion of human rights, a better condition of the status of women and the acceptance of diversities. The term Soroptimist derives from the Latin words *soror* (sister) and *optima* (excellent).
Soroptimist International was born in the USA in Oakland in 1921 and is today present in 132 countries with more than 3000 clubs with a total of about 90.000 members. Each member represents in her own club a different professional category. The local clubs are grouped in national Unions. The Unions are grouped in four Federations: The Americas, Europe, Great Britain and Ireland, Southwest Pacific. The Federations report to Soroptimist International, headed by the International President. The European Federation includes more than 1250 Clubs in 61 countries with about 34,000 members. The first Club in Italy was founded in Milan in 1928. Soroptimist is represented at important Agencies of the United Nations: ECOSOC (Economic and Social Council), UNESCO (United Nations Educational, Scientific & Cultural Organisation), ILO (International Labour Organization), WHO (Wolrd Health Organization), FAO (Food and Agriculture Organization), UNIDO (United Nations Industrial Development Organization), UNHCR (United Nations High Commission for Refugees), UNICEF (United Nations Children's Emergency Fund), UNEP (United Nations Environment Programme) and at OECD (Organization for Economic Cooperation and Development) in Vienna. For further information see hiips://www.soroptimistinternational.org/

SOROPTIMIST INTERNATIONAL LOOKS TO THE FUTURE

Soroptimist's 21st International Convention will be held in Kuala Lumpur (Malaysia) in July: an opportunity to debate, exchange opinions and plan future action. To take on an increasingly interconnected world, women must be leading players and attain the kind of empowerment first discussed at the convention held in Peking in 1995. A women-friendly planet calls for sustainable growth and greater equality, as neatly summed up in the 21st convention's slogan: "Soroptimists enable a sustainable world, global connections, empowered women".
"Women: leaders in civil society" was the slogan of the 19th Convention held in Montréal (Canada), which launched a ten-year programme in 2011 to ensure independence, responsibility and new opportunities for women through education. "Even dreams can take shape if we begin today to plan for tomorrow": that is what was said in Montréal and that is what Soroptimist women are fighting for all over the world! Women must be made aware that they can achieve all this, that they are not alone and that other more fortunate women, women who do have a voice, can speak on their behalf against any kind of discrimination: we women must do much more than just reject the past, we must change the future!

Adriana Spazzoli, a new member of the Milano Fondatore Club

Adriana Spazzoli, Mapei Group's Operational Marketing and Communication Director, also became a member of the great Soroptimist family on 23rd January 2019, joining the 'Milano Fondatore' club alongside Diana Bracco, who has been a member of this institution for several years, a permanent presence making an invaluable contribution to a range of projects and services for the city of Milan.
When presenting Adriana, Diana did not only emphasise her human qualities but also her indisputable managerial skills, drawing attention to her ongoing and irreplaceable input to Mapei's operations. Holding the latest issue of *Realtà Mapei* magazine in front of the large audience of guests, Diana paid tribute to Mapei's extraordinary achievements around the world and to the family that Adriana represents.
Referring to the editorials in *Realtà Mapei*, Wilma Malucelli, Past President of Soroptimist d'Italia, pointed out that Adriana embodied all the values of a true Soroptimist: dedication, passion, professionalism, transparency and respect in every realm. Working with Soroptimist, Adriana, who is also the President of Sodalitas Foundation, will be able to make an even greater contribution to social responsibility aimed at improving society in the name of human rights and international cooperation.

Olympic Games 1976 - Montréal (Canada)

St. Petersburg (Russia)
FIFA World Cup 2018

Sport facilities: experience and new technologies

MAPEI IS A MEMBER OF ESSMA, A EUROPEAN ASSOCIATION OF OVER 350 CLUBS/STADIUMS, 17 LEAGUES/ FEDERATIONS AND 87 CORPORATIONS

Mapei's experience with sports facilities dates back to the 1970s when high-performance, epoxy-polyurethane adhesives were specially developed in its R&D laboratories in Milan to be used for the installation of the athletic tracks used for the Montréal Olympics in Canada, which marked the Group's first steps towards internationalization. Since then, Mapei technology for sport facilities has been widely used worldwide in the sport structures hosting major events including the most recent Olympic Games in Rio de Janeiro, Brazil (2016) and the FIFA World Cup in Russia (2018).

MAPEI SPORTS SYSTEM TECHNOLOGY

Over years, the athletes' needs and the federations' requirements regarding the performances of sport surfaces became more and more demanding.

Therefore, Mapei promptly provided solutions to the market needs by creating a team totally committed to Sports System Technology.

This is the reason why Mapei joined ESSMA, the European Stadium and Safety Management Association which gathers the most significant key-players in the sport industry. By joining ESSMA, Mapei is able to improve its relations with Stadium Managers who are in charge of both construction and renovation projects on sport facilities. The company now offers an overall range of cutting-edge technical solutions for both construction and refurbishment of any kind of sport surfaces: acrylic resins for tennis hard courts; adhesives for artificial turf installation; acrylic resin multilayer systems for the renovation of velodromes, skating rinks, and security paths in stadiums; waterproofing membranes for swimming pools and concrete structures (such as those in arenas), etc.

THE ESSMA SUMMIT

Every year, the ESSMA Summit, the Association's annual flagship event, attracts over 375 participants from 32 different countries, with over 66% of attendees coming from clubs, stadiums, football associations and league representatives. This year the Summit was held on the 22nd and 23rd January at Estádio do Dragão, in Porto (Portugal) and combined keynote presentations with technical tours and in-depth seminars drawing on the expertise of the community and dealing with such "hot" topics as the 2022 FIFA World Cup Qatar project update, the development of stadiums hosting the UEFA Euro 2020

Mapei Stadium – Reggio Emilia (Italy)

Bucharest (Romania) and the update of the Espai Barça sporting complex in Barcelona (Spain), just to mention a few. Annually ESSMA organizes several workshops as well, linked to different domains of expertise, namely: Development & Construction, Operations & Ticketing, Sustainability & SMART Stadiums, Safety & Security, Fan Experience & Hospitality, Pitch Management,. During these events, the environment enables clubs to discuss in an open and transparent way, resulting in practical takeaways that clubs and stadiums can integrate in their projects. As a member of ESSMA, Mapei was able to share its expertise in construction and renovation projects with the clubs attending the Summit. Mapei technologies are traditionally used for the construction and renovation of major projects (bridges, dams, skyscrapers, etc.) in the building industry, but nowadays Mapei Sports Technology team can also boast a long-term experience in the stadiums industry, providing technical solutions specifically designed for sport facilities (arenas, stadiums, etc.).

THE EXPERIENCE GAINED WITH THE MAPEI STADIUM

While attending these key events organized by ESSMA, the Mapei Sports System Technology team was able to share its long-term experience in stadiums renovation: since 2003 the company has been sponsoring Sassuolo football team, which in 2013 managed to be promoted into Serie A, the top division in Italian football. This great success became a real challenge for Mapei: a "Serie A Stadium" was necessary for hosting the top-flight matches of professional footballers. This is how the Mapei Stadium project began: Mapei became the owner of the Città del Tricolore Stadium in Reggio Emilia, which joined the Allianz Stadium (Juventus) and Dacia Arena (Udinese) as the only private stadiums in Italy. The stadium, which is almost 30 years old, went through an

ABOUT ESSMA

ESSMA, or the European Stadium and Safety Management Association, founded in 1996 by former Paris St Germain President Lionel Dreksler, is built around three pillars: Business Intelligence, Events and Strategic Support.
The Association unites over 350 European clubs/stadiums, 17 leagues/federations and 87 corporations in the stadium industry.
ESSMA offers a platform to stadium professionals where they can share, learn and discuss topics related to ESSMA's areas of expertise: Development & Construction, Operations & Ticketing, Sustainability & SMART Stadiums, Safety & Security, Fan Experience & Hospitality, and Pitch Management.

Mapesoil System

Purtop and Mapecoat TNS Tribune System

extensive renovation. The intervention started in 2014, lasted one and half a year, and made the stadium one of the most updated sport facilities in Italy, able to host the Women's Champions League final in May 2016.

The Mapei Stadium is a real example of the tailor-made and successful technical service combined with innovative solutions that Mapei can provide, including the following ones:

1. MAPECOAT TNS technology – Spraying and long-lasting colored coatings for concrete protection

The MAPECOAT TNS technology is based on a range of sprayable and easy-to-apply, rapid film-forming acrylic top coatings for concrete protection. The high performances of these products also include superior non-slip properties and a long-lasting resistance to UV rays, which leads to excellent aesthetic results while complying with the safety requirements for sport venues.

2. PURTOP system – Flexible and sprayable waterproofing membranes

Roofs, arenas and driveways: they always involve various types of surfaces to be waterproofed. The PURTOP range of spray-applied, two-component and seamless polyurea membranes is the high-tech solution for providing protection for the surfaces of a stadium.

3. MAPESOIL technology – Cutting-edge solutions for the drainage of hybrid and artificial turf pitches

Regardless of the type of grass installed (hybrid, natural or artificial), stadium managers and groundsmen look at the pitch drainage as a matter of paramount importance.

The MAPESOIL technology is based on modified hydraulic binders specifically designed for improving the pitch drainage while achieving superior infiltration rates complying with the requirements of the highest governing bodies (i.e. UEFA, FIFA, USGA).

MAPESOIL drainage system for both hybrid and natural grass, being a pervious seamless layer, avoids the installation of any pipe pattern beneath the playing area, leading to uniform humidity content in the root zone and, consequently, to significant reduction of the maintenance costs.

Elisa Portigliatti. Corporate Product Manager, Sport Line Mapei SpA (Italy)

A Masters course for professionals in sports facilities

MAPEI'S ONGOING SUPPORT AT THE 2ND EDITION OF THE MASTERS COURSE ORGANISED BY MILAN POLYTECHNIC

This year, Mapei is once again sponsoring the 2nd level Master organised by Milan Polytechnic – in conjunction with the Italian Olympics body Coni Servizi SpA, the Italian Football Association (FIGC), the Istituto per il Credito Sportivo public bank and the Serie A Football League - in the Design, Construction and Management of Sports Facilities.

Taking inspiration from the UEFA Vice President, Michele Uva, who declared that, "We need to start afresh with a new generation of sports facilities and with a new figure of Stadium Manager and acknowledge that, if we don't invest, there is no future", the aim of the Masters course is to train highly skilled professionals with the capacity to operate successfully in the creation, design, construction and management of sports infrastructures in line with the most recent legislation and standards in this particular field.

The training course offers students the chance to acquire all the technical and managerial skills required so they can comfortably deal with the multitude of economic-productive, institutional and professional sectors operating within the macro-sector of sports infrastructures.

The course is divided into three modules: the Principles of Project Management applied to Sports Infrastructures, National and International Best Practices, and a focus on the management of sports centres, which will be held during an intensive three-day stage in Coverciano (Central Italy) at the Technical Centre of the Italian Football Association.

On the 16th of November last year, in tthe Aula Magna at Milan Polytechnic, a Study Day was held for the second year running entitled "Infrastructures for sport. Places, scenarios and prospects", which formally inaugurated the 2nd Edition of the Masters course.

The Study Day included speeches from some of the key players in the field of sports infrastructures, who presented personal testimonials and their approach from both an institutional and corporate perspective.

Those present included representatives from Coni Servizi SpA, Italian national sports federations, football clubs, partners supporting the training initiative and course members from the 1st and 2nd editions of the Masters course in Design, Construction and Management of Sports Facilities.

The day was introduced and coordinated by Emilio Faroldi, course Director and Vice Rector of Milan Polytechnic, and the invited speakers included Elisa Portigliatti (Corporate Product Manager Sports System Technology for Mapei), who illustrated the potential offered by the cutting-edge products specifically developed by Mapei for this sector.

A few pictures of the Study Day entitled "Infrastructures for sport. Places, scenarios and prospects", which was held on the 16th November in the Milan Polytechnic.

Football and public order: Sassuolo Calcio at the cutting-edge for safety

A CONVENTION AT MAPEI STADIUM TO EXPLORE HOW SAFETY IN FOOTBALL STADIUMS HAS EVOLVED

"The stadium in Reggio Emilia is a model not just in terms of its internal workings but also due to its well thought-out location". These compliments come from the Chief of the Italian police, Franco Gabrielli, who was guest of honour on 14th January at a convention organised by Sassuolo Calcio at Mapei Stadium in Reggio Emilia (Italy), in partnership with the city's police department to discuss "Football and public order, how safety in football stadiums has evolved".

The event was hosted by Andrea Fabris, General Secretary of Sassuolo Calcio, who, together with the Reggio Emilia police force and Italian Football Association, helped organise this important event. Sitting in the front rows to follow the debate were, amongst others, the Mayor Luca Vecchi, the President of the provincial council Giorgio Zanni, the President of the regional council Stefano Bonaccini, the Reggio Emilia police Chief Antonio Sbordone, the local Prefect Maria Grazia Forte, the Chief of the Italian police, Franco Gabrielli, and the Undersecretary of State at the Presidency of the Italian Council of Ministers Giancarlo Giorgetti.

With average crowds of 12-13,000 and sell-out gates for certain big games, Mapei Stadium is considered a cutting-edge infrastructure from a safety viewpoint. "In the past - so Mr Fabris pointed out – all the barriers were removed from around the pitch to give the fans a better view of the games, CCTV was installed by a local company and a full team of stewards are now on duty at all home games". This modernisation process is ongoing and further improvements will be made to the press stand and conference room ready for the European Under 21 Championships taking place in June with a number of matches being played in Reggio Emilia.

"Sassuolo Calcio is a real asset to Reggio Emilia. - so the city prefect Maria Grazia Forte stated - The club exemplifies proper cooperation and strategic planning between the public and private sectors. Investment not just in facilities, but also in the very concept of sport."

"I would once again like to applaud Reggio Emilia police department and Sassuolo Calcio for organising this important event. – so the Mayor Luca Vecchi stated in his opening speech -This is where we hosted a great football team like Red Star Belgrade and all its fans, and I would like to point out that across-the-board cooperation is definitely the most effective means of trouble prevention and risk management".

Stewards must be given more duties and footballers must use their influence to convey messages of nonviolence. These were the demands made by Reggio Emilia police Chief, Mr Antonio Sbordone: "I think we need to review the role and duties of stewards and provide sports clubs with information they do not currently have access to, such as info about fans who have been banned from sports events. Sports clubs also need to make better use of footballers, who are widely admired by young people".

According to everybody who took part, the Sassuolo "recipe" seems to be the ideal solution at the moment.Mapei and Sassuolo Calcio consider safety to be something positive that makes their stadium a welcoming place for both children and families. It should come as no surprise that the "Tutti al Mapei Stadium (Everybody come to Mapei Stadium)" project has already welcomed about 30,000 children and parents over the last three years, who have enjoyed a quite different football experience: first a complete stadium tour and then both sets of supporters watching the match together in a specially dedicated section of the stadium.

MAPEI STADIUM, A jewel for the UEFA Championships

UNDER 21 NATIONAL TEAMS WILL BE TAKING PART. ATALANTA HAS ALSO ASKED TO PLAY AT THE STADIUM

TOP OF THE PAGE. Sassuolo women's football team presented on the 19th of August 2018.
ABOVE. Andrea Fabris, General Secretary of Sassuolo Calcio.
LEFT. An aerial view of Mapei Stadium.

Everybody praises it, lots of people want to use it. We are talking about Mapei Stadium in Reggio Emilia (Central Italy) considered to be a fabulously functional structure. On 9th April it hosted the Italy-Ireland women's match, which was the Italian national team's final test before the World Cup.

Mapei has owned the stadium in Reggio Emilia since summer 2013, and Sassuolo plays all its home matches in the Italian Serie A championship at this ground. According to the latest figures updated to the end of March, the match attracting the biggest crowd in the 2018-19 season was Sassuolo-Juventus on 10th February with an attendance of 21,584 (sold out).

Over the last few years a great working relationship has developed between the owners of the Mapei Stadium and Atalanta Football Club. "Atalanta's executive staff - so Andrea Fabris told us, the General Secretary of Sassuolo Calcio - have already told us that if their team qualifies for a European competition in the 2019-20 season they would be honoured if they could play their home matches at Mapei Stadium, as was the case in the recent past".

And that is not all. "In order to bring forward rebuilding work on Azzurri d'Italia Stadium in Bergamo - so Mr. Fabris added - Atalanta has asked for permission to use our ground for its last two home games of the 2018-19 season". The matches are Atalanta-Genoa on 12th May and Atalanta-Sassuolo on the last day of the season. If, as seems likely, this request will be accepted, Sassuolo will play its away match of 26th May in Reggio Emilia against Atalanta: as the "home" team Atalanta will have priority as regards ticket allocations.

Apart from Sassuolo and Atalanta's matches, the most important event being held at Mapei Stadium in 2019 are the European Under 21 Championships for national teams.

Group A matches will be played at Mapei Stadium starting with Poland-Belgium on 16th June followed by Spain-Belgium (19th June) and Belgium-Italy (22nd June). A semi-final will also be played at Mapei Stadium on 27th June. Hosting the European Championships is an important event: "UEFA - so Mr Fabris pointed out - asked if they could use our stadium for the entire month of June".

The President of the Emilia Romagna Region, Mr Stefano Bonaccini, is an enthusiastic supporter of the decision to host the European Championships at stadiums in Reggio Emilia, Bologna and Cesena; other matches will be held in Friuli Venezia Giulia (Northern Italy), including the final to be hosted in Udine on 30th June, and in the Republic of San Marino.

Mr Bonaccini believes the European Championships will be a great driver for tourism: "In just a few years we have increased the number of people staying overnight in hotel facilities in Emilia Romagna from 45 million to 60 million, and sport in general has played a notable part in this boom in demand. Tourists feed the supply chain. Hosting matches in the European Under 21 Championships will be worth between 50 and 70 million Euros for our region".

DE ZERBI: "We have got more to give!"

TOP. Cristiano Ronaldo takes on Federico Peluso at Mapei Stadium.
BELOW. A mascot takes the match ball to the referee for the Sassuolo-Juventus game. Sassuolo supports the "Kids on the pitch" project.

SASSUOLO'S HEALTHY MID-TABLE POSITION IS NOT GOOD ENOUGH FOR THE MANAGER

There have been highs and lows for Sassuolo fans over the final few weeks of the team's sixth winter in the Italian Serie A. "We have got more to give" is the thing Sassuolo's team manager, Roberto De Zerbi, keeps on telling his players as the team has stayed competitive without getting the results it often deserves. On a positive note, Sassuolo beat Cagliari 3-0 at Mapei Stadium in Reggio Emilia (Central Italy).

The Mapei-sponsored team took the lead after 9 minutes through the midfielder Locatelli. Sassuolo then scored a second during time added on at the end of the first half with Babacar scoring from the penalty spot. Alessandro Matri then made it three in the 88th minute. Matri has now scored a total of seven goals in his career against Cagliari. The home win against Cagliari came as a real relief to Sassuolo fans, since the team had not won at home since its 3-1 victory against Empoli on the fifth day of the season.

Sassuolo then played extremely well in the next match at Marassi Stadium against Genoa: the game finished 1-1 with goals by Djuricic in the 28th minute before Sanabria equalised for Genoa in the 41st minute.

"We could have taken all three points - so the manager De Zerbi was quick to point out - we deserved a better result. Anyway, not many teams play as well as we did away from home against Genoa".

RONALDO AT MAPEI STADIUM

Sunday, 10th February 2019, was a memorable day for everyone involved with Mapei Stadium and Sassuolo. It was the day when Cristiano Ronaldo made his debut at Mapei stadium in Juventus's 3-0 win against Sassuolo.

Juventus took the lead in the 23rd minute with a goal by Khedira with Ronaldo adding a second in the 70th minute and Emre Can scoring a third in the 86th minute.

Sassuolo should not be embarrassed about this defeat: "We played a very brave match - so Mr De Zerbi noted - and we could easily have taken the lead through Djuricic; the match might have turned out quite differently. Unfortunately, Berardi missed a great chance to equalise and when you miss two clear chances against a great team like Juventus, then you are bound to struggle". There is something else worth pointing out: "The difference in total age between the two teams was 41 years, which means we have a young team that can only get better".

The subsequent 3-0 defeat at Empoli needs to be forgotten fast. De Zerbi's

FROM LEFT. Clockwise: Djuricic and De Sciglio during Sassuolo-Juve; Rogerio and De Zerbi; Locatelli breaks free from the AC Milan player Calhanoglu; Matri in the match against Cagliari.

team then played well during the middle of the 0-0 draw against Spal taking the lead through Peluso in the 43rd minute before Petagna equalised for Spal from the penalty spot in the 68th minute.

SASSUOLO SCARES AC MILAN

Sassuolo then played against AC Milan at San Siro Stadium on the 26th day of the season. AC Milan had played brilliantly in their previous few games and the team's new signing Piatek was in excellent form. AC Milan eventually won 1-0 thanks to an own goal by Lirola in the 35th minute. "We conceded a silly goal that decided the game - so Mr De Zerbi was quick to point out - . We played the ball twice in our own penalty area and Locatelli ended up kicking it against Lirola. A real shame: it made the match much more difficult for us after we had had chances to take the lead before the own goal. If we only think in terms of achieving great things very quickly than we are bound to feel angry. If, on the other hand, we bear in mind we were fielding several players born in 1997 and 1998 in what is clearly a developing team, then we ought to feel pleased. We are not yet the finished product, but we should be proud of ourselves".

INSIGNE SCORES IN REPLY TO BERARDI

Sassuolo and Napoli played a spectacular match in Reggio Emilia. Berardi gave Sassuolo the lead in the 52nd minute with Napoli eventually equalising in the 86th minute with a goal by Insigne. Despite the match ended in a draw, some people feel Sassuolo played its best game of the second half of the season. "In the games against Inter Milan and AC Milan - so De Zerbi assured us - we played even better. And I would also like to mention the first half of the match against Genoa at Marassi Stadium and the win against Cagliari as other outstanding performances in 2019. Sassuolo-Napoli was not the first time we played that well this season. We were up against a team that has played the best football in the Italian league over the last three seasons and we put in a fabulous performance: that makes me happy".

The Mapei-sponsored team moved up the league table. "We are not yet safe from relegation, so it is not time to start celebrating, and even when we have officially avoided relegation, I want my players to be 100% focused right through to the last game".

GOAL SPREE

The next home game against Sampdoria was spectacular but a bad result for Sassuolo: it ended 5-3 for Sampdoria. The goal spree began when Defrel (15') and Quagliarella (36') both scored for Sampdoria. Boga then pulled one back in the 38th minute, but first Linetty and then Praet scored to give Sampdoria an unassailable lead.

The last players to get on the scoresheet were Duncan for Sassuolo and Gabbiadini for Sampdoria and finally Babacar, again for Sassuolo.

De Zerbi was critical of his players: "We are not consistent enough. Sometimes we are focused, attentive and incredibly determined, other times we seem to be lacklustre and I will not put up with that. We are a young team, but we cannot keep on making mistakes".

Despite the defeat, Sassuolo was still in a good league position. "We must not settle for our current league position - so Mr De Zerbi noted – we need to keep climbing the table to fill the stadium. We must not settle for crowds of just a few thousand at Mapei Stadium, we need to do better".

KEEPING ON SUPPLYING PLAYERS FOR ITALY

The Italian national team manager, Roberto Mancini, called up Stefano Sensi for the matches against Finland and Liechtenstein. Sensi scored a goal against Liechtenstein. Other Sassuolo players called up to play for their national teams were Merih Demiral (Turkey), Mehdi Bourabia (Morocco) and Alfred Duncan (Ghana). Manuel Locatelli and Claud Adjapong were included in Italy's Under 21 team and Gianluca Scamacca in the Under 20 team, while Jens Odgaard was selected for Denmark's Under 21 team.

200th appearance for BERARDI!

OVER 200 MATCHES PLAID WITH SASSUOLO: "I AM GRATEFUL TO THIS CLUB"

Ever since Sassuolo got into top-flight Italian football, Domenico Berardi, aged 24, has been one of its most eye-catching players. He celebrated his 200th appearance in the Italian League championships in the match against Juventus on 10th February.

Before this big match, Berardi received a special award from Sassuolo's Managing and General Director, Giovanni Carnevali, and from the team's owner, Giorgio Squinzi.

"I came to Sassuolo almost by chance – so Domenico told us, an attacking wing forward particularly skilled at dribbling defenders - after playing a game of five-a-side with friends in Modena. Two Sassuolo scouts, Pasquale Di Lillo and Luciano Carlino, saw me play and told the club about me, and I was called up for a trial.

I can still remember the late Gianni Soli, who was in charge of the youth team at the time, coming up to me after the trial and telling me I had to stay at Sassuolo. And that is what happened.".

Domenico, did you play on the wing or in a different position when you were a teenager?

"I did not play in any particular position, but I have always wanted to be a striker".

When you were 17 years old, did you think you would end up playing over 200 matches for Sassuolo?

"I did not even think I would get to play in the Serie A! Or even in the second division. But team manager Di Francesco gave me my chance in the Cesena-Sassuolo match at the end of August 2012, and it all took off from there".

For which other three or four games out of the 200 you have played would you give yourself top marks?

"Napoli-Sassuolo in the 2013-14 season: it was my debut in Serie A and the team's first point in the championship. I also deserved high marks in the matches against Chievo and then again against Napoli. Hopefully there will be other games like them".

Apart from the 2015-16 season when the team qualified for the Europa League, which season have you enjoyed most?

"The season in the Serie B when we won the title on 18th May 2013 and the following season when we managed to avoid relegation from the top division! Two seasons and 2 great League Championships".

In your opinion, which are the best goals you have ever scored?

"Definitely the four against AC Milan in that fabulous 4-3 win in January 2014. And then the goal that made it 2-1 against Inter Milan at San Siro Stadium in May 2017, a right-foot shot from the edge of the area that flew into the top corner of the net".

When was the worst moment in your career?

"The injury I got against Pescara that put me out of the group stage matches of the 2016-17 Europa League".

Which defender has caused you the most problems?

"Without mentioning any names, I would like to point to the statistics for fouls against players.

The figures speak for themselves: I am first or second in the list of players who have been fouled most in Serie A.

OPPOSITE PAGE. Berardi was awarded a plaque for his 200th appearance in the Italian League championships by Giovanni Carnevali, Sassuolo's General and Managing Director, and the club's owner Giorgio Squinzi.
LEFT. Berardi and Insigne in the Sassuolo-Napoli match.
RIGHT. Domenico Berardi playing for Italy (Sensi is the first on the right).

Compared to your first few seasons in the top division when you played as an out-and-out striker, you now get more involved in build-up play. How does that feel?
"I prefer playing like that, I feel more useful to the team. It makes me feel like a better all-round player".

Do you feel like the leader of this Sassuolo team?
"Magnanelli is the real leader. There is no doubt about that, no comparison. I am very keen to play my part on the pitch to try and repay Sassuolo for everything it has given me over the last few years. I am very grateful to this club for making me the player I am today".

Domenico Berardi, already a first-team player back in the 2012-13 season.

The team has been in a mid-table position for most of the season; is that in any way disappointing?
"We could have a few extra points, but we have really matured tactically and now play better thanks to our team manager, Mr De Zerbi, and I think our prospects for the future look rosy".

Sassuolo often plays better at San Siro Stadium against Inter Milan and AC Milan than against less highly-rated clubs. Why do you think that is?
"I do not agree. We always play the same and tackle each game positively. Sometimes, certain teams might 'clam up' in defence and hits us on the counter-attack and we need to learn how to deal with this better. But apart from the matches plaid against Empoli and Sampdoria, we have almost always played well against both top clubs and teams at our level. We do not always win when we deserve to".

For example, in your home games against Fiorentina and Spal this season, you have been in the lead and then lost it. Is that because you faded? Or just bad luck?
"Against Fiorentina I would say it was just sheer chance and really bad luck in the last few minutes of the match. The VAR (and, most significantly, how it was interpreted) played a vital part in determining the outcome of the match against Spal".

You made your debut for Italy on 1st June 2018 in the match against France. An important game even though it was just a friendly, because it came at a really bad time for Italian football after failing to qualify for the World Cup in Russia. Did that put you under even more pressure? Do you think you are one of the players who can help revive the Italian team?
"You have to be level-headed and work hard. I am ready and available for the team manager, Mr Mancini, who I am sure will make the right decisions for the good of the Italian team. I hope I can play my part in Italy's revival. Wearing the national shirt and listening to the national anthem makes me really proud".

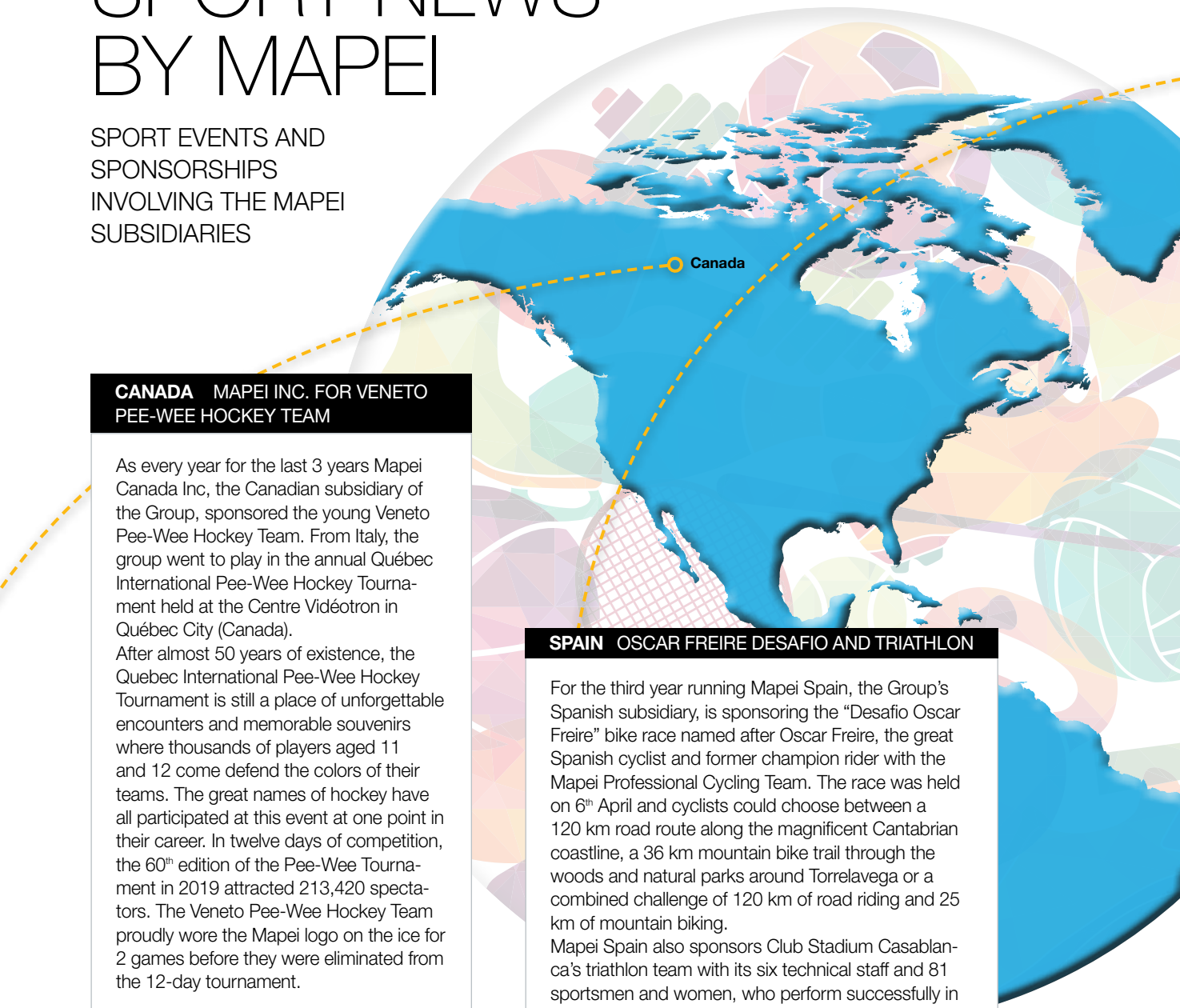
Are there any tactical differences between playing for Italy and playing for Sassuolo?
"The main difference is not tactical, it is the amount of time you have to train together and test out set pieces and tactics. Even though it might look much simpler when you play for Italy because you are alongside some of the nation's top footballers.
And I can assure you they really are great players. All of them!".

HE HELPED GET SASSUOLO PROMOTED INTO SERIE A

The striker Domenico Berari was born in Cariati Marina (Southern Italy) on 1st August 1994. He played for Sassuolo in the 2012-13 season in the Italian Serie B, helping the team get promoted into Serie A and then staying with Sassuolo for the next six seasons. By the end of the 2017-18 season he had scored 47 goals in the top division. Talking of goals, his best season was his first in Serie A (2013-14) when he scored 16 goals. He made 23 appearances for the Italian youth team, scoring four goals. He then made his debut for the full Italian team on 1st June 2018 in Nice after being picked by the new team manager, Mr Mancini, to play in the match Italy lost 3-1 against France.

SPORT NEWS BY MAPEI

SPORT EVENTS AND SPONSORSHIPS INVOLVING THE MAPEI SUBSIDIARIES

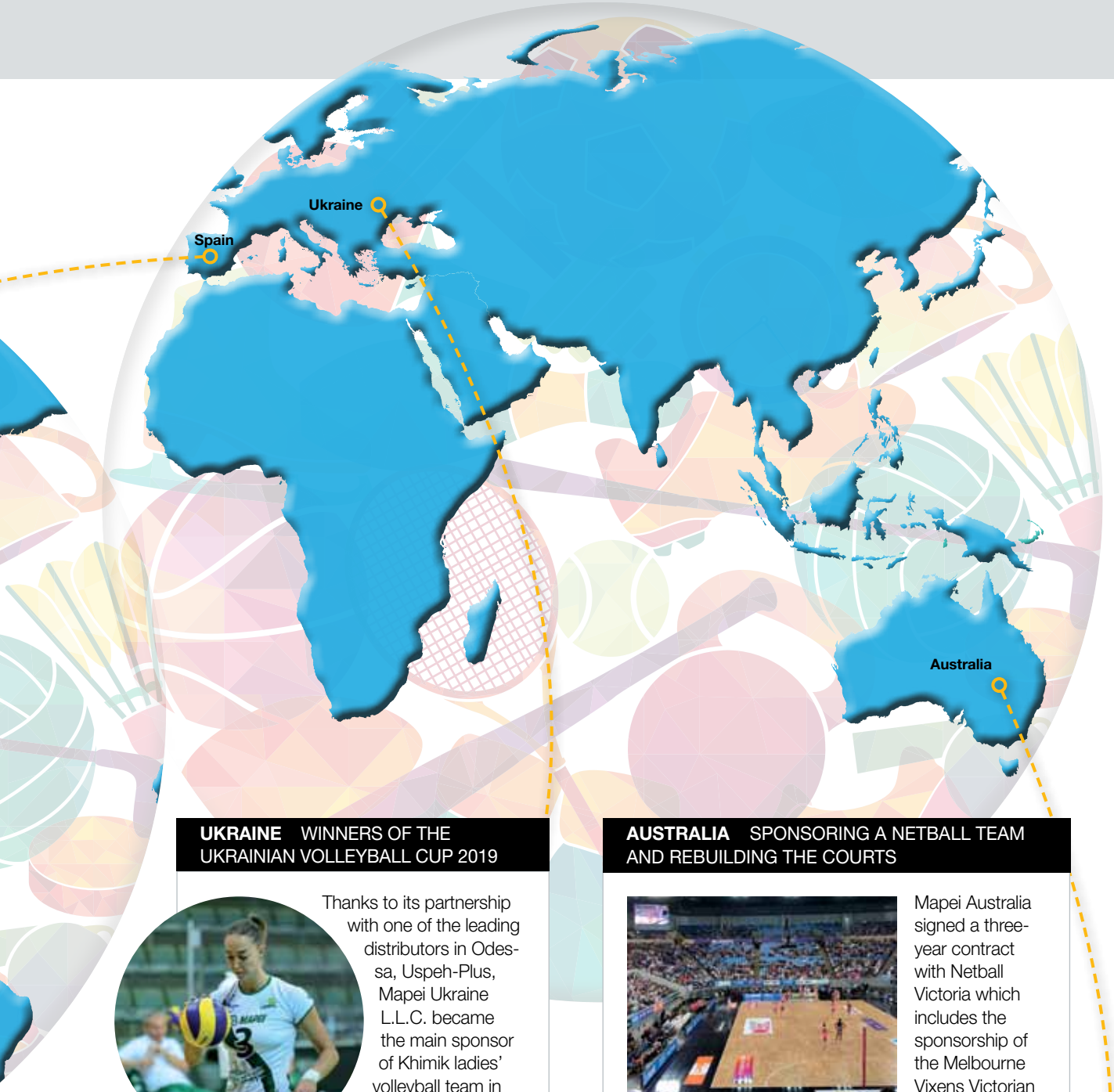


CANADA MAPEI INC. FOR VENETO PEE-WEE HOCKEY TEAM

As every year for the last 3 years Mapei Canada Inc, the Canadian subsidiary of the Group, sponsored the young Veneto Pee-Wee Hockey Team. From Italy, the group went to play in the annual Québec International Pee-Wee Hockey Tournament held at the Centre Vidéotron in Québec City (Canada).
After almost 50 years of existence, the Quebec International Pee-Wee Hockey Tournament is still a place of unforgettable encounters and memorable souvenirs where thousands of players aged 11 and 12 come defend the colors of their teams. The great names of hockey have all participated at this event at one point in their career. In twelve days of competition, the 60th edition of the Pee-Wee Tournament in 2019 attracted 213,420 spectators. The Veneto Pee-Wee Hockey Team proudly wore the Mapei logo on the ice for 2 games before they were eliminated from the 12-day tournament.

SPAIN OSCAR FREIRE DESAFIO AND TRIATHLON

For the third year running Mapei Spain, the Group's Spanish subsidiary, is sponsoring the "Desafio Oscar Freire" bike race named after Oscar Freire, the great Spanish cyclist and former champion rider with the Mapei Professional Cycling Team. The race was held on 6th April and cyclists could choose between a 120 km road route along the magnificent Cantabrian coastline, a 36 km mountain bike trail through the woods and natural parks around Torrelavega or a combined challenge of 120 km of road riding and 25 km of mountain biking.
Mapei Spain also sponsors Club Stadium Casablanca's triathlon team with its six technical staff and 81 sportsmen and women, who perform successfully in all categories up to and including elite racing. The club has a duathlon team and two triathlon teams and, with Mapei's support and backing, organizes sports events like Duathlon Cross (now at its 26th edition) and 100/100 S Wing (which has reached its 4th edition).



UKRAINE WINNERS OF THE UKRAINIAN VOLLEYBALL CUP 2019

Thanks to its partnership with one of the leading distributors in Odessa, Uspeh-Plus, Mapei Ukraine L.L.C. became the main sponsor of Khimik ladies' volleyball team in 2014. On February, the 23rd, the "ladies" of the Khimik team won the Ukrainian Women's Volleyball Cup 2019 for the sixth time. They plaid the final match against "Orbita" Zaporizhia. Each round of the game was a real struggle. But the experienced players from Khimik confidently brought the team to victory. The result was 3:0 and the players raised the Cup for the sixth time.
After winning the trophy, besides being the most titled Ukrainian female volleyball club, Khimik also became the most titled team in the history of Southern Ukrainian sport teams.

AUSTRALIA SPONSORING A NETBALL TEAM AND REBUILDING THE COURTS

Mapei Australia signed a three-year contract with Netball Victoria which includes the sponsorship of the Melbourne Vixens Victorian Netball team.
As a result, this has seen Mapei become the preferred supplier of acrylic surface for outdoor Netball facilities using MAPECOAT TNS innovative coatings systems for many prestigious projects around the state. This partnership has led to a complete upgrade of several existing Netball courts projects with none better than the recently completed Waverley District Netball Association Netball Courts (WDNA). Part of the rejuvenation of these courts included substrate rectification to bring the facility back in line with compliance requirements that would satisfy the current Australian Netball standards. The MAPECOAT TNS PROFESSIONAL (11 courts) and MAPECOAT TNS CUSHION (1 court) multi-layered resurfacing systems made from acrylic resin were chosen by the committee of the WDNA as their 'surface of choice' for the redevelopment.

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Italian skiers and Mapei Sport: winning together

GREAT RESULTS FOR THE ITALIAN SKIERS TRAINED AT THE MAPEI SPORT CENTRE

Mapei Sport is turning out to be an important partner for the Italian national ski team. The Italian Winter Sports Federation (FISI) achieved some truly noteworthy results at the recent World Championships held in Are (Sweden) and Val di Fassa (Italy). The Alpine skiing team, which has been drawing on the professional expertise and advice of the Mapei Sport Research Centre since 2001 (except for a short break from 2010 to 2012), came back from the recent World Championships with some extremely important medals in both the junior and elite categories.

"We are very happy for the results achieved by our team. Everybody showed great determination and proved their worth. We were particularly pleased with the magnificent performances of Dominik Paris, who won the gold medal in the men's Super G, Sofia Goggia, who won a silver in the women's Super G, and the wonderful bronze medal won in the team event thanks to the combined efforts of Irene Curtoni, Lara Della Mea, Simon Maurberger and Alex Vinatzer.

Not to mention the wonderful achievements of the junior teams with Tobias Kastlunger winning a silver in the Giant Slalom and Alex Vinatzer's dominant gold medal winning performance in the Slalom after previously winning in the European Cup and on the slopes of Aloch (Italy)", so Ermanno Rampini told us, the Mapei Sport's consultant for team sports and head of the Centre's Human Performance Lab (HPL). Skiers from the Italian Alpine ski team kept on winning after the World Championships, too. Dominik Paris won seven World Cup races this year and came top of the overall standings in the SuperG, the first time in his career he has won a prize in any event. A true champion, great to watch and extremely effective. Thanks to his two wins in Bormio and his victories in Kvitfjell and Soldeu, he won a total of 16 races this season and finished on the podium 32 times with only Kristian Ghedinia ahead of him with one more podium finish.

Mapei Sport provides expert advice to skiers from the national team, which is supervised and coordinated by Professor Roberto Manzoni, who has been the head of physical preparation for the Italian national ski team for a number of years now. About fifty skiers, both men and women competing in the World Cup, European Cup and junior races, undergo testing at the Mapei Sport Centre, actually starting their preparation for the new season as early as May.

"Over the years our facility has developed specific systems for monitoring alpine skiers. They include the eccentric press, a prototype unique of its kind worldwide, designed and developed by the physiologist Piero Mognoni and Professor Aldo Sassi. The press provides a good approximated simulation of the specific physical demands that skiers are subject to on the snow", so Er-

LEFT. The first Italian one-two of the season on the slopes the Stelvio Pass with Dominik Paris (in the middle) and Christof Innerhofer (left) in the men's downhill.
ABOVE. The talented young skier Alex Vinatzer in action in the World Championships.

manno Rampinini explained.
"This means that in a laboratory setting we can subject skiers to same kind of effort they will encounter in a race, also making specific assessments of physical characteristics. Eccentric strength is a key factor for good performance: during turns, skiers must withstand centrifugal force due to high speed. They also need to have high level of sensitivity when they apply force. Being able to modulate force is crucial for maintaining maximum speed around a turn. Alongside these neuromuscular characteristic, we can also measure the explosive force of the lower limbs and the efficiency of their aerobic system, i.e. their endurance capacity".
The season for a top-class skier lasts approximately 5 super-intensive months. The first assessment tests carried are carried out in May. Everything is then "fine-tuned" from September-October, optimising the skiers' fitness ready for when competition begins in November-December.
The highly-qualified medical and sports training centre set up by Mapei SpA will continue to provide its expertise and consultancy to leading Italian skiers at least until the 2022 Winter Olympics in Beijing, China.

Giulia De Maio. Mapei Sport Research Centre, Italy

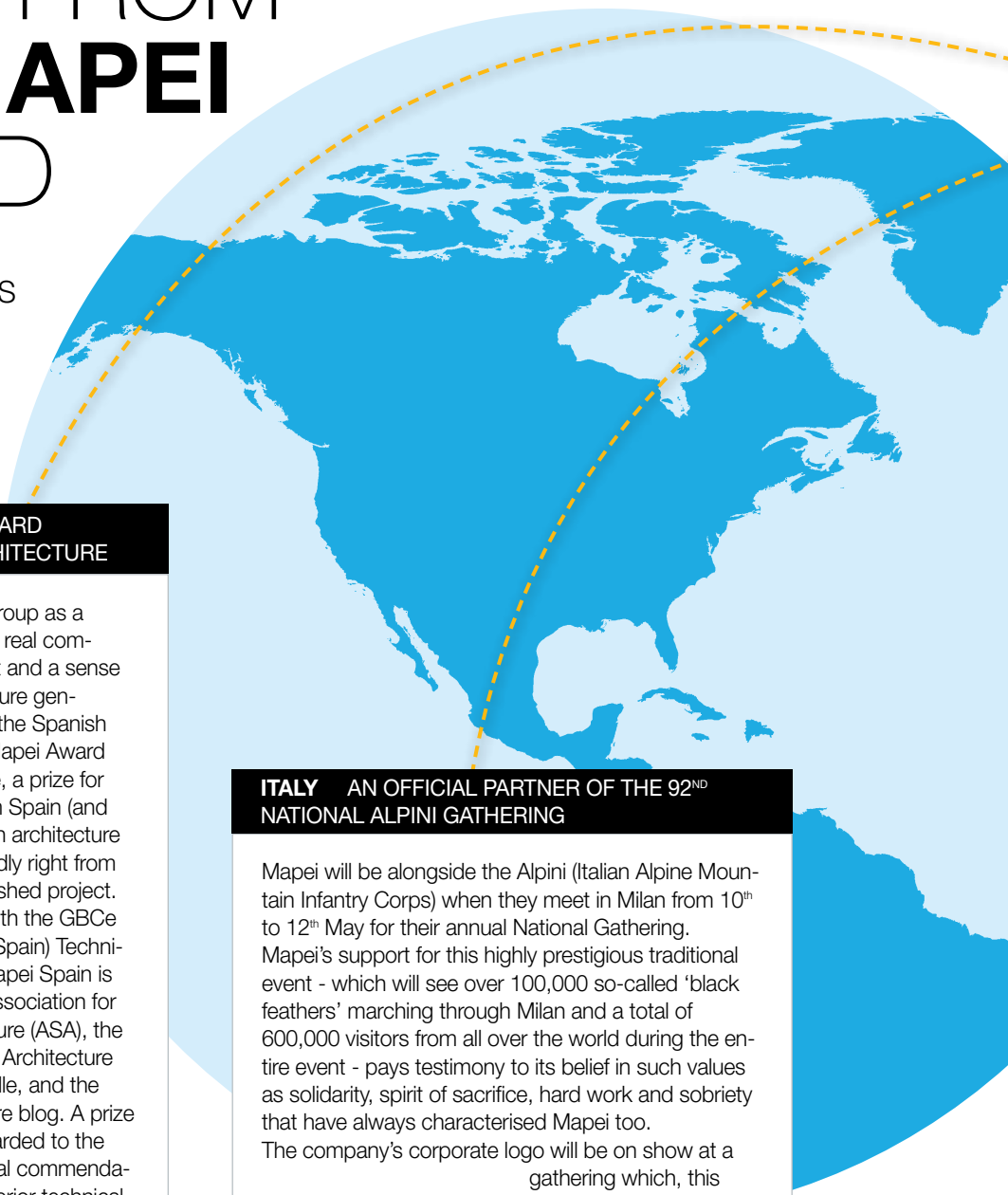
Despite having to take a long break due to an injury, Sofia Goggia managed to win a silver in Are (Sweden).

Dominik Paris and other members of the Italian team during early-season testing at Mapei Sport Research Centre.

Peter Fill has had no luck this season but plans to be better than ever when he gets back on the slopes.

NEWS FROM THE **MAPEI** WORLD

EVENTS, TRADE FAIRS AND PROJECTS BY THE GROUP'S SUBSIDIARIES

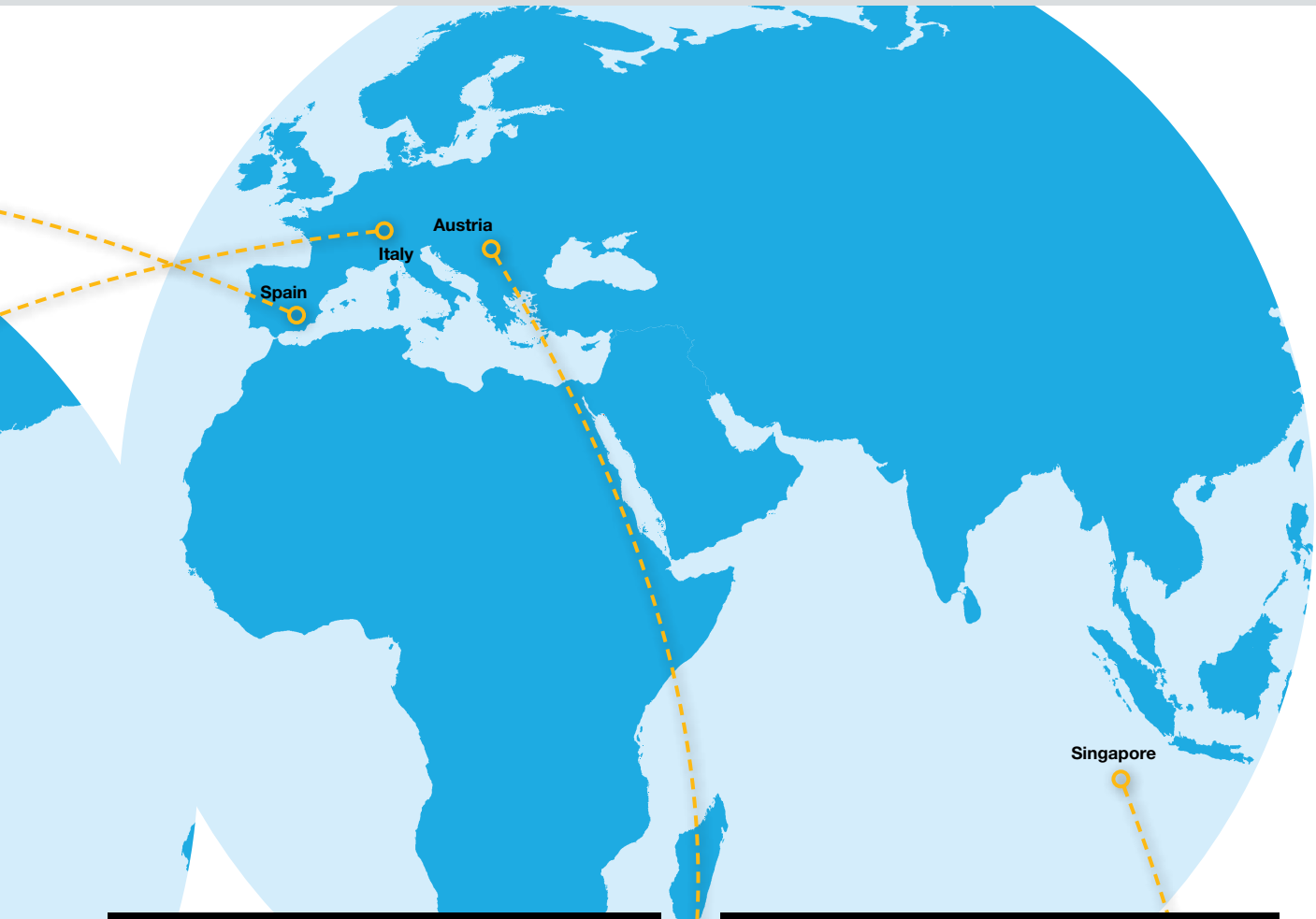


SPAIN 2019 MAPEI AWARD FOR SUSTAINABLE ARCHITECTURE

For Mapei Spain and the Group as a whole, sustainability means real commitment to the environment and a sense of responsibility towards future generations. With this in mind, the Spanish subsidiary has set up the Mapei Award for Sustainable Architecture, a prize for architectural designers from Spain (and Andorra), who opt to design architecture that is environmentally friendly right from the design phase to the finished project. Everything in partnership with the GBCe (Green Building Council of Spain) Technical Committee, of which Mapei Spain is the Official Promoter, the Association for Sustainability and Architecture (ASA), the Foundation for Society and Architecture (FAS), the University of Seville, and the Stepien & Barno architecture blog. A prize of 20,000 Euros will be awarded to the winning projects with special commendations for students from superior technical schools of architecture. Entries open from 15th March to 14th June.

ITALY AN OFFICIAL PARTNER OF THE 92ND NATIONAL ALPINI GATHERING

Mapei will be alongside the Alpini (Italian Alpine Mountain Infantry Corps) when they meet in Milan from 10th to 12th May for their annual National Gathering. Mapei's support for this highly prestigious traditional event - which will see over 100,000 so-called 'black feathers' marching through Milan and a total of 600,000 visitors from all over the world during the entire event - pays testimony to its belief in such values as solidarity, spirit of sacrifice, hard work and sobriety that have always characterised Mapei too.
The company's corporate logo will be on show at a gathering which, this year, is even more significant than ever for "Alpini" from all over Italy: 2019 is, in fact, the one hundredth anniversary of the founding of the National Alpini Association that was first established in Milan on 8th July 1919.



AUSTRIA SUPPORTING BEES

For Mapei Austria commitment to sustainability has so far mainly focused on researching into and developing sustainable solutions for the building industry. The Group's Austrian subsidiary has decided to extend its sustainability operations to include protecting bees and honey production used for social purposes. Last year fruit trees were planted on the land around the production plants in Nussdorf ob der Traisen and Langewang and beehives were installed to help the fruit grow. Since the survival of bees is coming increasingly under threat by certain modern farming practices and our rapidly expanding metropolises, Mapei Austria is proud of being able to ensure these colonies of bees can enjoy optimum living conditions and plans to give away the honey they produce to social projects.

SINGAPORE BIZSAFE STAR CERTIFICATION FOR MAPEI FAR EAST

bizSAFE is a five-step programme established by the Singapore Workplace Safety and Health Council (WSH) that assists companies to build up their WSH capabilities so that they can achieve superior improvements in safety and health standards at the workplace. Mapei Far East has been certified as a bizSAFE STAR enterprise since 2016, the highest level of certification of the bizSAFE programme, for its consistent performance in managing the health and safety risks in the workplace. As a bizSAFE STAR enterprise and in conjunction with its BS OHSAS 18001-certified Health and Safety Management System, Mapei Far East provides a safe, healthy, and secure working environment for its employees, customers, visitors, contractors, and all stakeholders of the company. This is achieved through the company's wholistic WSH risk management process: identifying and evaluating the WSH risks, implementing controls to eliminate or minimize the risks, periodic review and continual improvement of the control measures.

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Waterproofing terraces and balconies

THE CORRECT METHODS AND PRODUCTS: AN EXPERT OPINION FROM MAPEI TECHNICAL SERVICES

What layers do you normally find underneath ceramic tiling on a terrace?

We generally find various types of materials underneath ceramic tiles on a terrace or balcony: adhesive, a waterproofing layer, the screed, a slope and concrete, for example. In this stratigraphic section, we also often find insulating panels, bituminous waterproofing systems and important accessory products and items such as adhesion promoters, a vapour barrier or reinforcing mesh for the screed. Successful installation of the entire system depends on how each single element underneath the floor is installed, and not just on the adhesive system chosen.

What type of adhesive should be used to install ceramic tiles on terraces and balconies?

Which adhesive to use depends on the type and size of the tiles to be installed. Considering the service conditions in external surroundings (aggressive atmospheric agents or heavier loads than with internal ceramic covering), we generally tend to prefer class 2 improved adhesives compliant with the relative European standard (EN 12004) that covers the classification of adhesives. For medium to large size tiles, for example, such as those with one side between 30 cm and 60 cm long, it is recommended to adopt class S1 deformable adhesives (for example KERAFLEX MAXI S1, which is classified C2TE S1 according to EN 12004). Their deformability may even be considered an added value in the case of tiles installed on deformable substrates, such as those waterproofed with MAPELASTIC system.

Do the tile joints on terraces need to be waterproof?

It's not a requirement. Waterproofing is achieved by employing specific, seamless systems and cannot be guaranteed solely by making joints waterproof.

Is it possible to bond ceramic tiles on an existing ceramic floor of a balcony?

You have to take various factors into consideration: the size of the balcony, the size and type of the existing tiles and of the new tiles to be bonded and the presence of joints in the old flooring. As far as Mapei is concerned, our guidelines recommend that, when installing a new floor over an old external floor, after preparing the surface as specified, you need to place a deformable waterproofing system such as MAPELASTIC between them. By doing this, MAPELASTIC guarantees that the layers underneath will remain waterproof and, thanks to its deformability, it will reduce the stresses induced by the presence of two floors, one on top of the other.

Marco Albelice. Technical Services Department, Mapei SpA (Italy)

3 PRODUCTS IN THE SPOTLIGHT

SOLUTIONS FOR HIGH-PERFORMANCE CONCRETE, CEMENTITIOUS FLOORS AND THE MARINE INDUSTRY: A FEW PROPOSALS BY MAPEI

MAPEFLOOR EP19

MAPEFLOOR EP19 is a three-component mortar used as a thick repair layer on concrete surfaces subjected to high abrasion and to form coatings with high wear resistance for concrete floors subjected to heavy traffic. It is composed of a fluid epoxy resin, a special hardener, and a graded silica sand mineral filler that is ideal for preparing highly compact mortars. **MAPEFLOOR EP19** hardens without remarkable shrinkage to form a very strong product with particularly high resistance to wear and good resistance to aggressive chemical agents if saturated with MAPECOAT I 24 or MAPEFLOOR I 300 SL. At +23°C MAPEFLOOR EP19 is set for light foot traffic 6 hours after application and ready for vehicle traffic after 12 hours. It complies with the principles defined in EN 13813 "Screeds and materials for screeds – Material for screeds - Properties and requirements", which specifies the requirements of materials for screeds used in the construction of internal floors.

FOR CONCRETE FLOORS SUBJECTED TO HEAVY TRAFFIC

RE-CON AGG 200

It is a modified acrylic polymer-based superplasticizer specifically developed for the ready mix concrete with recycled aggregates. Its special formulation allows concrete to be transported over long distances and maintain the workability even with aggregates subject to high absorption. The highly plasticising effect of **RE-CON AGG 200** allows to reduce the water demand of concrete and to increase the mechanical strengths when hardened. **RE-CON AGG 200** is able to disperse the granules of cement very efficiently and control the hydration process of the cement. It is compatible with all types of cement that comply with current standards, as well as with the following Mapei products used to produce special concrete: VISCOSTAR; admixtures from the VISCOFLUID range; set retarding admixtures from the MAPETARD range; MAPEPLAST SF; form-releasing compounds from the MAPEFORM ECO range and DMA for stripping formwork from concrete; curing agents from the MAPECURE range.

FOR READY MIX CONCRETE WITH RECYCLED AGGREGATES

MAPEDECK FINISH HDT

It is a two-component, high-strength, transparent, aliphatic polyurethane gel with high mechanical resistance. **MAPEDECK FINISH HDT** is specifically formulated for making transparent skim coats within decorating cycles which require high mechanical resistance. It leaves a deep, shiny finish which remains durable over the years. The product may be applied on compatible substrates which must be prepared with power tools as specified if the maximum re-coat time has been exceeded.
It is suitable for marine equipment in compliance with the Marine Equipment Directive (MED) 96/98/EC and subsequent amendments. For the products with this marking, Mapei is also allowed to affix the U.S Coast Guard approval number as allowed by the "Agreement between the European Community and the United States of America on mutual recognition of certificates of conformity for marine equipment" signed on February 27th, 2004.

FOR SKIM COATS IN THE MARINE INDUSTRY

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