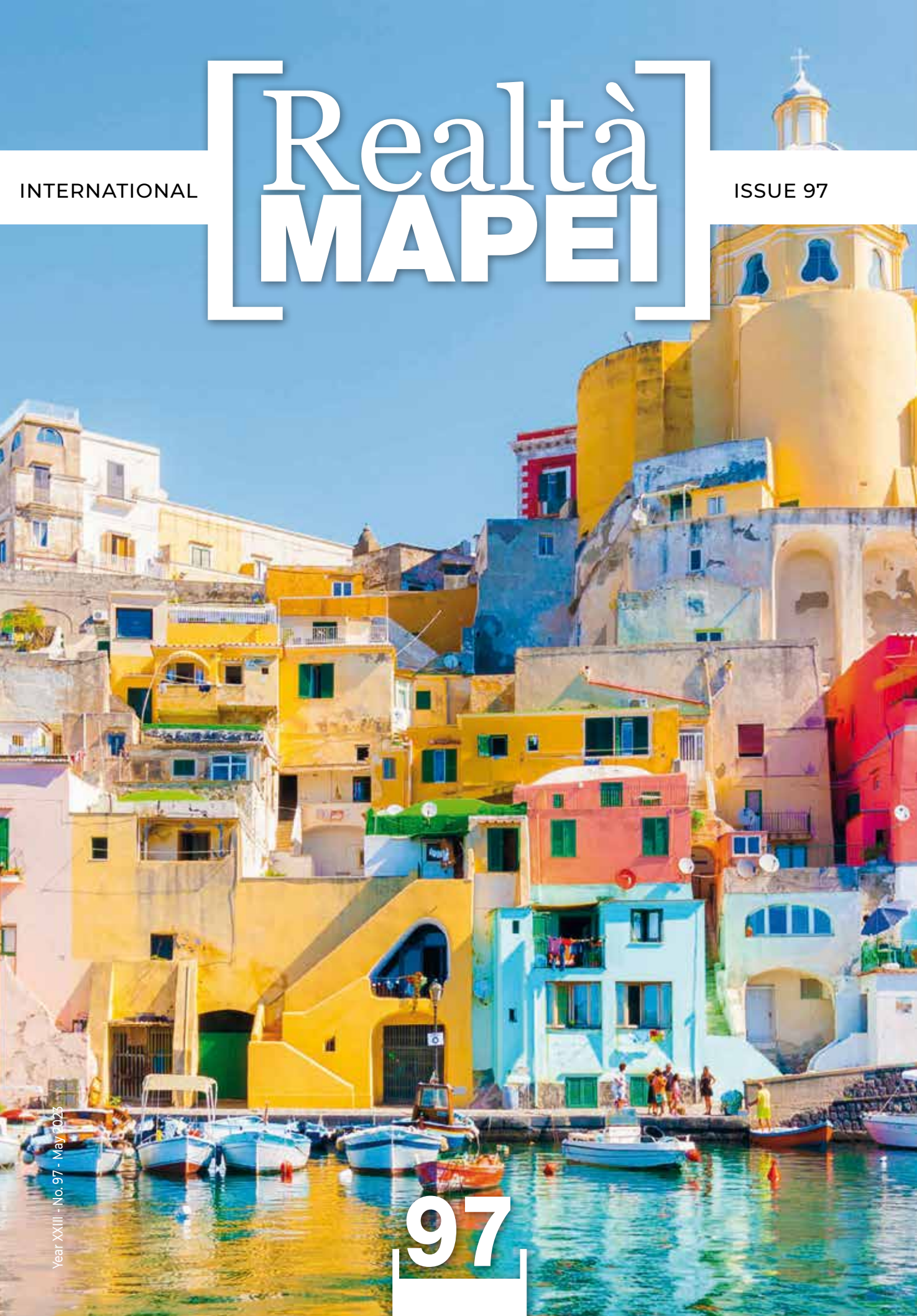

Realtà MAPEI

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97

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by **Guido Palmieri**
Realtà Mapei International's
Editor-in-Chief

Infinite shades of colour: the quest for beauty... and so much more

Colour is synonymous with beauty, emotion and inspiration. And Mapei's EXtra colour collection with 315 new shades is a response to the latest trends in taste and the search for elegance in matching combinations. This is the spearhead of a more extensive updating of Mapei wall coating products, which has two aims: to protect and decorate surfaces in applications ranging from residential/commercial buildings to infrastructures and the renovation of old buildings. An offer that encompasses several segments: water-based paints for interiors and enamel paints, coatings for the protection and decoration of façades, and thermal insulation systems.

The market for paints and wall coatings is constantly evolving and growing rapidly.

Globally it is worth 170 billion US dollars and is expected to rise to 235 billion in 2029: the building industry currently accounts for 70 billion euros and this figure is expected to rise to 98 billion euros in 2031. If we look at the Italian market, revenue for coating systems is around 2.1 billion euros (1.5 billion for products for wall coatings and 0.7 billion for thermal insulation): over recent years the trend has been on the upswing after a period of decline and slowdown.

In terms of the overall picture, paints and coatings (under the impetus of ever-increasing consumer-customer attention) are playing an increasingly leading role and Mapei wants to be a key player in every aspect of the finishing products market, so it is constantly upgrading its coating line in the name of sustainability and innovation, strategic policies for the Group.

MAPEI'S LINE OF COATING SYSTEMS FOR PROTECTION AND DECORATION PURPOSES IN VARIOUS REALMS OF BUILDING

In this issue of *Realtà Mapei International* we travel to Argentina, where a Group's subsidiary was set up 23 years ago. Indeed, the Group is now focusing its efforts on Argentina and the whole "Southern Cone" to boost its operations on the neighbouring markets of Chile, Uruguay, Bolivia and Paraguay.

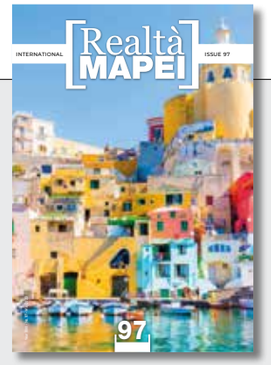
2023 is the year when the Italian cities of Bergamo and Brescia were nominated to be the "Italian Capital of Culture", a glimmer of hope after the difficult period experienced by these cities during the Covid-19 pandemic. Mapei is contributing to the urban enhancement of both cities' historic centres by supplying products for renovating the paving in the Centro Piacentiniano in Bergamo and Via dei Musei and Santa Giulia Museum in Brescia.

Historic ties with the realm of culture are being renewed at San Domenico Civic Museum in Forlì (Central Italy), where an exhibition is being held entitled *The Art of Fashion. The age of dreams and revolutions, 1789-1968* and Mapei is offering its support as a partner of the event.

Meanwhile, the sailor Ambrogio Beccaria is continuing his adventures in partnership with Mapei, global sponsor of the "Alla Grande" project throughout a lengthy season of transoceanic regattas.

Enjoy your reading.

SUMMARY



Cover story
The focus of this issue of Realtà Mapei International is the Mapei wall coatings line, which has two aims: to protect and decorate surfaces in applications ranging from residential/commercial buildings to infrastructures and the renovation of old buildings. In the photo, Mapei devised a colour fan for the island of Procida in 2022.

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MAPEI FOLLOW US
/mapeispa

Colour and protection without limits

MAPEI OFFERS COMPLETE SYSTEMS FOR THE EXTERIOR THERMAL INSULATION AND FOR THE FINISH AND DECORATION OF BUILDINGS AND INFRASTRUCTURES

1 **Coating cycle for the front edges of balconies**
Mapelastic
+ Elastocolor Paint

2 **Enamel paint for wooden elements**
Dursilac Base Filler
+ Dursilac Matt

3 **Protective coating for natural stone**
Antipluviol

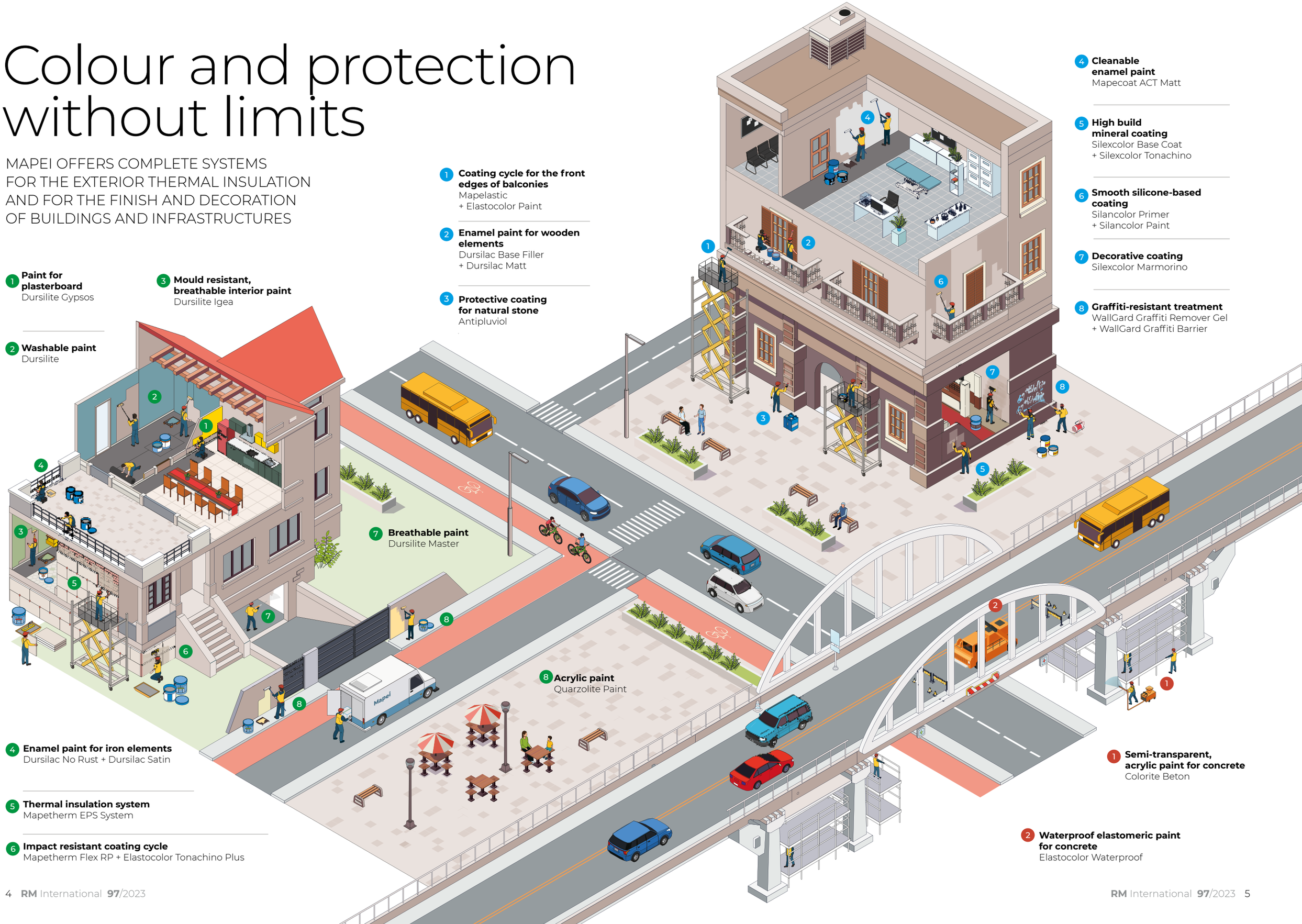
4 **Cleanable enamel paint**
Mapecoat ACT Matt

5 **High build mineral coating**
Silexcolor Base Coat
+ Silexcolor Tonachino

6 **Smooth silicone-based coating**
Silancolor Primer
+ Silancolor Paint

7 **Decorative coating**
Silexcolor Marmorino

8 **Graffiti-resistant treatment**
WallGard Graffiti Remover Gel
+ WallGard Graffiti Barrier



1 **Paint for plasterboard**
Dursilite Gypsos

2 **Washable paint**
Dursilite

3 **Mould resistant, breathable interior paint**
Dursilite Igea

7 **Breathable paint**
Dursilite Master

8 **Acrylic paint**
Quarzolite Paint

4 **Enamel paint for iron elements**
Dursilac No Rust + Dursilac Satin

5 **Thermal insulation system**
Mapetherm EPS System

6 **Impact resistant coating cycle**
Mapetherm Flex RP + Elastocolor Tonachino Plus

1 **Semi-transparent, acrylic paint for concrete**
Colorite Beton

2 **Waterproof elastomeric paint for concrete**
Elastocolor Waterproof

by **Stefano Deri**

One line, two objectives: protect and decorate

THE MAPEI COATING LINE IS MADE UP OF THREE FAMILIES: PRODUCTS FOR INTERNAL USE AND ENAMEL PAINTS, COATINGS FOR FAÇADES AND EXTERNAL THERMAL INSULATION SYSTEMS

SILEXCOLOR, mineral paint for unalterable exterior surfaces: this product is still part of the product portfolio – albeit with inevitable adjustments to its formula – and kicked off the Mapei story back in 1937. The first products launched by the newly founded company were paints aimed at the building sector and their names are still in use to this day: QUARZOLITE, DURSILITE, COLORITE and ANTIPLUVIOL. Over the course of the following years Mapei developed numerous other product lines and the coating line was partially left to one side until 2000, when it was decided to develop a more modern, dedicated line starting precisely from those historic products. In the last twenty years the range of paint products has been extended considerably and now also includes products for external thermal insulation systems, while maintaining its position as complementary products for the rest of the Mapei range.

By paint product we generally mean a liquid substance which, once applied on a surface, forms an adherent, seamless layer with two main properties: to protect and decorate the element.
Paint products may be classified according to numerous parameters: in Mapei we refer to their area of use, that is, the building sector. Within this sector there are numerous types of application with characteristics that can also differ quite considerably which may be categorised, for example, into modern and historic buildings, residential/commercial buildings and infrastructures, new builds and buildings under renovation.
And for all these areas of use Mapei has a suitable cycle of coating products that comply with the highest quality standards, backed up by product and performance certification issued by independent laboratories.

Numerous types of application: from residential/ commercial buildings to infrastructures and buildings under renovation

PAINTS, A STORY THAT BEGAN WITH RODOLFO SQUINZI

The story of Mapei starts precisely with paints: in 1937 Rodolfo Squinzi founded M.A.P.E.I., marking the start of the production of SILEXCOLOR silicate-based paint and the foundation stone for what was to become a world-leading company.

In 2008 Mapei opened a 2,000 m² facility dedicated to the production of wall coatings within the Group's manufacturing complex located in Robbiano di Mediglia, near Milan. The facility was later extended in 2023. The Group owns other manufacturing facilities in various countries (USA, Poland, Colombia and Turkey) to support the growth of this product line in numerous markets.

ABOVE. The brand-new range of Mapei water-based paints was presented at Cersaie 2022.

Sustainability: a fundamental driver

Just like all our other products, the two main drivers behind Mapei paint products are sustainability and innovation. When formulating the products, it was decided not to use components that would be harmful to the environment and people's health and maintain high performance properties while complying with ever more stringent legislation. The formulations were optimised to minimise the emission of volatile organic compounds (VOC), obtaining the highest level in the French classification system for internal products, A+, which guarantees the quality of the air breathed in by both professional painters and end users, thereby ensuring a high level of living comfort. What is more, the impact our products have on the environment has been calculated using LCA (Life Cycle Assessment) methods in order to design increasingly sustainable water-based paints. Their impact is declared on EPDs (Environmental Product Declaration), environmental documents certified by independent bodies.

Three big families

The current range is made up of three product families: coatings for internal applications and enamel paints, finishes to protect and decorate façades and external thermal insulation systems. The products are supported by a series of marketing tools, the primary being colour fans and cards that are regularly reviewed and updated according to the latest colour trends. In so doing, the ColorMap automatic colouring system also remains constantly updated and optimised to offer the best user experience to our customers. Tinting equipment has also evolved over the years and the systems currently used, with their modular and scalable offer, meet all the requirements in terms of volume and quality of service in the most well-equipped retailers.

Water-based paints for interiors

Mapei products for internal applications, the so-called water-based paints, recently underwent a radical overhaul which introduced a number of changes to the product range regarding their formats, packaging and the range of colours on offer. It was also decided to opt for recycled packaging, certified by the Italian Institute for the Promotion of Recycled Plastics (IPPR): all packaging now carries the "Plastica Seconda Vita" (Plastic Second Life) symbol to make the materials made from recycled plastic waste immediately recognisable, an approach recognised by Accredia, the Italian accreditation body. The new products added to the range are tied to two distinct market trends and comply with well-defined requirements of clients. On the one side, to meet the demand for products that contrast the formation of mould and, on the other side, to offer solutions for construction trends whereby drywall systems are playing an increasingly important role. The two products are admixed with a component that contrasts the formation of mould on walls, an increasingly common requirement in modern and renovated buildings with double-glazed windows. The particularly high efficiency of modern doors and windows in terms of airtightness reduces the amount of air exchanged with the outside and, as a result, there can be a build-up of water vapour inside homes, leading to the formation of mould on walls. Also, more and more people are spending more hours indoors due to a greater use of remote working and, as a result, there has been an increase in the formation of water vapour.

Mapei water-based paints were lately at the centre of a radical overhaul of their colours, formats and packaging

Coatings for exteriors

Products for external applications are the fulcrum of the Mapei portfolio and where the concept of product

The new EXtra Colour fan for exteriors contains 315 shades covering the entire colour range, with particular focus on the latest trends and elegant colour matches

cycle is best illustrated: out of the vast Mapei range aimed at the building sector, paint products for external use complete every existing cycle and have the capacity to overcome problems affecting façades and surfaces that need to withstand all weather conditions and types of use.
Apart from the aforementioned SILEXCOLOR, which is used for mineral coating cycles on both historic and modern buildings, the product range is completed with acrylic, acrylic-siloxane, pure siloxane, elastomeric, anti-carbonation and impregnating products. Each technology meets specific needs and guarantees the sustainability of an intervention, in that it remains highly durable over the years. The current range is complete not only from a technological perspective (protection for the structure), but also from an aesthetic perspective (decorating the structure), thanks to the variety of colours and textures available. As far as colour is concerned, a dedicated study has been carried out, resulting in the new EXtra Colour divided into 45 colour-coded groups each available in 7 shades, for a total of 315 proposals, specifically formulated to have exceptional durability and lightfastness on external surfaces and to optimise formulation costs. These 315 new shades cover the entire colour range, with particular focus on the latest trends and elegant colour matches. Not only colour, but also texture: Mapei products are available in several variants, from paints with a smooth finish to renders with a high build textured finish that guarantee a high level of protection for substrates.

Certified thermal insulation
The Mapei range is completed by a series of external thermal insulation systems on buildings, consisting of adhesive and skimming compounds, both cementitious and in paste form, and coating products that can be integrated with installation accessories (anchors, profiles, fastening elements) and various types of insulating panels.
Buildings (with their cooling and heating systems) are responsible for around 40% of CO_2 emissions into the environment. To reduce pollution and the dispersion of energy, it is crucial to intervene on a building's efficiency by installing the right kind of insulation system.
The most sustainable energy is the one that is not used and so, when a method is found to reduce a building's energy requirements, it not only drastically lowers the level of pollution in cities, but also reduces energy bills. And that is without considering that a well-insulated building also leads to improved living comfort and reduces the formation of mould inside homes. External thermal insulation is a crucial step, in that it means interventions may be carried out on existing buildings to increase their thermal efficiency quite significantly.
Mapei recently renewed all the ETA certificates covering its insulation systems, certificates issued by an independent body to guarantee perfect compatibility between the various components used in a system and, therefore, its durability over time.
Mapei, in line with its global sustainability strategy, is fully committed to contributing even more towards achieving the European objectives defined by the FIT for 55 package (at least 55% reduction in CO_2 emissions into the environment by 2050). And this is what is behind our effort to be an increasingly active member of European organisations that deal with the thermal insulation of buildings including the Italian association Cortexa of which I am the President for the three-year period 2023-2025.

Stefano Deri. Corporate Product Manager, Wall Coatings Line, Mapei Group

by **Marco Mazzetti**

Solutions in the name of sustainability

LOW ENVIRONMENTAL IMPACT, GOOD INDOOR AIR QUALITY, ATTENTION TO PACKAGING: AN ALL-ROUND APPROACH

By innovating its range of wall coatings, Mapei has paid particular attention to sustainability: quality paints that are durable, safe but with low environmental impacts and which guarantee good indoor air quality.
The environmental impacts are measured through the entire life cycle of products by LCA (Life Cycle Assessment) methodology and certified with EPDs (Environmental Product Declarations of type III in accordance with ISO 14025), anticipating the formal requirements of CAM (Minimum Environmental Standards) that are mandatory for building projects in the public sector in Italy. Indeed, the European Commission defined the Green Public Procurement or GPP to encourage Public Administrations integrate environmental criteria at all stages of the purchasing process, choosing solutions that have the least possible impact on the environment throughout the entire life cycle. Italy has been the first country in the European Union to make mandatory by law the CAM, enhancing the Environmental Approach on public buildings.
Mapei wall coatings can therefore be selected in Italy in public tenders precisely because of the contribution they make to the sustainability of an entire building project.
Furthermore, Mapei wall coatings are certified for low emissions of VOCs (Volatile Organic Compounds), so they protect the health of both installers and end users, guaranteeing good indoor air quality. Indeed, they comply with the limits set in French regulations (Logo Sanitaire) in force since 2012 for all products for interiors. Mapei paints are also free from heavy metals, thus guaranteeing maximum product quality, user health and environmental protection.
This means wall coatings have the characteristics required to guarantee with the utmost transparency that a given product has a high level of environmental sustainability.
Even the packaging has been optimised by incorporating over 30% recycled material. This type of packaging is in fact "Plastica Seconda Vita" (Plastic Second Life)-certified, an environmental certification system for products derived from the treatment of plastic waste recovered from differentiated waste collection and industrial waste. This system, launched by the Italian Institute for Promoting the Recycling of Plastics, was created with the aim of enhancing the quality of recycled plastic and guaranteeing the traceability of recycled materials, as stipulated in the technical standards the industry has been adopting for years, such as European standard EN 15343.
In addition to all this, Mapei also supplies EPS (expanded polystyrene) panels for thermal insulation systems containing more than 15% of recycled material and which, by promoting energy saving, contribute to the sustainability of buildings.
P.A.S.S (Profiles and Aspects of Sustainability in Synthesis) have been published on the Mapei website to help visitors select the right product with a view to environmental sustainability.
These documents (P.A.S.S.) offer rapid qualitative and quantitative information on all the eco-sustainable characteristics a product has and can, therefore, be a valuable aid in the conscientious purchase of the right product with a view to greater transparency and environmental protection.

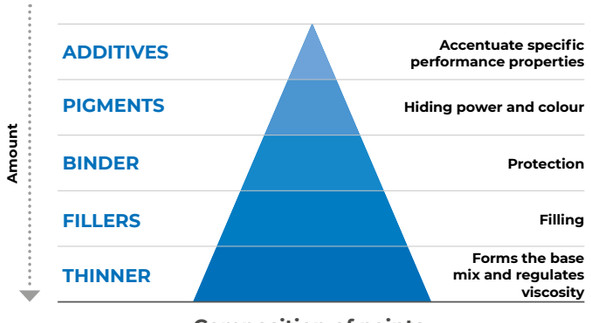
Marco Mazzetti. Corporate Environmental Sustainability Coordinator, Mapei Group

by **Alessandro Presotto**

This is how quality and long-lasting paints are developed

TESTING IN THE MAPEI LABORATORIES FOR INNOVATIVE SOLUTIONS IN LINE WITH NEW AND MORE RESTRICTIVE EUROPEAN REGULATIONS

The Research & Development Coating laboratory studies the formulation of products for the Wall Coatings Line. What are the most recent products developed that you consider the most technologically advanced?
Developing technologically advanced products is the very foundation of the philosophy of the Mapei Research and Development laboratories. This concept is applied to all the products we formulate, whether they are coatings for external surfaces or paints and enamels for painting internal surroundings.
For us, to have technically advanced products means providing distributors, painters and owners with cutting-edge products with certified performance properties and high durability to limit, as much as possible, the number of interventions required during the life cycle of our systems. For example, we have intermediate products such as MAPETHERM FLEX RP and all the textured coating products used in external thermal insulation systems from the QUARZOLITE, SILANCOLOR and ELASTOCOLOR lines containing lightweight, recycled raw materials or raw materials from renewable sources. Our coatings will focus increasingly on research into solutions that are innovative and eco-sustainable.



Composition of paints

The components used to formulate paints for the building sector may be divided into 5 large families

Following the same logic, we have extended the DURSILITE and MAPECOAT ACT range of coatings for internal applications by introducing DURSILITE IGEA, DURSILITE GYPSOS and MAPECOAT ACT MATT. The scope of extending the portfolio was also the occasion to optimise the formulations to bring them in line with new and more restrictive European regulations regarding the use of preservatives in both the product in the bucket and in the film on the wall after the product has been applied (resistance to mould). We have also worked hard to achieve Class A+, the highest classification possible for VOC emissions (Indoor Air Quality Emission), which certifies that Mapei coatings do not release harmful substances in rooms where they are applied. Technology, quality, and attention for mankind and the environment.

Pigments are fundamental in obtaining coloured paints. What is the Mapei approach and what instruments are available for developing colours?
The "beauty" of a coating and the structure on which it is applied lies in its colour. For years now, colour has become essential for Mapei in so many of its product lines, from coatings for façades and internal walls to industrial and sports floors, and from grouts for tile joints to decorative cementitious floors.
Pigments or their dispersions in various types of binder (colorants) are "responsible" for the colour of the finishing products. These components, however, have to be managed within the formula of a coating with great care: they have to be present in just the right amount to obtain the colour required, but without modifying the performance characteristics of the product; they have to guarantee the right hiding of the surfaces they are applied on, but must also remain unchanged over time and resist chemical and physical degradation caused by the sun and the surrounding environment.
All this is planned at the start of the R&D work. After creating the formula and designing the production process for the new product on an industrial scale, a colour-characterisation is carried out using an instrumental colorimetry software. It is then decided which pigments should be used and the amounts required according to the area of use of the coating, after which instrumental testing is performed on the colours to optimise the functionality of the new database.
To guarantee the durability of the colour, tests are then performed in the laboratory on a wide range of shades using our Weather-Ometer, an instrument that simulates and accelerates the ageing of coatings exposed in external surroundings. Once these activities have been completed, the colour-formula database of every COLORMAP tinting system is updated so that the new product can then be tinted automatically.
With this project completed our production facilities and customers from all around the world that use COLORMAP will be able to formulate any colour and can rest assured that, what they are supplying or applying is the result of the methodical and scrupulous work of the laboratory at the origin.

The inside chamber of the Wheather-Ometer, the instrument used to simulate accelerated ageing of Mapei products.

> **Pigments are the essential element for colouring coatings. Instrumental colorimetry software and the expert eye of a colour technician make all the difference**

A new colour fan of external paints is now available. What is the difference with the previous one?
The new EXtra colour collection is a portfolio of colours we developed and introduced to the market in 2022. The shades have been specially chosen for external applications, unlike the MASTER collection colour fan which includes both external colours and particularly bright, captivating colours for decorating internal walls. The EXtra colour fan contains 315 different shades to be in line with the current trend for decorating façades to satisfy the requirements of architects and designers. The wide spectrum of shades encloses pastel, medium and bright colours. The colour formulas are created using colorants with extremely high resistance to external conditions and are tested in a Weather-Ometer (the instrument used to simulate accelerated ageing of materials) to guarantee maximum durability. The formulations can even be mixed in small quantities to prepare colour samples of our paints and textured coatings to evaluate a shade on a true-to-life scale before applying it on a façade. The colour recipes have been developed by paying particular attention to their cost, which has always been a sensitive issue.

What does Mapei propose for the healthcare and food and beverages sectors, which have particularly severe standards?
For this type of use we have developed enamel wall paints of the MAPECOAT ACT line. The ACT (Advanced Coating Technology) line identifies highly advanced systems for protecting and decorating the surface of walls in general, but also for more critical contexts such as areas where food and beverages are processed or the medical and healthcare sector.
Both the Satin and Matt versions of MAPECOAT ACT comply with the requirements of HACCP protocols according to Italian standard UNI 11021 for use in the food and bevarages sector, and are tested according to ISO 22196, which determines the anti-bacterial activity of painting systems used in hospitals and healthcare settings. MAPECOAT ACT is a water-based acrylic product with high mechanical and chemical performance properties. It is resistant to detergents and disinfectants (EN ISO 2812-1), has very low dirt pick-up (UNI 10792), high cleanability, and high resistance to cleaning operations (class 1 according to EN ISO 11998), and is resistant to the growth of mould and fungi (EN 15457). It is classified as A+ as for its low VOC emission level. We decided to increase its performance properties to obtain anti-viral certification according to ISO 21702, which certifies a 99.9% reduction of viral load 24 hours after viruses come into contact with MAPECOAT ACT.
It is also very important to underline that Mapei uses independent laboratories to carry out all performance tests, thereby guaranteeing that the figures on the Technical Data Sheets of our products are also certified by independent test reports.

Alessandro Presotto. Coatings Line, R&D Group Leader, Mapei SpA

di **Stefano Mazzotti**

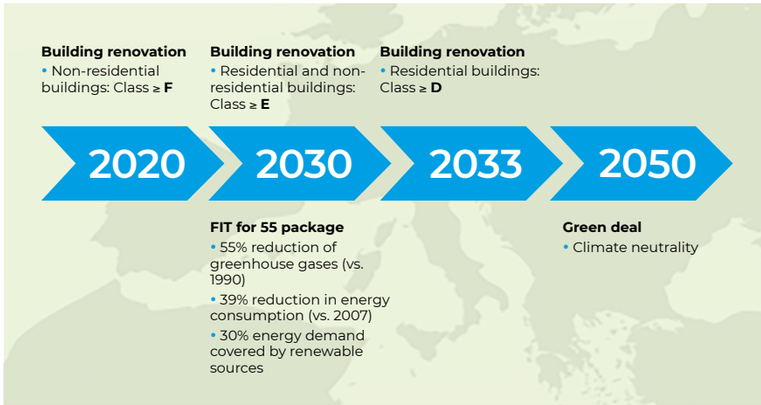
External thermal insulation: a driver for sustainability

MAPEI PROMOTES EXTERNAL THERMAL INSULATION SYSTEMS AS A FUNDAMENTAL VEHICLE TO ACHIEVE ENERGY OBJECTIVES SET BY THE EU

Member states of the European Union have defined climate agreements and objectives aimed at the development of a more competitive, safer and more sustainable energy management system.
The targets to be hit, laid down in the "Fit for 55" package, are decidedly ambitious (see the graph in the facing page).
Every member state of the EU will be able to deliberate and pass legislation autonomously in order to achieve these results, but it will be a legal obligation from which they cannot withdraw. Energy efficiency is, without question, in first place in the list of European Union policies.
In Italy, for instance, only 22% of buildings currently meet these requirements while, in Spain, only 1% out of a 25-27 million buildings are estimated to own an A- or B-class energy certification: interventions to improve energy efficiency, therefore, will concern a substantial number of buildings throughout of Europe. External thermal insulation systems will remain the technology driving the building industry.

The culture of external thermal insulation
Mapei promotes the philosophy of external thermal insulation systems as a fundamental vehicle to achieve the objectives that the European Union has set.
Besides supplying innovative systems, the company also organises training courses for technicians and installers according to current standards. Along with the quality of materials, correct installation is, in fact, the cornerstone that guarantees the performance and durability of an external thermal insulation system.

EUROPEAN UNION OBJECTIVES FOR ENERGY EFFICIENCY



Mapei is developing thermal insulation systems that can help simplify installation, improve mechanical performance properties and double old, existing systems

Research and technology at the service of sustainability
Mapei's attention to sustainability involves many areas and activities:
- guarantee of the durability over time of external thermal insulation systems using ETA-certified systems with CE marking. Only what is durable, or that maintains its properties over time, can be defined as sustainable;
- use of raw materials that are either recycled or have a low impact on the environment;
- development of adhesives/skimming products with low modulus of elasticity with adhesion strength at least four times higher than the minimum required according to standards, and with the ability to form a skim coat that is, at the same time, both plastic and monolithic to contrast stresses from the substrates without cracking;
- development of technologies that enable old external thermal insulation systems to be restored by carrying out a thorough analysis of the existing system by the company's specialised experts and the use of pluri-performing products such as MAPETHERM FLEX RP;
- development of MAPETHERM X2 SYSTEM, a system capable of doubling the existing thermal insulation systems, eliminating the work and cost of removing and disposing of the old materials. The system is also compact, has a guaranteed service life of 10 years, and uses a modern type of insulating panel made from either recycled raw materials or raw materials certified for the green building sector, thereby reducing the emission of climate-changing substances.
- development of highly water-repellent (class W3

MAPETHERM: DEVELOPMENT OF MORTARS

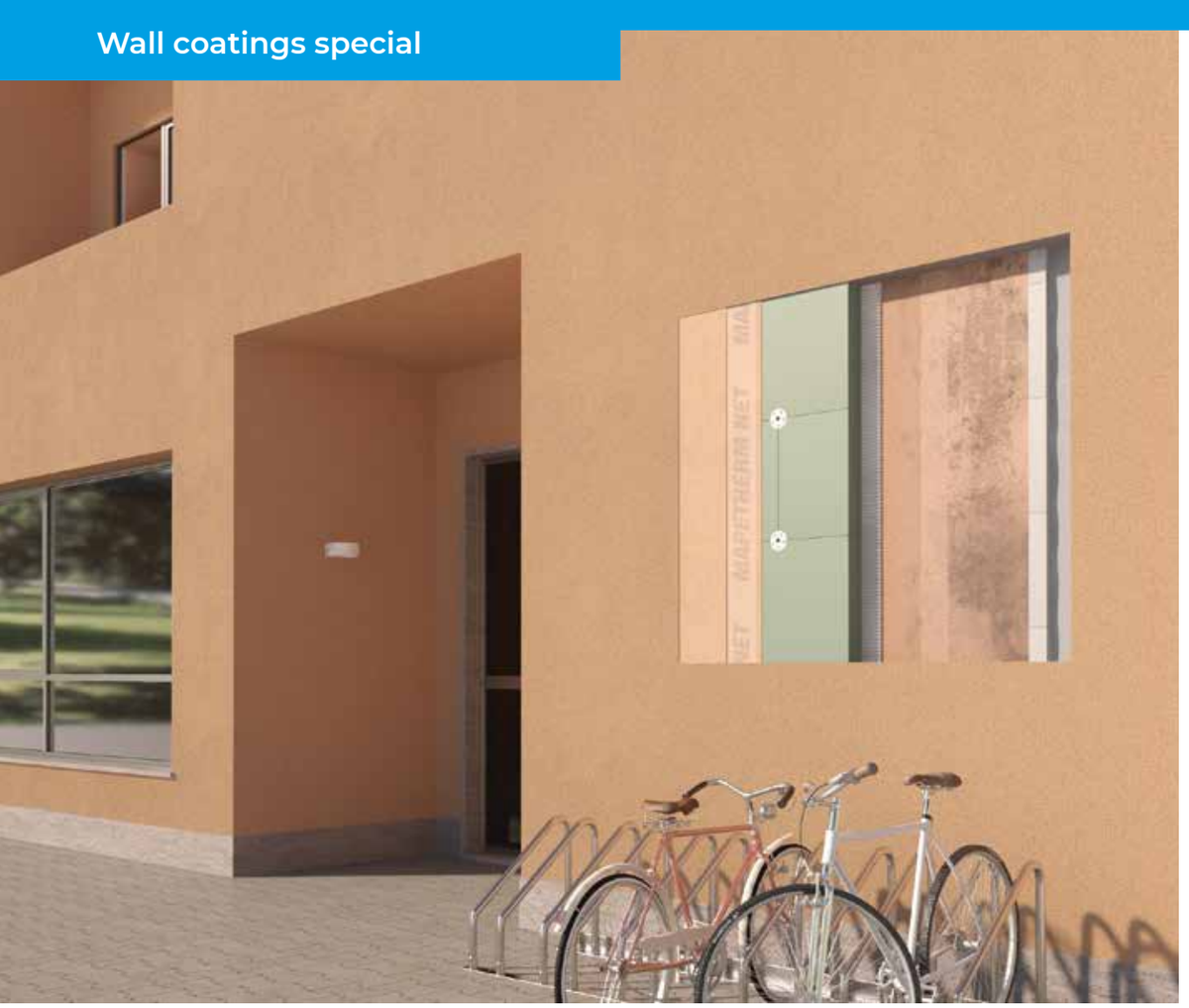
A RANGE OF APPLICATIONS BY DEVELOPING THE FUNCTIONALITY OF MORTARS USED IN EXTERNAL THERMAL INSULATION SYSTEMS

by **Stefano Carrà**

The MAPETHERM system is an example of the range of solutions available thanks to the technological synergies possible between the various products used in Mapei systems, and for which there is particular focus on their compatibility. A lot of emphasis is placed on studying and developing the functionality of mortars used for the external thermal insulation systems, as shown in the image on the right. We refer to the bonding layer, which acts as a connecting element between the insulating panel and substrate, and the render/skim coat layer, in which strengthening mesh is embedded to absorb surface tension and mechanical stress.

Layout of an external thermal insulation system showing all its compontents starting from the substrate: adhesive, insulating panel, fasteners, smoothing mortar with embedded reinforcing glass fibre mesh, base coat and finishing coat.

To identify the most appropriate formulas to perform these functions Mapei made full use of the experience of the cementitious adhesives laboratory within the Research & Development Centre in Milan, which has spent decades developing products for installing ceramic tiles and which, in this particular case, transferred its experience and knowledge to a different area of use and adapted them to suit a completely different type of application.
The primary objective was to identify a solution that would enable one single product to be used for both types of use: this is what "AR", or Adhesive-Render, stands for, a formula that has both properties when used as part of the system.
Below is a summary of the most significant characteristics for this type of product and the problems the Research & Development laboratory had to overcome when developing the formulation:
- the product must maintain its workability for a sufficient period of time for it to be applied;
- the capacity to adhere to a polystyrene panel;
- on the bonding side, the capacity to dry and set within an appropriate period of time;
- sufficiently thixotropic to enable the product to be applied in layers thick enough to compensate for irregularities in the masonry and, at the same time, without slumping when applied on the wall;
- good workability when used for skimming so that installers can work it with a trowel to obtain the finish required;
- good adhesion of the reinforcing mesh embedded in the skim coat;



The picture shows the layers making up the MAPETHERM X2 SYSTEM.

- the capacity to absorb impact loads on walls once set without breaking;
- the capacity to absorb stresses caused by temperature variations in the construction materials;
- the aggregate particles have to be of a size that ensures the skim coat has the required final texture.

The mortars from the MAPETHERM system are also available in a white version, for which strict controls of the raw materials are extremely important in order to achieve constant white index control during production.
Developing formulas with the characteristics mentioned above means identifying the most theoretically appropriate mixtures by using chemical additives and the raw materials – aggregates and cement – considered most suitable, and then testing them in the laboratory to verify these properties. And this is where the extensive experience of Mapei R&D laboratory comes into play: the development of products for installing ceramic tiles, research into rheological additives to improve workability and studying how these additives interact with cementitious binders, identifying polymers to enable better adhesion to insulating panels, and choosing the most suitable aggregates to obtain the textured finish required.
Then, during the verification phase, it is important to have test protocols and methods available to measure workability and thixotropy, particularly viscometers to carry out measurements and identify the amount of water required to give a mix the best consistency. Viscometry can also be combined with slip tests, with which it is possible to evaluate the slump of an adhesive mortar when applied on a wall at the maximum thickness permitted for its application.
It is also very important to correctly measure the adhesion capacity of the adhesive mortar to the insulating panels and of the skim coat to the mesh, for which the experience gained over the years in evaluating installation systems for ceramic tiles played an important role.
Last but not least are application tests, which are carried out to establish whether the evaluations performed under laboratory conditions really do correspond with the properties observed in similar conditions during on-site applications.
The capacity to absorb stresses induced by expansion from temperature variations is mainly a function of the mortar's modulus of elasticity: controlling and measuring this parameter when formulating the product is one of the main characteristics of renders in the MAPETHERM system.
The MAPETHERM products also carry CE marking in compliance with European standard EN 998-1, which defines the specifications for internal and external rendering mortars.
The characteristics and properties of a formula are established not only for laboratory prototypes; they are also used when defining specifications for production purposes and as a baseline to control consistency during production and, similarly, to control the raw materials.

Flexural strength test on a MAPETHERM product according to EN 998-1.

Stefano Carrà. Cementitious adhesives, R&D laboratories, Mapei SpA (Italy)

according to EN 1062-3), textured coatings resistant to colour degradation and highly efficient against the proliferation of mould and algae (effectiveness tested according to European standards EN 15457 and 15458). The thin coating applied to an external thermal insulation system, which is generally around just 1.2-1.5 mm thick, must guarantee a series of fundamental performance properties for the duration of the entire system. When drafting technical specifications, an expert should always specify the reference European standards regarding performance characteristics against mould and algae and low water absorbency (W3). The same can be said for installers who want to reduce risk for the business by using quality materials that guarantee the durability of their work;
- development of systems with high, certified mechanical characteristics with the capacity to withstand increasingly frequent hailstorms, or the creation of dedicated portions particularly exposed to impact (skirtings for walls in schools, loggias, etc.);
- certified products with EPDs (Environmental Product Declaration of type III, compliant with ISO 14025).

Mapei Research is also developing external thermal insulation systems that should simplify installation, improve their mechanical performance and double old, existing systems, even those with components in an objective, advanced state of degradation. New captivating, decorative effects with high aesthetic appeal for decorating external surfaces, including external thermal insulation systems, will also be launched on the market in the near future.

Structural strengthening and thermal efficiency
Mapei research has developed systems that enable structural strengthening work to be carried out – with FRCM (Fiber Reinforced Cementitious Matrix), CRM (Composite Reinforced Mortars) or FRP (Fiber Reinforced Polymers) systems – and to apply anti-collapse systems for walls and ceilings – the EQ system – together with solutions to improve thermal efficiency of buildings.

Stefano Mazzotti. Product Line Coordinator | ETICS, Mapei SpA

MAPEI WITH EAE AND ITS NATIONAL MEMBERS

National associations are active in many European countries, bringing together manufacturers and professionals specialised in external thermal insulation. They are part of the EAE, the European Association for External Thermal Insulation Composite Systems (ETICS) which, through numerous information projects and training initiatives, is spreading and sharing a culture of external thermal insulation and of quality building. Among them, Mapei SpA is member of Cortexa, the associative project founded in 2007 and the reference point in Italy for external thermal insulation systems. Other subsidiaries of the Mapei Group, such as Mapei Spain, Mapei Benelux and Mapei Polska are members of local counterparts of EAE, such as Anfapa (Spain), Xthermo.be (Belgium) and SSO (Poland).

Download the Mapei wall coatings and thermal insulation brochure

by **Alberto Balsamo**

This is how the external thermal insulation system withstands an earthquake

THE TEST CAMPAIGN, CARRIED OUT ON THE EXTERNAL SIDE ONLY, ANALYSED THE BEHAVIOUR OF THE MULTI-FLOOR FRAMES IN REINFORCED CONCRETE

The building sector is responsible for 40% of energy demand in the European Union and for 32% of global demand, contributing significantly to the emission of pollutants. This is why the European community *in primis*, and the Italian government, are promoting policies to redevelop and upgrade existing building stock with the aim of reducing energy consumption and, more generally, improving the energy and seismic performance of structures. Even though radical demolition and reconstruction work can appear to be feasible and could receive the financial backing required, it is not practical on a large scale because of the high direct costs, the amount of disruption this would cause for occupiers of the buildings (which would remain inaccessible for several months) and the impact the work would have on the environment. Upgrading/renovating existing buildings from an energy perspective is clearly a key strategy on the road to sustainable development. However, designing and carrying out interventions to improve energy efficiency in territories at high risk of seismic activity must always take into consideration an evaluation of the seismic performance of structural and non-structural components, and coherent actions must be taken to improve their performance whenever, as generally happens, they are required.
A test campaign lately carried out by the Faculty of Structural Engineering and Architecture of Federico II University of Naples analysed the behaviour of a multi-floor frame in reinforced concrete with non-structural infill brick wall to represent an existing building typical of Southern European building stock A thermal insulation system produced and distributed by Mapei was applied on the structure. The system was applied on the external side only to simulate the most common and least invasive type of application. The primary objective was to quantify how well the external thermal insulation system holds as the intensity of an earthquake increases, and also to assess the amount of damage to the insulation system, the infill wall and the structural system in general.
These activities were carried out as part of the consolidated working relationship established between Mapei S.p.A. and DiSt - Dipartimento di Strutture per l'Ingegneria e l'Architettura dell'Università degli Studi di Napoli-Federico II (Department of Structures for Engineering and Architecture of the Federico II University of Naples) into the research, development and validation of sustainable solutions for the building sector using innovative materials.

Test campaign: programme and method
Testing was carried out on two multi-floor, reinforced concrete with infill walls. The structural system was characterised by concrete with limited mechanical properties (fcm = 19-24 MPa) and steel reinforcement typically found in existing buildings designed at the end of the 1970's. The full-scale frame was a reproduction of a real building damaged during the earthquake that struck the city of L'Aquila (Central Italy) in 2009, with a 20 cm thick double-infill wall and a frame 6.3 m high by 4.1 m wide; the mechanical properties of the materials and construction details also reproduce those of the original building.
The experimental test campaign was carried out on two frames; one to reproduce the original *as-built* condition, and a second frame with a thermal insulation system applied on the external side only. The tests were carried out using two actuators with a capacity of 1200 kN connected to an opposing wall. The frame was connected to a horizontal contrast plate with a system of shear connectors embedded in the concrete and 16 prestressing bars. The normal load at the top of the pillars (N= 300 kN) was applied by jacks acting against a rigid steel girder anchored into the foundations with steel rods to allow for rotation along the plane of the frame. The loading protocol in terms of the amount of displacement imposed by the actuators on the two floors was defined and updated in real-time according to the stiffness of the frame by means of a pseudo-dynamic test framework. The assigned accelerometric input in this particular case (to simulate the L'Aquila earthquake in 2009, acceleration station AQG, PGA = 0.45g) was scaled for variable and increasing intensity, from a peak value of 10% PGA up to 150% PGA.

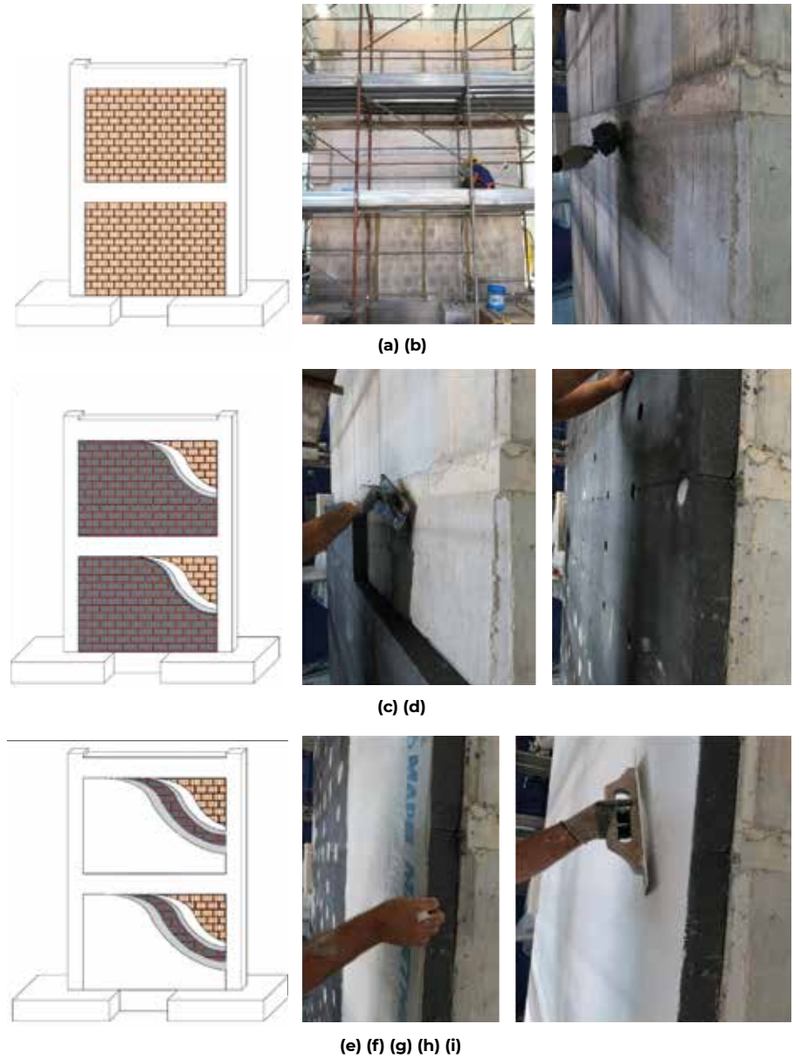


FIGURE 1. Installation phases of the external thermal insulation system: application of render and primer (a, b); installation of insulating panels with cementitious adhesive and fasteners (c, d); application of skim coat, glass fibre mesh and coating (e, f, g, h, i).

External thermal insulation system
The external thermal insulation system was applied on the whole of the external surface of the frame, forming a continuous cover over the infill-wall and reinforced concrete frame to eliminate any thermal bridges. The installation phases of the system (shown in Fig 1) are summarised below.

- **(a)** Application of INTOMAP FIBRO R2 cementitious base render on the wall;
- **(b)** Application of MALECH primer;
- **(c)** Application of MAPETHERM AR1 cementitious adhesive and installation of MAPETHERM EPS expanded polystyrene insulating panels;
- **(d)** Installation of MAPETHERM SYSTEM STR U 2G 155 mm fasteners;
- **(e)** Skim coat of MAPETHERM AR1 GG cementitious mortar;
- **(f)** Application of MAPETHERM NET glass fibre mesh;
- **(g)** Skim coat of MAPETHERM AR1 GG cementitious mortar;
- **(h)** Application of MALECH primer;
- **(i)** External finish of QUARZOLITE BASE COAT.

The pseudo-dynamic tests with increasing intensity on the frame with external thermal insulation showed that the insulation system had the capacity to withstand medium/high intensity earthquakes without sustaining significant damage

(a) (b) (c) (d)

FIGURE 2. Evidence of the damage following testing at 175% of the seismic intensity in L'Aquila in 2009 (PGA = 0.45g): level of damage on the external side (a); damage to the external side with visible horizontal cracks in correspondence with the intrados of the beam at ground-floor level (b); crushing of the first course of bricks at the attachment point with the intrados of the beam at ground-floor level (c); first sign of shear cracks in the lower beam due to the thrust effect of the infill-wall (d).

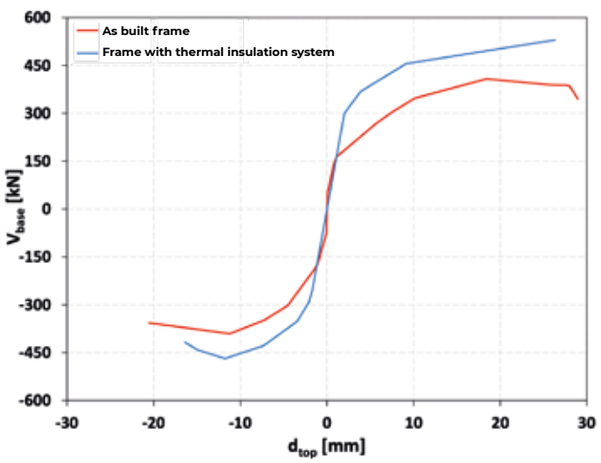


FIGURE 3. Comparison between the shear envelopes for the "as-built" frame (red line) and the frame with external thermal insulation (blue line) – displacement at the top.

Seismic performance analysis

The pseudo-dynamic tests with increasing intensity on the frame with external thermal insulation showed that the insulation system had the capacity to withstand medium/high intensity earthquakes without sustaining significant damage. The tests showed that the first cracks in the wall (with detachment of the infill-wall at the beam connection point) occurred at 50% of the reference seismic intensity (L'Aquila earthquake in 2009, PGA = 0.45g), similarly to what occurred in the as-built case.
In the successive test phases, as seismic intensity increased, the test piece with the external thermal insulation sustained less evident damage compared with the as-built version; this was due to the effect of the glass fibre mesh used for bonding and the skim coat on the insulation system. At a high rate of seismic intensity, from 125% of that of the earthquake in L'Aquila, a loss of adherence was observed between the insulation system and the wall. During the successive test phases, at 150% and 175% of the seismic intensity of the L'Aquila earthquake, the first sign of damage was observed to the insulation system at the beam-wall attachment point at first-floor level (Fig 2. a, b) and significant damage to the wall (Fig. 2c), with evident diagonal cracks and crushing of the courses of bricks in contact with the beam at both levels. Shear cracking was also observed in the pillar at ground-floor level due to interaction with the wall (Fig. 2d). The presence of shear cracking in the pillar underlines the benefits of an integrated approach when upgrading structures by combining an external thermal insulation system with a composite strengthening system at the end of pillars and at beam-pillar joints to guarantee good seismic performance.
A comparison of the cyclic hysteresis envelopes (Fig. 3.) illustrates how the thermal insulation system, even though it has little incidence on initial stiffness (detachment of the wall from the frame at the same intensity as the as-built version), thanks to the effect of the high performance mortar used to bond the insulation, contributed in increasing the post-cracking resistance and stiffness of the infill-wall and, as a result, the seismic capacity of the frame. Only following the test performed to simulate an earthquake 175% of the seismic intensity of L'Aquila in 2009 was significant reduction in strength observed, in a negative load direction. In fact, the marked cracking in the wall in this phase led to losing the contribution of the insulation system and, therefore, resistance tends to be more similar to the as-built system.

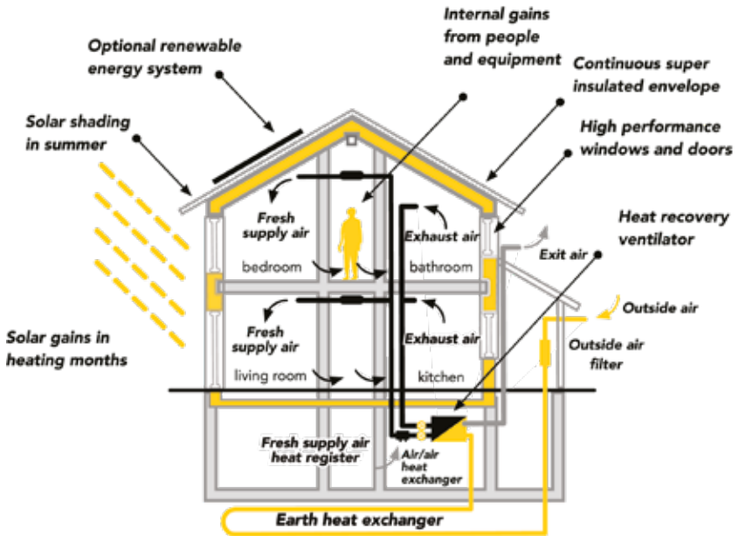
Prof. Eng. Alberto Balsamo. Department of Structures for Engineering and Architecture, Federico II University of Naples (Italy). Marco Di Ludovico (Federico II University of Naples), Ciro Del Vecchio and Andrea Prota (Sannio University of Benevento) also helped writing this article, together with Giulio Morandini, Mapei Group's Corporate Product Manager, Structural Strengthening Line.

by **Péter Rezsnyák**

Passive houses: a way to save energy

THERMAL INSULATION IS A SUSTAINABLE SOLUTION FOR THE HOME OF THE FUTURE AS PÉTER REZSNYÁK EXPLAINS IN THIS INTERVIEW

How did the request of passive houses and your work evolve in the last few years?
We have always had a steady flow of orders, thanks to the fact that our portfolio includes passive and low-energy houses. More and more people are realizing that they don't want to waste energy, and builders are starting to think long-term. As a result, the number of new passive houses is increasing. This is also helped by the fact that building materials that are very much inevitable in passive house construction (such as triple glazed windows and panels made of expanded polystyrene with added graphite), have become mass-produced, available products on the market.



Simplified diagram of a passive house.

So why aren't all houses being built passive houses?
Because it makes a big difference how this affordable but high-quality product is built in, how it is used, and what kind of thinking goes into its use. So, for example, if you continue to install a triple glazed window with a warm edge along the same lines as the existing one, it will not have the desired effect.
It's not just a matter of how expensive a product is, or how easy or difficult it is to obtain. Insulation materials, which have been stagnant for a long time, have recently seen a surge in prices, but we can, by thinking through the options, create buildings that require less heating energy.

How can you ensure good energy performance in a passive house? Is that achieved through thermal insulation?
Insulation alone does not give a house its good energy performance. It is necessary, but it is also necessary to design a building as a whole and to create passive energy use along this line. That is why we can make it possible for a 120 m² house, for example, to avoid the need for a large central boiler and to be cooled by a refrigeration-heating air-conditioning system. To do this, you need to change your way of thinking. I used to think that I knew a lot about insulation, thermal engineering and energy, but I just didn't understand the basics. So, I went to a course on passive houses, and I learned that this is the essence of building science. The key is that this knowledge is rooted in the past. Hundreds of years ago, a farmhouse was shaded by a porch so that the summer sun would not reach the window, but the winter sun would shine through and heat the building. The attic was used to store crops in winter, and this provided a thick layer of insulation. In old houses, the chimney also provided ventilation. Today, by applying these principles to new technologies, we can create something orders of magnitude better. The sun shines into the house in winter, it makes the interiors warm and we can enjoy the sunshine inside, simply because the building is oriented in the right direction. We must be very careful and use new technologies in the right way, because you can make big mistakes.

How does thermal insulation contribute to building passive houses?
Good insulation helps preventing thermal bridges and energy waste. What makes a house energy efficient? It certainly depends a lot on the design of the structure and its architectural forms. I once inspected a street where a passive house was being built. I started by carefully inspecting another building in the same street. I examined the roofing and could see the snow melting off the tiles on one of the still snow-covered roofs, just above the gable wall. This was due to the bridge that had been formed there. When inspecting the other roof section, the snow had melted, but again above the gable wall, the otherwise wet roof was dry. After a three-minute inspection, this was the second thermal bridge discovered on the house. Many small thermal bridges mean many small energy losses, which are not so small after all. Architects should design the houses with the aim of avoiding thermal bridges.
I am always looking for solutions to people's new needs, while trying to fit in with nature's needs. I used to be convinced that 20 cm of insulation was enough, and that it was not economical to put more on. However, if you are open-minded, you do not just look at this single factor, but at the overall needs of the building and its occupants. Not so long ago I checked a renovation project where it was considered to add insulation on top of the existing insulation, and so the total insulation thickness became 30 cm. The contractor, who is an excellent professional, found this solution unnecessary. On the afternoon of the same day, I heard on the radio what a price explosion had taken place on the energy market. I knew from that moment how important it was going to be for the residents that this decision was taken. And indeed, the cost of maintaining their house has barely risen despite the price increases. But it should be noted that insulation only works well as part of a complete system. As well as insulating a home from its surroundings, other things need to be ensured, such as fresh air, dust-free, proper orientation or shading.

> **MAPETHERM SYSTEM helps preventing thermal bridges and energy waste**

When building passive houses, do you use the MAPETHERM SYSTEM for façade insulation?
Of course, we use Mapei solutions including the MAPETHERM SYSTEM, because the Mapei products are of excellent quality. We particularly like the adhesives because they dry faster and cure completely even when it is cold. Mapei products do not only meet the minimum quality standards, but combine together into systems, going above and beyond the stated standard to help us get the job done.

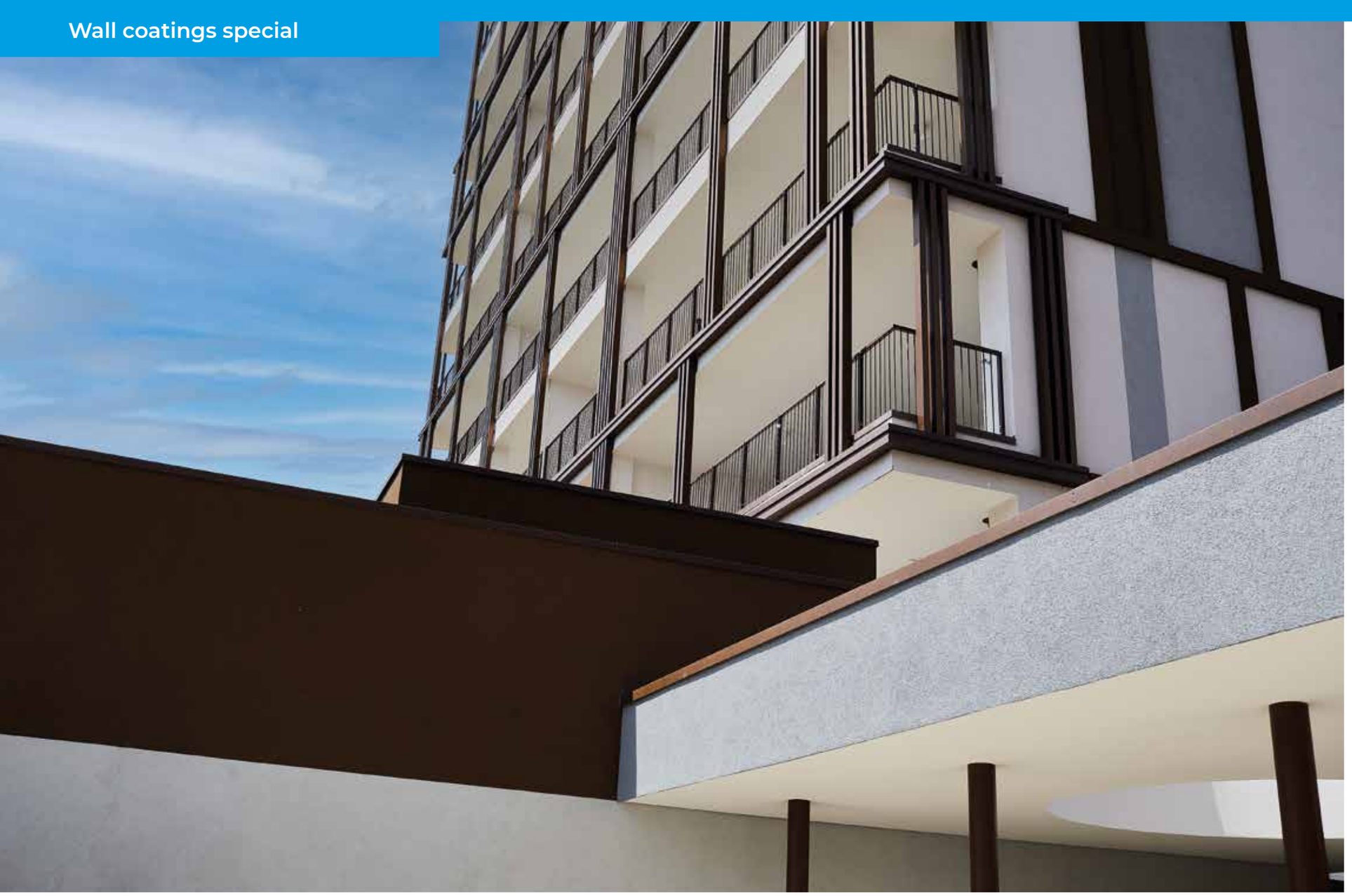
Do you often ask Mapei staff for professional advice?
Of course. That's one of the biggest helps, that we always get answers and solutions to all our professional questions within one to three days. We can always rely on Mapei's helpfulness and flexibility. And what is particularly important to us is that if we have a specific question concerning architecture, Mapei can find a solution for us.

PASSIVE HOUSES

A home is classed as 'passive' if it does not require a proper heating/air-conditioning system to maintain comfortable indoor conditions. A passive home can maintain a comfortable temperature with minimal energy input and also keep indoor humidity under control, thanks to five basic features:

- Excellent thermal insulation
- High-performance windows that do not let out heat
- Excellent air tightness
- Elimination or minimisation of thermal bridges
- Ventilation system with heat recovery
- Generation of the energy required to operate any systems and appliances with the help of photovoltaic systems and/or solar panels.

Péter Rezsnyák. Former contractor and consultant for passive houses construction, Hungary



Milan (Italy)

Trilogy Towers

AN IMPORTANT RESIDENTIAL REDEVELOPMENT PROJECT CHARACTERISED BY HIGH ENERGY PERFORMANCE AND ATTENTION TO THE WELLBEING OF ITS RESIDENTS

The Trilogy Tower complex in North-West Milan, and more precisely in the Portello-Certosa district, is part of an important urban redevelopment project. The complex is made up of three buildings of different heights – Gold Tower with 11 storeys, Diamond Tower with 18 storeys and Platinum Tower with 11 storeys – with a total of 101 apartments extending over an area of 8,000 m² and is located along the so-called "road to Portello", a road connecting Milan to the town of Rho. The former Alfa Romeo Portello car manufacturing plant was also located around this area.
The project, part of an ambitious urban regeneration plan for an area previously occupied by abandoned industrial buildings, was launched in 2001 with the construction of the City Life and Portello districts. The project is a contribution to the creation of a new residential zone and almost 5,000 m² of gardens.

by **Daniele Mattu**

TEXTURE AND COLOUR FOR URBAN REDEVELOPMENT

GOLD, DIAMOND AND PLATINUM: DIFFERENT FINISHES AND TEXTURES TO GIVE EACH TOWER ITS OWN "LOOK"

The Trilogy Towers project represented a challenge: in fact, it had to act as mediator and a fulcrum between the consolidated urban fabric behind the complex and another context, more sporadic and fragmentary, represented by the former national shooting range opposite the buildings.
We welcomed this challenge, broadening the project so that it could also be used by the public and by those who live in the area, by creating a piazza that would mediate between the private space of its future residents and the more public space of those, on the other hand, who just happen to be passing along the road. It becomes a kind of junction, a genuine urban piazza, usable also by those who reside around this new project. The result is made up of three towers of called Gold, Platinum and Diamond, respectively, with different architectural characteristics and, therefore, different treatments on their façades, but always forming a continuum.
For the Diamond Tower we worked from a sculptural perspective, so with splays and movements in the façades that go deep, and with different render treatments. For the Platinum Tower we opted for an extrusion approach, with pilaster strips on the façade and changes in colour with horizontal and vertical partitions.
We worked on the Gold Tower with alternations on a chromatic level, but not only: again, on the fronts of the loggias, these alternations are given by brise-soleil that can change position according to the movement of the sun.
Mapei had a really important role because they helped us carry out this project, especially regarding the different textures we wanted to use: they assisted us and provided coating products in the different grain sizes required.

Daniele Mattu. Studio GA & Partners

SILANCOLOR PAINT PLUS siloxane paint was applied on the façades that required a fine textured coating. SILANCOLOR TONACHINO 2.0 mm, on the other hand, was used where a medium or coarser textured finish was required.

From the very start, when designing the new towers, the owner focused on combining architectural quality with outstanding energy performance. In fact, the complex is characterised by high-performance thermal insulation, the use of heat pumps and automatic ventilation systems powered by renewable energy, as well as a system to collect rainwater which is then used to irrigate the communal gardens. The three towers also have various communal spaces, such as a children's play area, a fitness room, multi-purpose spaces and areas where parcels are delivered and collected.

Thermal insulation was the starting point

One of the overriding themes in the construction of the towers was energy performance which, as far as the façades are concerned, is guaranteed by an excellent thermal insulation system. For the insulation system the main contractor contacted the Mapei Technical Services team which proposed installing MAPETHERM SYSTEM, an external thermal insulation system specially developed and tested by Mapei.

This system ensures external façades are well insulated to obtain a high level of energy efficiency, indispensable in achieving a good level of living comfort and excellent thermal insulation throughout the year. Once the substrate was cured, the insulation boards were installed, with different thicknesses used for technical and aesthetic reasons. The boards were bonded in place with MAPETHERM AR 1 GG one-component, coarse-textured cementitious mortar. The boards were positioned on the substrate by staggering them at the midpoint of their longest side, carefully butting them together without leaving any gaps and then pressing them down firmly so that the adhesive would be distributed more evenly.

The insulation boards were also fixed mechanically using special anchors for insulation systems, compliant with ETAG 014 guidelines, at a rate of 6 per m² in correspondence with the adhesive. PVC corner profiles with mesh were applied to reinforce corners and edges, while PVC corner profiles with mesh and drip edges were applied along the top of the doors and windows, the front edges of the balconies and along the edges formed between the surface of the façades and horizontal surfaces to allow rainwater to drain off more efficiently. For the door and window openings, on the other hand, extra strengthening was added consisting of pieces of mesh applied diagonally to the openings to prevent the formation of cracks around the corners.

The façades were then skimmed with two even layers of MAPETHERM AR1 GG for a total thickness of around 4 to 5 mm, with MAPETHERM NET glass fibre mesh, treated with special alkali-resistant coating, embedded between the two layers while still fresh.

Skimming and coating

Once the skim coat was cured, two types of coatings were applied. Where a fine-textured finish was necessary and required, the surfaces were treated with MAPETHERM FLEX RP cement-free, lightweight elastic skimming paste which has a grain size of 0.5 mm and is resistant to mould and algae. It was followed by the application of SILANCOLOR PAINT PLUS, a water-repellent, breathable siloxane-based paint resistant to mould and algae for internal and external use.

For areas with a medium and coarse-textured finish, the surface was prepared and protected with pigmented SILANCOLOR BASE COAT PLUS, a siloxane-based, water-repellent undercoat resistant to mould and algae, followed by the application of SILANCOLOR TONACHINO 2.0 mm, a water-repellent, highly breathable siloxane coating for internal and external use.

PROJECT INFORMATION
Trilogy Towers, Milan (Italy)
Period of construction: 2021-2023
Period of the intervention: 2022-2023
Intervention by Mapei: supplying products for insulating façades, skimming and coating external surfaces
Design: Stefano Bollani
Executive project development and Director of Works: : BAEC
Artistic director: Massimo Marzorati and Daniele Mattu, Studio GA & Partners
Owner: Trilogy Towers S.r.l. - AbitareIn S.p.A.
Main contractor: Ediltecno Restauri
Mapei coordinators: Vincenzo Minardi (An. pe.r Trading Srl), Fabio Bergamaschi, Francesco Falciani (Mapei SpA)

MAPEI PRODUCTS
Thermal insulation:
Mapetherm AR 1 GG, Mapetherm Net
Skimming and coating:
Mapetherm Flex RP, Silancolor Base Coat Plus, Silancolor Paint Plus, Silancolor Tonachino
mapei.com

Find out more
SILANCOLOR PAINT PLUS

THERMAL INSULATION AND CHROMATIC EFFECTS AT HIGH LEVELS

by **Fabio Bergamaschi**

MAPEI SYSTEMS GUARANTEED THERMAL PERFORMANCE AND ENHANCED THE VOLUMES WITH COLOUR

The Trilogy Towers combine architectural quality and excellent energy efficiency: in what way did Mapei contribute to this project?

We should start by saying that Mapei has a specific line dedicated to products for thermal insulation. And here, in particular, we followed the client in the design and supply of materials that enabled an energy rating of A to be awarded.

In this specific case the MAPETHERM EPS SYSTEM for external thermal insulation was used, integrated with expanded polystyrene boards containing graphite and featuring high insulating properties.

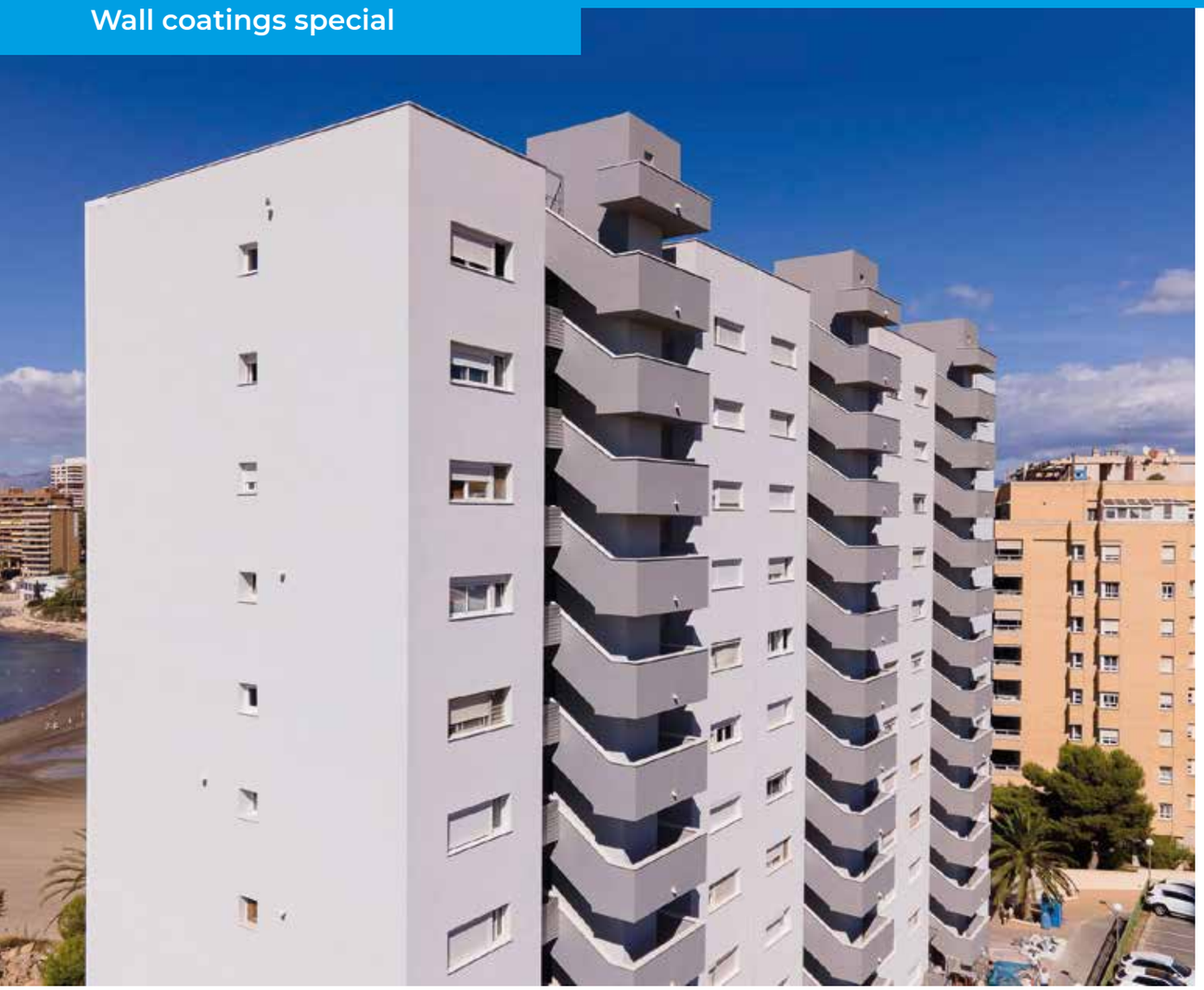
What were the critical points of this project and what decisions did you have to take?

We were faced with at least two critical points with this project, for which specific products were required: their sheer height – the towers are, respectively, 11, 15 and 18 storeys high – and the essential architectural lines of the buildings, with no protrusions such as balconies or eave overhangs. These conditions lead to a high level of exposure to atmospheric conditions such as wind, which meant we had to increase the number of anchors per square metre in correspondence with the corners of the buildings, and rain, which meant we needed to use a coating product with high water repellence.

What type of coatings did you use, and why?

On the façades we applied SILANCOLOR TONACHINO, which combine qualities such as water repellence and permeability to water vapour. These characteristics are necessary to provide effective, long-lasting protection to façades that are particularly exposed. Also, thanks to the variety of colours and textures we have available, we contributed by enhancing the volumes of the buildings even more and defining the chromatic design.

Fabio Bergamaschi. Wall Coating Line, Mapei SpA



ABOVE. The Santa Barbara residential complex is located in an elegant area of Alicante close to the seafront.

Alicante (Spain)

Santa Barbara residential complex

A COMPLETE SYSTEM TO THERMALLY INSULATE AND PROTECT THE FAÇADES OF AN IMPOSING BUILDING IN THIS SPANISH CITY

The Santa Barbara complex is located in a residential area of Alicante overlooking the sea.
Apart from being just a short distance from renowned beaches such as Cala Almadraba, residents have access to a large carpark, a swimming pool and fantastic views. An ideal solution for both the residents of Alicante and short-stay tourists who, with just a short drive, can reach the city centre, the Archaeology Museum, the Museum of Contemporary Art and the Santa Pola Marine Research Centre.
The complex is made up of four adjacent parallelepiped volumes with façades interrupted by balconies and staircases creating a playful series of recessed and overhanging features.
The façades of the complex were a major part of recent renovation and remodelling work, with Ara Arquitectura designing the new look and Akra Rehabilitacion, a company specialised in restoration and renovation projects, carrying out the actual work, opting for a specific Mapei external thermal insulation system and wall coatings for the façades.

Insulation, colour, and protection for the façades
After removing the existing coatings by hammering, a new layer of base render made from INTOMAP R1 and INTOMAP R2 based on air lime and hydraulic binders was applied on all the surfaces of the façades, stairwells and ceilings.

THE VALUE OF TEAMWORK AND QUALITY MATERIALS

by **Liliana Carrillo**

LILIANA CARRILLO, CEO OF AKRA REHABILITACION S.L, TALKS ABOUT THE CHALLENGES AND STRENGTHS OF THE RENOVATION PROJECT

The redevelopment of the Santa Barbara housing complex was a long and laborious task. What problems did you have to deal with when working on this kind of building project?
Despite the scale of the project and the wide range of operations carried out, work was carried out without any particular issues since we could count on state-of-the-art solutions, the professionalism of all those involved in the project, and excellent team spirit. In fact, the trickiest part was coordinating the operations, which had to take into account neighbouring buildings and other work going on in the vicinity and, in particular, work carried out by the telecommunications company to replace all the installations.

Building work involved the use of a complete cycle to thermally insulate the façades. What specific demands were made by the architect and client?
The thermal insulation system had to be upgraded because the old one was no longer up to standard. In addition, water had to be prevented from damaging the masonry in the long term.. The system supplied by Mapei meant we could meet the client's requirements.

Proper thermal insulation requires custom methods and materials. Why did you decide to opt for Mapei products?
Because for a long time now Mapei has been a reputable manufacturer of high-quality building materials. We have been working with Mapei for over ten years and have developed very close ties with its agents and technicians, whom we now consider as "teammates" providing each other with support and encouragement as we go about our daily work.

Why did you choose a mould resistant acrylic-siloxane coating?
This type of coating was included in the project specifications. Indeed, an acrylic- siloxane coating such as SILANCOLOR AC TONACHINO PLUS offers numerous benefits and 'guarantees', such as long-lasting protection against aggressive environmental agents and a pleasant aesthetic finish. Moreover, it is particularly suitable for decorating and protecting buildings located in areas with particularly humid environments conducive to mould and algae spread.

Liliana Carrillo. CEO; Akra Rehabilitacion S.L (Spain)

ABOVE. The renovation work included the installation of external thermal insulation consisting of insulating panels, MAPETHERM NET glass fibre mesh and MAPETHERM AR1 GG mortar. The following coating cycle included SILANCOLOR BASE COAT and SILANCOLOR AC TONACHINO PLUS.

An external thermal insulation system was then installed by applying insulating panels bonded with MAPETHERM AR1 GG adhesive, with the same product used again in combination with MAPETHERM NET glass fibre mesh to create a reinforced skim coat.
The final coating cycle was applied once the substrates were fully cured, consisting of an undercoat of siloxane-based SILANCOLOR BASE COAT followed by a layer of SILANCOLOR AC TONACHINO PLUS, a water-repellent, acrylic-siloxane textured coating resistant to mould and algae. This cycle is particularly recommended for decorating and protecting buildings exposed to aggressive biological agents and buildings located in areas exposed to direct sunlight.

Other interventions
The renovation work on the complex also included other works, such as a new waterproofing system for the substrates of the balconies, terraces and planters by applying MAPELASTIC FOUNDATION two-component, flexible cementitious mortar, and the installation of ceramic tiles on the staircases using ADESILEX P9 non-slip cementitious adhesive with extended open time.
So, a variety of solutions were adopted to guarantee long-lasting durability for the various types of surfaces and contributing to the striking aesthetics of the Santa Barbara complex's silhouette on the Alicante skyline.

Find out more MAPETHERM AR1 GG

Watch the video of the project

PROJECT INFORMATION
Santa Barbara residential complex, Alicante (Spain)
Period of construction: 1965
Owner: Edificio Santa Barbara
Period of the Mapei intervention: 2020-2021
Mapei intervention: supplying products to restore masonry, ensure thermal insulation, paint and protect façades, waterproofing substrates and installing ceramic tiles
Design: Ara Arquitectura
Main contractor: Akra Rehabilitacion S.L.
Works Director: Teofilo Perez Carda
Mapei coordinators: Antoni Guil, Beatriz Pozo, Alfonso Carrasco, Mapei Spain

MAPEI PRODUCTS
Masonry restoration: Intomap R1, Intomap R2
Thermal insulation: Mapetherm AR 1 GG, Mapetherm Net
Wall coatings: Silancolor Base Coat, Silancolor AC Tonachino Plus
Waterproofing for terraces and balconies: Mapelastic Foundation
Installation of ceramic tiles on staircases: Adesilex P9

For further information on products, please visit mapei.com and mapei.es

Cogoleto (Province of Genoa, Italy)

Sant'Anna residential complex

REINFORCED SKIM COAT AND SILOXANE COATINGS FOR THE FAÇADES OF A LIGURIAN VILLAGE THAT RECALL TRADITIONAL ARCHITECTURAL STRUCTURES AND COLOURS

Built in 2005, the Sant'Anna residential complex is located in the village of Lerca in the municipality of Cogoleto, a town on the Ligurian coast near Genoa (Northern Italy). The structure was designed by the architect Marco Zanuso and harks back to the traditional villages of Liguria, creating harmony with the surrounding environment by selecting elements typical of the lines and colours of the local architecture. The use of traditional materials, such as slate for the roofs and opus signum (lime and brick dust) plaster, harmonises the living spaces with their surroundings. The load-bearing structures of the buildings are mainly made of reinforced concrete while the walls are brick-built.
Renovation work commenced on the front of the buildings in 2019, which had begun to show signs of degradation thanks also to the lack of an adequate protective coating on the surfaces. The renovation work included a complete overhaul of the façades.

RIGHT. After applying SILANCOLOR BASE COAT water-repellent, siloxane undercoat to even out the façades, work was completed by using SILANCOLOR TONACHINO PLUS to create a water-repellent, mould and algae resistant siloxane render.

Substrate preparation
The first checks were carried out on the waterproofing properties of all the elements subject to infiltrations of water, as well as of the pavements and walls in contact with the ground. The extent of cracking and degradation of the plaster was also carefully checked. All the features and elements passing through the masonry were also inspected to check whether they were sealed correctly, such as the downpipe drains, external awnings and the support feet for the railings: all critical points that can lead to infiltrations of water and premature degradation of substrates.

Restoring the façades
It was recommended to treat the surfaces of the buildings deteriorated by mould and algae with SILANCOLOR CLEANER PLUS hygienising treatment in watery solution, an anti-alga and anti-mould product which was applied several times to allow it to penetrate as deep as possible and left to react for at least 24 hours.
Any areas of plaster that looked to be degraded or were found to be poorly bonded to the substrate were removed mechanically. The next step was to clean the substrate to remove any dust and dirt that could affect adhesion of the products to be applied later.
After the restoration of the removed portions of plasters and the levelling of the surfaces, the substrates were allowed to completely cure before applying a skim coat of MAPETHERM AR1 LIGHT one-component, lightweight cementitious mortar. This mortar, which has a thixotropic consistency and high mechanical resistance, may be applied on vertical surfaces without slumping and adheres perfectly to all types of insulating panels if used as part of an external thermal insulating system. In this case, MAPETHERM AR1 LIGHT was used to create a reinforced skim coat.
After applying an even layer of mortar on the surfaces (around 22,000 m²), MAPENET 150 alkali-resistant glass fibre mesh was embedded in the mortar while still fresh, with overlaps of at least 10 cm between the adjacent sheets of mesh. After around 12-24 hours a second skim coat layer was applied to form a compact, even surface suitable for the application of the final coating.

Coloured protective coatings
Once the substrates had fully cured, the SILANCOLOR system was recommended to finish off the surfaces.
After applying SILANCOLOR BASE COAT water-repellent, siloxane undercoat and base filler to even out the surface, work was completed by using SILANCOLOR TONACHINO PLUS, a water-repellent, mould and algae resistant siloxane render. Available in various grain sizes, it combines the benefits of mineral coatings, such as water resistance and breathability, with those of synthetic coatings, such as an even colour, excellent bond to old paintwork and an extensive choice of colour shades, very important in interventions such as the one described in this article. Unlike conventional synthetic coating products, it does not create an impermeable layer but forms a "micro-perforated" film with such a narrow mesh that it does not allow water to enter but allows water vapour to pass through. This helps guaranteeing the durability of the intervention.

Find out more
SILANCOLOR TONACHINO PLUS

PROJECT INFORMATION
Sant'Anna residential complex, Cogoleto (Province of Genoa, Italy)
Year of construction: 2005
Period of the intervention: 2019-2021
Intervention by Mapei: supplying products for reinforced skim coat and wall protective finish
Project: Cristiano Petrucci
Main contractor: Edilservizi
Mapei distributor: CENTROFINITURE di Ferrando
Mapei coordinators: Giancarlo Foresi and Fabrizio Calò, Mapei SpA (Italy)

MAPEI PRODUCTS
Reinforced skim coat: Mapenet 150, Mapetherm AR1 Light
Protective coatings: Silancolor Base Coat, Silancolor Tonachino Plus

For further information on products, please visit mapei.com

Zierikzee (The Netherlands)

Zeeland bridge

A MONITORING PROGRAMME HAS ENABLED THE HISTORY OF THIS ICONIC BRIDGE IN HOLLAND TO BE "EXTENDED"

by **Gino Kuijpers**

Zeeland Bridge is an imposing concrete bridge in the south-western part of Holland. It is supported by 54 upside-down, V-shaped pillars sitting on bases in reinforced concrete. The bridge has 52 spans, each one 95 m wide, as well as a mobile section 40 m long, and its two carriageways and cycle lane are suspended above the water.

It was built between 1962 and 1965 thanks to a decision of the Zeeland Provincial Government and, in 2015, it was declared a site of national interest by the Netherlands National Cultural Heritage Agency. The bridge has undergone maintenance work several times since 2000, with the most recent work carried out between 2017 and 2018.

Mapei and Bjond: working together for a durable finish

During this intervention, which is described in edition No. 72 of *Realtà Mapei International*, several Mapei products were employed to restore the damaged concrete, such as MAPEFER 1K anti-corrosion cementitious mortar to protect steel reinforcement and MAPEGROUT T60 mortar to repair degraded concrete structures.

It was also important to make sure the surfaces of the bridge were well protected, by creating a finish with the capacity to resist the penetration of salts from the seawater (chlorides) and oxygen and carbon dioxide present in the surrounding air, elements that could otherwise trigger carbonation and corrosion of the steel reinforcement (including pre-stressed steel) in the underlying layers of concrete.

The final coating also had to provide sufficient protection against the effects of UV rays and mechanical impact from floating timber on the lower part of the pillars which, in certain periods of the year, can be quite severe at high tide.

In 2016 Bjond Innovation (an engineering company specialised in the restoration of degraded structures) was commissioned by the Zeeland Provincial Government to analyse the bridge and to monitor its state of conservation, especially with regards to the existing finish. Once the analysis had been completed, a maintenance plan was drafted which focused on the finish protecting the previous layer of paint applied between 1992 and 1993.

Based on the results of these analyses, which were carried out twice at a distance of 6 months, ELASTOCOLOR WATERPROOF, an acrylic paint by Mapei suitable for permanent contact with water, was found to be the most appropriate product for this specific intervention, with work carried out between 2017 and 2018.

What is more, ELASTOCOLOR WATERPROOF complies with the requirements of EN 1504-2 regarding products and systems for the protection and repair of concrete structures, as specified by the Zeeland Provincial Government.

Monitoring programme

Since ELASTOCOLOR WATERPROOF meets the requirements of European standards, and the analyses carried out on prototypes gave positive results, this would normally have been sufficient to guarantee the durability and effectiveness of the maintenance work.

ABOVE. The Zeeland bridge was built between 1962 and 1965 and, in 2015, it was declared a site of national interest by the Netherlands National Cultural Heritage Agency.
TOP RIGHT. In 2017-2018, the bridge underwent renovation work that included the use of ELASTOCOLOR WATERPROOF.

However, since this is quite a unique bridge, the Zeeland Provincial Government decided it would be advantageous to carry out a five-year monitoring programme to analyse the effective performance properties of the coating system once exposed to the bridge's real service conditions.

Bjond Innovation was commissioned to carry out the monitoring and the scope of the programme was to collect and analyse data about the level of degradation of the coating system in order to forecast its long-term durability and performance.

The analyses carried out included:

1. Adhesion of top layer, according to ISO 2049 (cross-cut) and EN 16276-2 (X-cut) and adhesion of the total system, according to ISO 4624 (EN 1504);
2. Blistering (visual inspection according to ISO 4628);
3. Cracking (visual inspection according to ISO 4628);
4. Delamination/chipping (visual inspection according to ISO 4628);
5. Determination of the glass transition temperature
6. Carbonation depth of concrete;
7. Microscopical investigation with fluorescing day to determine micro cracking.

From an analysis of the test results, it emerged that, after a period of five years, the layer of ELASTOCOLOR WATERPROOF is still in excellent condition, despite the difficulties that characterised its application and its exposure to very "challenging" atmospheric phenomena. No deterioration from carbonation was found in the underlying concrete, while the level of corrosion in the steel reinforcement rods is minimal.

The monitoring programme carried out by Bjond Innovation has enabled Mapei to receive recent, concrete data on the effectiveness of its solutions, which could be very useful for future interventions.

Gino Kuijpers. Regional Product Manager, Wall Coatings Line, Mapei Group

Find out more
ELASTOCOLOR WATERPROOF

by **Jo van Montfort**

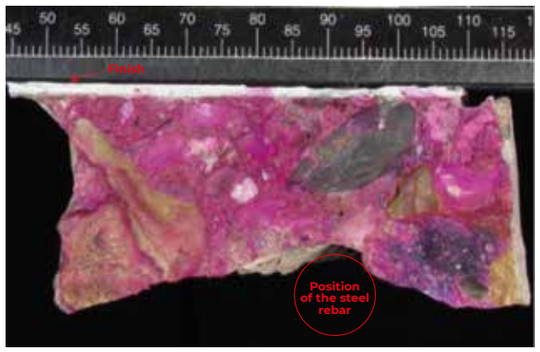
Performance study: a virtuous example

THE CEO OF BJOND INNOVATION TALKS ABOUT TESTS PERFORMED ON THE COATINGS OF THE BRIDGE AND THE POSITIVE RESULTS

What makes this monitoring program with Mapei so unique?
Monitoring the performance of coating products under real-life conditions is not very common for manufacturers working in the building industry. This makes them a bit more vulnerable as suppliers because they only focus on the strengths of the products. Instead, paying attention to the weaknesses of the products makes companies like Mapei look more transparent and more attractive to the end user.

Which technical parameters are you focusing on, and why?
We have measured extremely high chloride content in the concrete cover near the steel rebar. This means that, if measures are not taken, within a few years the steel would corrode and the structural integrity of the bridge would be compromised, which is why a highly elastic, oxygen and CO_2-resistant and watertight coating system was applied about 30 years ago. The top layer of this coating system degraded over time and had to be restored because the basic coating system is not resistant to UV rays. Renovation work was first carried out about ten years ago. 5 years ago, Bjond Innovation was commissioned to find an appropriate solution for the upcoming 15 years. After extensive laboratory and field research the choice fell on ELASTOCOLOR WATERPROOF supplied by Mapei.
The main function of this coating system is to protect the more than 30-year-old coating system for at least 10 years under extremely harsh conditions. The focus is on degradation of the coating in terms of how quickly specific properties change, such as:

1. adhesion strength to the substrate
2. thickness
3. hardness
4. flexibility and variation in modulus of elasticity
5. glass transition temperature
6. microporosity (regarding its function as a barrier to CO_2, water and water vapour).



Over a five-year monitoring period, Bjond Innovation noted the good condition of the finish. Besides, the lower layer had only been minimally affected by carbonation.

Can you see this kind of coating system being used more often in the future for large infrastructure projects?
Because of its proven performances tested under real life conditions, I expect ELASTOCOLOR WATERPROOF to be used more often in the future for large infrastructure projects. This solution could also help reduce the carbon footprint and depletion of natural resources, while saving public resources.

Based on the principle of anti-carbonation coating, such as ELASTOCOLOR WATERPROOF, what reduction in costs for raw materials (concrete) would you expect in the case of a new build? And, as a result, what would be the estimated reduction in the impact of CO_2?
For a project like the Zeeland Bridge, this means an estimated cost reduction of roughly more than 100 million Euros and an estimated CO_2 reduction of about 250,000 tons every year.

Jo van Montfort. CEO of Bjond Innovation (Belgium)

by **Anna Jarosik**

The Mapei production plant, a symbol of excellence on the Polish market

ANNA JAROSIK, PRODUCT MANAGER OF THE WALL COATINGS LINE: THE MOST POPULAR PRODUCTS ARE THOSE BASED ON SILICONE AND ELASTOMERIC RESINS

Mapei Polska, the Group's Polish subsidiary, boasts a large manufacturing plant with considerable production output of wall coatings. How long has the Barcin plant been in operation? How big is the plant and which products are manufactured there?
The plant in Barcin has been in operation since July, 2012, the year the production of powdered products commenced. In all, the warehouse and production plant cover an area of 10,000 m². A short time later, in November 2014, we started with the production of coating products, focusing on thermal insulation systems (ETICS). As far as production is concerned, the portfolio is quite extensive, but we focuse mainly on thick coatings. In addition to this range, we also started to produce exterior and interior paints.

ABOVE. The Mapei Polska's manufacturing plant in Barcin has a considerable production output of wall coatings.

Which markets does the plant cater for?
Products manufactured in Barcin are distributed all over Poland, but also abroad to several other countries such as Hungary and Bulgaria. The requirements of the Polish and neighboring markets comprise various types of thick coatings, such as acrylic renders (ACRYCOLOR TONACHINO), silicone-silicate renders (SISICOLOR TONACHINO), silicone renders (SILANCOLOR TONACHINO), and elastomeric renders (ELASTOCOLOR TONACHINO) which are the most popular.

What are the distinctive traits of the Polish market for coating products (including thermal insulation)? Are they mostly used indoors or outdoors, for housing or infrastructures?
The coating market in Poland is quite competitive, but at the same time diverse and innovative. We should bear in mind that, in Europe, it is one of the largest markets for this type of products, which is why its ongoing development is dynamic, despite the challenges and strict entry barriers. Right now, the coating products market is dominated by silicone-based and elastomeric resin-based solutions. However, for some time now, the focus has been on sustainable development and the transition to more effective, efficient and environmentally safe products, especially coatings. The Polish market is also characterized by interesting and original decorative trends such as architectural concrete, natural stone and brick effect finishes and wood-effect coatings on facades. Coating products are mainly used outdoors, although this does not preclude their use indoors if an investor or contractor wishes to do so. Mapei Polska also supplies coating products used in infrastructural projects, such as ELASTOCOLOR PAINT PLUS or ELASTOCOLOR WATERPROOF, and several projects involving the painting of breakwaters in coastal towns.

How will the plant develop in the future? Do you plan on extending the product portfolio?
The plant is undergoing constant development to bring production requirements in line with new standards, such as ISO 9001, ISO 14001 and ISO 45001. The manufacturing equipment is also being adapted to meet the latest production requirements and to optimise production. Furthermore, both automation and the more manual operations need to be brought in line so that working conditions comply with stringent legislation and regulations. Besides, work on a new project is currently ongoing at the production plant in Barcin. The plan is to extend the production area and warehouse and work on the design has already started. Regarding the product portfolio, this is extended every year. The current project is to widen the offer of coating products introducing the DURSICOLOR line of ready to use water-base interior paints. We are also considering launching a new type of thick coatings that combines the advantages of SILANCOLOR TONACHINO and ELASTOCOLOR TONACHINO. This product will satisfy the growing demand and expectations of our partner contractors.

You are a member of SSO, the Polish association of thermal insulation manufacturers. What projects are you working on with this association?
Since 2003 Stowarzyszenie na Rzecz Systemów Ociepleń (SSO) has been bringing together leading producers of materials for external thermal insulation systems, which are very much in demand on the Polish market.
As an active member of the association, Mapei Polska is promoting the correct execution of work on façades and the implementation of standards regarding the use of thermal insulation systems, thanks to which it is possible to make full use of all the advantages of thermal insulation (ETICS) technology.
The initiatives undertaken by SSO are to support the development of energy-saving and sustainable construction. At the moment, preparations are being made for the 9th edition of the International ETICS Conference, with the key topic focusing on legislative requirements and the future of assessment documents and European Technical Assessments (ETA). And in addition, a great deal of attention will be paid to the resistance of thin-layered coatings to micro-organisms.

Anna Jarosik. Product Manager, Wall coatings line, Mapei Polska

PROJECTS IN POLAND

PRIMARY SCHOOL
Zakrzów

This school is located in the eastern part of Poland and was recently renovated thanks to work carried out to upgrade its energy efficiency and the application of a new coating over almost 1,200 m² of surfaces. Work included the installation of an external thermal insulation system consisting of EPS insulating panels bonded with MAPETHERM AR1 GG mortar, and MAPETHERM NET strengthening mesh embedded in the skim coat. The finishing cycle consisted of UNIVERSAL BASE COAT to even out absorption of the substrate and SILANCOLOR TONACHINO siloxane-based coating, which guarantees good water repellence and excellent resistance to UV rays and ageing.

CHURCH OF THE HOLY TRINITY
Stanin

The church was built in 1984 and is located in the Voivodeship of Lublin in Eastern Poland. Its internal walls and ceilings underwent restoration work in 2020 to overcome the problem of deterioration caused by the rigours of time.
The first step was to treat around 3,500 m² of surfaces with UNIVERSAL BASE COAT, pigmented universal base coat distributed in Poland by Mapei Polska. Apart from protecting the substrate from the growth of mould and algae, this product also helped improve the application of SILANCOLOR PAINT, a water-repellent, breathable siloxane finish for internal and external surfaces. The product provides high resistance against aggressive agents, giving the surfaces an attractive smooth, matt finish.

An ocean of coatings

SOLUTIONS FROM THE MAPEI WALL COATINGS LINE
EMPLOYED IN A LARGE VARIETY OF BUILDINGS AND SETTINGS

Punta Sottile Lighthouse, Favignana (Trapani, Italy)

The lighthouse at Punta Sottile, on the island of Favignana, is one of the most important in the whole of Sicily. For more than a century it has been helping aircraft and ships find their way, sending out beams of light forty-five degrees in height. It was built in 1860 in the form of a tower but in 1904 was extended to become a 48 m building constructed using tuff from the San Vito Lo Capo area. Over the course of the following years, various refurbishment works were carried out on the structure, such as the one carried out in 1935 to lower the building by 5 m. The most recent intervention, carried out between 2014 and 2017, was to restore and renovate the masonry using mortars and skimming products from the MAPE-ANTIQUE and POROMAP lines, with the façades finished off with SILANCOLOR BASE COAT and SILANCOLOR TONACHINO PLUS to provide the surfaces with a highly effective and long-lasting protective finish.

Hotel Su, Antalya (Turkey)

Hotel SU, located in the center of Antalya, offers its guests an impressive experience as a 5-star city hotel as well as cozy rooms and luxurious restaurants, SPA facilities and fun activities. Its white walls invites its guests to enjoy its calming and comfortable atmosphere. Mapei's coating solutions for exterior wall were chosen for a 17.500 m² area. The acrylic base coat FACCİATA ASTAR was used as a primer, and FACCİATA EXTREME, a 100% pure acrylic-based exterior paint was used as finishing coat on the façades. This product cycle ensured a high level of resistance to harsh climatic conditions and to UV rays, as well as high hiding power. These products are manufactured and distributed on the Turkish market by Mapei Yapi.

Hotel La Compañía, Panama City (Panama)

The renovation and restoration work on Hotel La Compañía (Hyatt Group) is just part of a project involving four buildings used for hospitality, dining and commercial purposes within a historic complex in the Casco Antiguo district of Panama City. The buildings conserve the remains of structures from the XVII and XVIII centuries, a former Jesuit convent destroyed by fire. The work is part of a redevelopment project on the old part of the city, an area that has been declared a UNESCO World Heritage Site. The work lasted five years and included the use of solutions from the MAPE-ANTIQUE line for restoring masonry and a complete system of siloxane-based coatings, such as SILANCOLOR PRIMER PLUS, SILANCOLOR BASE COAT, SILANCOLOR PAINT PLUS, and SILANCOLOR TONACHINO PLUS.

Primary school, Dolni Mesto (Czech Republic)

Refurbishment work on the interior and exterior of this primary school commenced in 2019 and included the application of coloured protective coatings on the façades using a cycle of siloxane-based products, consisting of SILANCOLOR CLEANER PLUS to treat the substrates damaged by algae and mould, SILANCOLOR BASE COAT as a filler and undercoat and SILANCOLOR PAINT PLUS to create a colourful protective finish. The internal masonry walls were restored with products from the MAPESTOP and POROMAP ranges before being treated with SILANCOLOR PRIMER PLUS siloxane hygienising undercoat and then painted in bright patterns using DURSILITE PLUS water-based paint (now replaced by DURSILITE IGEA and DURSILITE GYPSOS).

Creating a colour fan
Procida (Italy)

The island of Procida's architecture features colour as a key ingredient. The bright colours of the houses tell the story of the island's history and culture, enhance its beauty and are one of the keys to its charm. In 2022 Procida was named the Italian Capital of Culture. In order to conserve and enhance the island's building heritage, the mayor, Raimondo Ambrosino, and town council approved a Colour Plan to guide future renovation work. Under the patronage of the town council, Mapei devised a colour fan and made it available free of charge to professional people working on the local building heritage. Practical and easy to handle, the colour fan encompasses the colour scheme set down by Procida Town Council, so any architectural renovation work respects the island's traditions.

Argentina strategic in challenges facing the "South Cone"

GABRIEL ROS, GENERAL MANAGER OF MAPEI ARGENTINA: WE PLAN TO BOOST OUR OPERATIONS IN CHILE, URUGUAY, PARAGUAY AND BOLIVIA IN 2023

Mapei has been operating in Argentina for over 20 years. How do you assess operations carried out so far?
The Mapei Group started its operations in Argentina in 1999 with the take-over of a local company, which was renamed Mapei Argentina S.A. Since then, we have grown in terms of our facilities, human resources, turnover, production lines and the quantity of materials marketed.
Today, the company is involved in the manufacture and sale of systems for the building industry, thanks to a manufacturing facility in Escobar, in the province of Buenos Aires, which has two production plants, a Research & Development laboratory and training centre. In addition, it has two distribution centres in Córdoba and Mendoza.
Thanks to these operations and 169 staff, last year Mapei Argentina managed to achieve revenue of 51.8 million Euros and manufacture 137,000 tonnes of materials, meeting the needs of 1,300 customers in Argentina, Chile, Uruguay, Paraguay, Bolivia and Brazil.

What projects is Mapei Argentina planning to expand both industrially and commercially over the next few years?
Underlying the Group's internationalisation strategy is Mapei's proximity to every market and geographical location. As far as South America is concerned, we are taking on a new challenge at the start of 2023: the creation of the "Latin American Region - Southern Cone" in the Mapei Group, which is aimed at boosting our operations and working more closely with those markets where we believe have plenty of potential for growth, such as Argentina, Chile, Uruguay, Paraguay and Bolivia. From 1st January, in addition to my job as General Manager of Mapei Argentina, I also hold the position of Regional Director of this new division.
The strategy behind this policy is to keep working closely with clients who have contributed to our process of growth. That is why we have devised a plan that we will update year by year, pursuing new goals involving every sector of the company.
The real challenge is to continue to grow in Argentina and promote the same strategy in the other countries in this new cluster, such as those closest to us (Uruguay, Chile, Paraguay and Bolivia), which, as well as having excellent economic potential, fit in well with Mapei's DNA. The aim is to offer each market and each client the best possible products and solutions for the building industry.
The project is stimulating and challenging, and we are sure that it will make the Mapei brand an even greater force to be reckoned with in this region over coming years.
Among the goals for 2023 is the construction of a new manufacturing plant, which will become operational during 2024. It will be located in the province of Santiago del Estero in north-central Argentina and will have a manufacturing output of 40,000 tonnes per shift. On one hand, we hope this new facility will embody the company's philosophy of catering more closely for the needs of local markets, e.g. by reducing transport costs for clients in the central and north-eastern part of the country and neighbouring countries. On the other hand, we intend to incorporate new technologies into our manufacturing processes, bringing them in line with the Group's stringent quality standards.

Gabriel Ros, General Manager of Mapei Argentina and Mapei Group's Director for Latin America - South Cone.

Inflation is galloping at 100% year-on-year: Argentina is one of the countries in the world with the highest inflation rates. What are the strategies a major company has to adopt in a place in this context?
The scenario is complex, and it is difficult to explain the dynamics of our market to someone who is not part of it. Suffice it to say that, during 2022, Mapei Argentina updated its price list 11 times. It sounds crazy but we are used to this. We cannot fight against rising prices, but we can adapt to where we operate. With the right tools, it is even possible to exploit the situation to boost sales. The strategy we adopt focuses on price management and cost reduction.
High inflation levels have been a more or less constant variable in the Argentine economy for the past seven decades. From 1944 to 2015, we witnessed an average rise in prices of 76% year after year.
This means you need to know what to do when prices rise in order to achieve long-term growth in a context like this.
Our strategy is based on three principles, the first of which is the most important:

❶ **Sell more**, i.e. engage more with our customers. A classic example is the availability of products in stock. We cannot sit back and wait, instead we have to be flexible and offer intelligent solutions, such as a good mix of products. A typical feature of high inflation settings is having no base-line prices.
❷ **Collect more**. Debt collection management becomes essential when prices rise. So, in times of high inflation, we must devote even more effort to reducing collection times. The sales force and, in fact, the entire company is involved in this kind of work.
❸ **Reducing costs**. When prices start rising across the board, it is difficult to bring costs down. We must therefore have a clear idea about the average annual rate of inflation and ensure that our costs rise at a lower rate. In this context, price increases actually turn into an opportunity to optimise operational processes and focus on operations that can lead to savings.

> **“ Our goals for 2023 include the construction of a new manufacturing plant that will be operational next year**

The Mapei Argentina manufacturing facility is located in Escobar and ecloses two plants.

A 23-YEAR HISTORY OF GROWTH

The Mapei Group took its first steps on the Argentine market back in the late-1990s, but it was not until 2000 that it set up a subsidiary, Mapei Argentina SA. At that time, the company had a plant in Berazategui in the province of Buenos Aires and an office about 30 km away in the town of Wilde.
A real turning point for the Argentine company was the opening in mid-2006 of a manufacturing facility in Escobar, which initially had a manufacturing output of 60,000 tonnes per year and employed 60 staff. In 2009, the plant was awarded ISO 9001-2008 certification for its Quality Management System.
In 2012, a Research & Development laboratory, a laboratory for concrete admixtures, and new areas for product storage were opened in the same facility.
In 2014, Mapei Argentina moved its headquarters to the Escobar plant and opened a training centre.
In 2018, a 1,500 m² distribution centre was opened in Córdoba to cover the regions of Cuyo, N.O.A. (north-west Argentina) and the provinces of Santiago del Estero, La Rioja and Catamarca. In addition, the facilities of the Argentinean subsidiary were also re-awarded ISO 9001-2015 certification for their Quality Management System and ISO 14001-2015 certification for their Environmental Management System. In the same year, the company joined the Italian-Argentinian Chamber of Commerce as an active member.
A new plant dedicated to the manufacture of mortars, a model of technological excellence for the whole of Latin America, has been operating in Escobar since mid-2019. The project, which saw an investment of almost 23 million Euros, also included the construction of a warehouse for finished products and raw materials covering an area of 6,000 m². In the same year, the Escobar site was awarded ISO 45001-2018 certification for its Occupational Health and Safety Management Systems.

> **Despite the climate of uncertainty, the building industry is evolving towards more sustainable processes, technologies and materials**

The Argentine economy is enshrouded in uncertainty. There is, however, one encouraging fact: in 2023, the World Bank expects GDP to grow by 2%. If this happens, it will mark a streak of three consecutive years of growth; something that has not happened since 2008. Which sectors are driving this positive trend?
According to some economists, Argentina will have one of the highest economic growth rates in the entire region in 2023.
Data from the world economy forecasts growth in 2023 (+2.9%) and 2024 (+3.2%) to be lower than in 2022 (3.4%) and lower than the average growth recorded from 2000 to 2019 (3.8%). This is because the post-pandemic economy has changed the world structurally and the Russian-Ukrainian conflict is causing uncertainty, inflation and debt.
Argentina is an economically complex country because it has limited resources, a large fiscal deficit and no international financing. This puts the national economy in a tricky position in terms of financial operations because it has no dollars for import purposes. The private sector finds it difficult to finance projects because funds are absorbed by the state and considerable financial pressure deters entrepreneurs from investing.
In this context, the building industry, which grew by 5% in 2022, is now facing a year of political uncertainty and high inflation. As elections will be held in 2023, experts warn that public investment should stimulate an industry that has not seen much progress for months. High inflation, changing exchange rates and national elections can only cause a climate of understandable uncertainty. It is equally clear, however, that the building industry is evolving towards more sustainable processes, technologies and materials and that 2022 was, generally speaking, a good year for this sector.

ON THE PITCH WITH LANÚS IN THE LAND OF FOOTBALL

Since 2020, Mapei Argentina has been a sponsor of Club Atlético Lanús, a football team from the Lanús district of Buenos Aires that plays in the Primera División, the top division of the Argentine football league. Founded in 1915, Lanús football club is famous for its numerous national and international successes, such as winning the Copa Conmebol in 1996, the Copa Sudamericana in 2013, and reaching the final of the Copa Libertadores de América in 2017.
The Mapei Group arranged this sponsorship deal to strengthen (in Argentina, too) its ties with sport, reasserting those ideals that have always been part of its DNA: commitment, teamwork and the determination to constantly take on new challenges.
Mapei Argentina actually took over as club sponsor from Yamaha in 2020, with the aim of helping one of the country's leading teams attract top-quality players and implement a short- and long-term growth strategy. Taking advantage of the great popularity of football in Argentina (an important part of the country's national identity), the Group's Argentinian subsidiary intends to boost its brand image in the country. Since the end of 2020, the Mapei logo is clearly visible on the official kit of the men's, women's and youth teams.

TRAINING ON THE ROAD AND MORE

To continue to grow on the local market, Mapei Argentina constantly invests in marketing and training operations. As well as various advertising campaigns on several channels (TV, radio, social media), the subsidiary devotes a great deal of effort and resources to training: it has two training centres in Escobar and Córdoba, where "Mapei Academy" courses are held. It also has two vans (and two will be added during 2023), specially equipped with products, tools and technical documentation, which travel around the country to train and inform business partners and other players in the building industry.
In 2022, the subsidiary got a total of 6,000 professionals involved in 345 training events.

From residential buildings to infrastructures and works linked to tourism: where are the biggest business opportunities for Mapei?
Mapei has taken part in the construction of numerous prestigious works such as Ezeiza and Jorge Newery airports, Puerto Belgrano naval base, Córdoba ring road, the Four Seasons Hotel in Buenos Aires, the Sheraton Hotel in San Miguel de Tucumán, the Catholic University of Argentina, Paseo del Bajo motorway and numerous tunnels. Some of these were built in partnership with major Italian construction companies, as in the case of the tunnels in Matanza-Riachuelo basin, Arroyo Maldonado sewage system and Sarmiento underground railway line.

Which product lines are you focusing on to grow?
Mapei Argentina is committed to contributing to the growth of the construction industry, its sustainability and evolution, partly through the development of new products and solutions. It is true, however, that "the heart" of the company is currently linked to its line of products for installing ceramic and stone materials. In recent years we have launched over 400 products from this range in Argentina, which is currently the most successful for our market. But we also perform well on the market for concrete admixtures and cement additives (C-ADD). Furthermore, over recent years we have expanded on those segments of the market focused on building materials, structural strengthening, waterproofing, sealants, elastic adhesives and underground construction products. The challenge for us now is to continue to launch new lines and products. This year we plan to launch a range of wall coatings and thermal insulation systems. At the same time, we look forward to launching new products and lines manufactured by the Group on markets where we do not currently operate, providing our clients with an increasingly complete and customised range of products.

How is the distribution of Mapei products organised in a big country like Argentina?
Argentina is indeed a very large country covering 2,795,677 km^2, extending for 3,700 km from north to south and 1,400 km from east to west. Although most of the population is concentrated in the central belt, Mapei is determined to guarantee proper coverage of every part of the country, even the most remote areas. That is why we rely on a sales force of 40 staff divided into three areas, one of which is dedicated to distribution, since the supply of products to our clients is mainly through distributors in three large business areas. In other realms there is greater autonomy: for example, the concrete admixtures line and exports are managed directly by special staff and deliveries are mostly made directly. The entire sales force is supported by a strong Technical Services team made up of 12 experts.

MAPEI ARGENTINA

51.8
MILLION EURO
TURNOVER IN 2022

66.4
MILLION EURO
TURNOVER FORECAST FOR 2023

169
EMPLOYEES

190
MILLION TONNES
CURRENT MANUFACTURING OUTPUT

1400
CLIENTS IN 2023

1
MANUFACTURING FACILITY IN ESCOBAR
(AND 1 UNDER CONSTRUCTION IN SANTIAGO DEL ESTERO)

2
DISTRIBUTION CENTRES
IN CÓRDOBA AND MENDOZA

by **Antonella Mori**

The international geopolitical situation to Argentina's rescue

THE WORSENING ECONOMIC OUTLOOK FOR 2023 IS COMPOUNDED BY THE COMPLEXITY OF THE POLITICAL SITUATION LINKED WITH THE ELECTIONS: BUT THERE ARE SOME REASONS FOR OPTIMISM

2023 promises to be a difficult year for Argentina amidst economic crisis and political uncertainty, but some reasons for optimism come from the international geopolitical situation: relations with Brazil are stronger, the Association Agreement between Mercosur (the common market of Argentina, Brazil, Paraguay and Uruguay) and the European Union may well be signed in a few months, the acceleration of the green and digital transition gives greater centrality to Argentina, which could also benefit from favourable indirect effects of competition between the United States and China.

Argentina's economic outlook for 2023 has worsened. Pessimism regarding the short-term outlook stems largely from the effects of the drought, which is expected to bring agricultural production to its lowest level in a century, annual inflation that has reached close to 110%, and the risk of a currency crisis, as reflected in the huge gap - around 120% - between the official and parallel exchange rates. The above negative factors, in addition to the general slowdown in global growth, are raising poverty to worrying levels.

In addition to the economic and social crisis, the political situation is also very complex: five months before the presidential elections being held on 22nd October, there is great uncertainty as to who will govern the country for the next four years. The left-wing coalition currently in government, the so-called Frente de Todos, is leading in many polls but could suffer a decline in popularity due to the worsening socio-economic situation. The centre-right opposition, known as the Juntos por el Cambio, currently lying in second place in the polls, could, however, lose some voters to Javier Milei, the far-right candidate, who is proposing an ultra-liberal programme of drastic cuts to the role of the state.

Stronger ties with Brazil, the agreement between Mercosur and the EU in the home stretch, good relations with the US and China may be favourable factors for the South American country

In this difficult economic, social and political situation, the international geopolitical context offers factors that might benefit this South American country. Argentina's most strategic regional relationship is with its main trading partner, Brazil. President Alberto Fernández, whose term of office expires in December, has prioritised strengthening ties with Brazilian President Luiz Inácio 'Lula' da Silva, both bilaterally and within a framework of regional integration agreements. Argentina and Brazil will seek to maintain the integrity of Mercosur for example, by not allowing bilateral trade liberalisation negotiations of the kind Uruguay would like to set up with China. Moreover, Lula's renewed commitment to protecting the Amazon and the environment, in stark contrast to former Brazilian President Bolsonaro, means the signing of the Association Agreement between Mercosur and the European Union is back on the agenda of European countries. Once the Agreement is signed, a process of progressive trade liberalisation will begin, which will benefit Argentine exporters.

Buenos Aires, the capital of Argentina.

Over recent years, Argentina has maintained a good relationship with the United States and, at the same time, strengthened ties with China. Maintaining good relations with the US administration is partly important because of the significant influence America exerts in multilateral financial institutions, which provide resources for Argentina. The International Monetary Fund (IMF), for example, which reached an agreement with the Fernández administration in March 2022 about a 30-month financing programme worth USD 45 billion, has shown great flexibility in its dealings with this South American country. First and foremost, Argentina received the largest ever IMF loan. Secondly, the IMF approved new disbursements of the loan even though the government failed to meet all of its commitments and also introduced a series of controls on the movement of capital and multiple exchange rates - interventions at odds with the IMF's approach. The IMF is unlikely to take stringent action before the elections, because the South American country would again default on its foreign debt.

Over recent years, there has also been significant Chinese investments in the energy, mining, infrastructure and technology sectors in Argentina. In February 2022, Argentina joined China's Belt and Road Initiative, which promised investment of almost USD 24 billion. The decision will pave the way for further Chinese investments, however many doubt that the actual investments will reach the amount being promised. The two countries recently agreed that Argentina will be able to import from China using the Chinese currency, the yuan, and this will allow Argentina to save its scarce reserves of US dollars. Regardless of the government in power, it is very likely that Argentina will seek to maintain good relations with both the United States and China, despite the intensifying rivalry between these two nations. It is indeed competition between the two superpowers that may incentivise them to be more generous towards Argentina to prevent their rival from expanding.

If the economic situation in the short term is difficult, in the medium term there are some sectors that present a more optimistic scenario: in addition to agribusiness, also the mining industry, particularly for lithium and copper, and the energy sector. Argentina, for example, has huge reserves of gas and oil in the Vaca Muerta basin (province of Neuquén, northern Patagonia). Vaca Muerta is the second largest shale gas deposit in the world and the fourth largest for shale oil. Thanks to the construction of a new pipeline, in a few months' time gas will reach the province of Buenos Aires, reducing the country's energy imports. In future, the new pipeline will be connected to the Northern Gas Pipeline, which passes through Bolivia, and the flow of gas will be reversed: using existing pipelines, Argentina will be able to supply gas to Bolivia and Brazil. In the medium term, therefore, Argentina could once again become a net exporter of energy.

Despite difficulties in the short term there are some sectors (from agribusiness to mining and energy) that, in the medium term, point towards a more positive economic scenario

Antonella Mori. Head of ISPI's Latin America Programme and Professor of Macroeconomics and Economic Prospects at Bocconi University

ANTONELLA MORI

She is Head of the ISPI Latin America Programme and teaches Macroeconomics and Economic Prospects at Bocconi University and Macroeconomics and Political Economy at the Master's course in Diplomacy at ISPI. In 2011 she received an official award from the Italian Ministry of Foreign Affairs for having favoured the strengthening of Italian-Latin American relations. Her main research interests are Latin American economies, and the economic relations between the European Union and Latin America.

Buenos Aires

Jorge Newbery airport

MAPEI CONCRETE ADMIXTURES FOR THE RUNWAY
AT ONE OF THE ARGENTINE CAPITAL'S TWO AIRPORTS

Aeroparque Jorge Newbery is one of the two airports in the city of Buenos Aires. It is located near the banks of the River La Plata, not far from one of the most popular areas of the Argentine capital, the Palermo district. Inaugurated in 1945 and named "Aeroparque 17 de Octubre" to commemorate the day the Argentine people demonstrated in favour of Juan Perón, the name of the airport was changed, following the coup in 1955, to honour the Argentine aviator, Jorge Newbery. Since then, work has been constantly ongoing to renovate and extend the airport: the terminal and runway were extended in 1960; the runway and two terminals were extended even further and direct connections with the city of Buenos Aires were built in 2007 to meet the demand from more frequent international flights; a new control tower was built and commissioned in 2018. In 2019, following the increase in the amount of traffic and to prevent saturating the airport, all international traffic was temporarily transferred to Ezeiza International Airport but, in May 2020, the airport started operating international flights again to Brazil, Paraguay, Bolivia, Chile and Peru. Because of this move, an expansion project was launched in 2020 that lasted several months, before reopening the airport again in March 2021. The work carried out in this period led to the building of a new runway more than 2 km long.

New runways for new flights

To handle the new volumes of traffic, the runway at the airport was rebuilt and extended. Work started with the demolition of the surfaces of the existing runway, removal of all the debris and preparation of the ground. Thanks to the mixing plants and silos installed on site by UTE, the joint venture comprising Chediak and Ceosa commissioned to carry out the work, it was possible to create just the right mix design for the concrete required to build the new runway.

Mapei Argentina also contributed to the formulation of 105,000 m³ of concrete by devising a specific mix that, besides meeting specific performance requirements, was able to ensure high resistance to freeze and thaw cycles which the runway will be subject to in the next years. The choice fell on Mapei admixtures which are suitable for making industrial floors and paving, including when exposed to the action of various atmospheric agents, such as those typically found at airports or hydraulic works (dams, water channels, swimming pools, storage tanks). The concrete runway is now in a position to handle the growing volumes of traffic using the airport, which, by the end of 2022, had already reached a total of 12.8 million passengers.

LEFT. Between September 2020 and March 2021 work was carried out to extend the airport, which included rebuilding a new runway more than 2 km long.
ABOVE. The runway was built thanks to 105,000 m³ of concrete containing the specific Mapei admixtures for concrete surfaces subjected to freeze and thaw cycles.

Find out more
MAPEAIR AE20

PROJECT INFORMATION
Jorge Newbery airport, Buenos Aires (Argentina)
Owner: Argentinian Ministry of Transport
Period of construction: September 2020-March 2021
Period of the Mapei intervention: September 2020 - March 2021
Contractors: UTE (Ceosa, Chediack)
Intervention by Mapei: supplying admixtures for the concrete used for the runway
Mapei coordinator: Marcos Urankar, Mapei Argentina

MAPEI PRODUCTS
Admixtures for concrete: Mapeplast N115*, Mapeair AE20

*This product is manufactured and distributed on the Argentinian market by Mapei Argentina SA.

For further information on products, please visit mapei.com and mapei.com.ar

Projects across the board

HOSPITAL, BRIDGES, AIRPORTS, WATER TREATMENT PLANTS AND WINERIES: MAPEI PRODUCTS PUT TO THE TEST IN DIFFERENT ENVIRONMENTS

Alpamanta Winery, Ugarteche (Mendoza)

This winery was founded thanks to the passion of three experts of different nationalities (two Austrians and one French) employing biodynamic agricultural practices that enable them to get the best out of this area of land in the Province of Mendoza, while maintaining the natural balance of the vineyard's ecosystem. Alpamanta means "Love of the Earth" in the local language, and it is one of the few certified biological and biodynamic wine producers in Argentina. A bio-lake was recently constructed in the winery and Mapei Argentina also took part in the project by supplying synthetic membranes of the MAPEPLAN line manufactured by Polyglass, a subsidiary of the Mapei Group. The membranes were chosen also due to their resistance to microorganisms and root penetration and used to waterproof the bottom of the lake.

Ministro Pistarini International Airport, Buenos Aires

Inaugurated in 1949 and, for three years, the largest airbase in the world, this airport, also known as Ezeiza International Airport, is the main airport in Buenos Aires for international flights. It is located 22 km from the centre of the Argentine capital and, in 2021, handled more than 3 million passengers. The most recent renovation and extension works, which commended in 2017, included the installation of new wooden and textile flooring in the VIP and departures areas. The wood flooring was installed with ULTRABOND ECO P990 1K one-component, solvent-free, elastic polyurethane adhesive, while the textile flooring was bonded with ULTRABOND ECO TACK acrylic tackifier in water dispersion with very low emission level of volatile organic compounds (VOC).

Footbridge over Presidente Avenida Figueroa Alcorta, Buenos Aires

One of the structures created in Buenos Aires in 1960 for the May Revolution Centenary Exhibition is this footbridge passing over Avenida Presidente Figueroa Alcorta, one of the main thoroughfares in the Argentine capital. The footbridge recently underwent renovation work. The concrete of the bridge was restored with MAPEGROUT SV100, a fibre-reinforced, shrinkage-compensated mortar distributed on the local market by Mapei Argentina SA. To repair the surfaces of the bridge, meanwhile, a system from the MAPECOAT TNS line was chosen, which included MAPECOAT TNS PRIMER EPW two-component epoxy primer to treat the substrates and MAPECOAT TNS RACE TRACK acrylic resin-based coloured coating. This system provides long-term protection for concrete surfaces subjected to high level of footfall.

Waste-water treatment plant, Río Cuarto (Córdoba)

Work got underway in 2018 to construct a new wastewater treatment plant for the city of Río Cuarto: a project of considerable proportions, designed to last at least 20 years and meet the hygiene and sanitary needs of around 250,000 people. In the words of the Mayor of Río Cuarto, Juan Manuel Llamosas, this project, which required an investment of almost 1.8 million Euros, "Is an historic date for the city and for all the towns and cities downstream. It is a colossal project that will enable us to pay off the debt we have with the environment and with nearby territories". The structural joints were elastically sealed and waterproofed with MAPEBAND TPE tape bonded with ADESILEX PG1 epoxy adhesive. PLANISEAL 88 two-component cementitious mortar was then used to waterproof the surfaces of the reinforced concrete storage tanks where the water is treated using oxidation processes.

Central Hospital, Mendoza

This public hospital, the largest in the Cuyo region, has been open since 1941 and, apart from providing highly specialised treatment for patients from the whole of western Argentina, it also houses the school of nuclear medicine. A centre of excellence for numerous specialities (such as haemodynamics and kidney transplants), it also has an eye bank and the first bone marrow bank in the country. Various renovation works were carried out between 2018 and 2021, including the installation of large-format (1 m x 1 m) porcelain tiles with ADESILEX P9 cementitious adhesive with extended open time and no vertical slip, and conductive vinyl flooring in the operating theatres using ULTRABOND ECO V4 SP CONDUCTIVE adhesive in water dispersion with very low emission of volatile organic compounds (VOC).

Refurbishing the Centro Piacentiniano one century on

A TEAM OF SIX PROFESSIONALS RENOVATED THE HEART OF MODERN BERGAMO

by **Grazia Signori**

In the 1920's the intervention by architect Marcello Piacentini started to take shape, which gave a new look to the most modern area of Bergamo, the contemporary district close to rail networks and free to develop and extend. The subject is an architectural complex winding its way between Piazza Vittorio Veneto, Piazza Dante and "Sentierone" Avenue up to Piazza della Libertà, on its way taking in the Donizetti Theatre.
At a distance of almost a century since then, this area was the subject of extensive urban refurbishment work. The intervention was strategic for the future of the city and featured in the Bergamo and Brescia Capital of Culture 2023 dossier as one of the most important elements of connectivity and a general relaunch of the urban territory. The project was launched back in 2025 when the City Council was looking to remediate the emptying of the city centre, which had become less frequented by the city's inhabitants and commercial activities and, as a result, a generally less safe place to be.
The City Council launched a Europe-level competition for ideas on how to intervene respectfully on this area. The intervention was rather delicate: refurbish an area of 28,000 m² by introducing pedestrianised zones while respecting its green spaces and monuments, often the subject of numerous cultural, environmental and archaeological constraints, and, a place for which the citizens of Bergamo have such a strong sense of belonging. The winning project was the one presented by a collective of six architects, engineers and designers from Bergamo specialised in the design of open spaces: Luigino Pirola, Mariola Peretti, Simone Zenoni, Gianluca Gelmini, Carlo Peretti and Elena Franchioni. The name of the collective is Flânerie, a French term that describes the activities of the flâneurs, people who take a pleasant stroll along city streets without hurrying, enjoying the feelings that arise from simply observing their surroundings. And the local Council intended to give this part of the city back to flâneurs and walkers.
The project concentrated on the architecture along the reference line (the average elevation is 30 to 50 cm) and, apart from enhancing the street features in the area by adding 100 benches, 160 lampposts and 13 trees, focused particular attention on the paving.

Old and new paving

The existing paving in the entire Centro Piacentiniano area was carefully mapped out, identifying the more historic parts that needed to be safeguarded and fully conserved, and the more recent parts, characterised by their generally good state of conservation and adequate functionality and aesthetics, which included the stellato granite paving installed along Sentierone Avenue in 2006.
More than 15,000 m² of asphalt paving, on the other hand, was replaced with more "noble" paving consisting of stone elements, which were integrated with tactile paving to aid visually impaired pedestrians. In order not to interfere with the historic context, the tactile itineraries were created using textured granite slabs with a similar finish to that of the rest of the paving.
The paving work was divided into 3 lots and commenced in the second half of 2021. The first lot concentrated on Piazza Dante, which was completely pedestrianised and a new layout was created for the green area. Lot 2 involved the side of the Donizetti Theatre where the cultural and events hub is located, while lot 3 covered the City Council offices.

A view of the Centro Piacentinano district in Bergamo.

BERGAMO-BRESCIA, ITALIAN CAPITAL OF CULTURE

The Italian Capital of Culture project was set up in 2014 after being proposed by the Italian Minister of Culture and Tourism. The aim is to promote projects and enterprises designed to enhance Italy's cultural heritage to stimulate the growth of tourism and related investment. The title of Italian Capital of Culture is awarded annually after candidate bids are assessed by a panel of seven independent experts. Thanks partly to a total of one million euros up for grabs, the winning city can showcase its most distinctive landmarks for a period of one year, as well as any other factors behind its cultural development seen a driving force for the growth of the entire community. 2023 is the year of Bergamo and Brescia, which were named the Italian Capital of Culture as part of a project which, on one hand, aims to make some sense of the pandemic that severely hit these cities and, on the other, will catalyse all the energy in this territory to boost innovation and its capacity to regenerate itself.

The refurbishment project also covered the area joining lots 2 and 3, consisting of the link road for the intense traffic to and from the Upper City, one of the iconic areas of Bergamo. This is a link that reinforces the functional and perceptive bond between the two souls of the city: the more ancient Upper Bergamo and Lower Bergamo, the modern part of the city.
Another cardinal theme of the competition was sustainability and the specifications for the project included CAM (Minimum Environmental Criteria established by the Italian Ministry of the Environment and Protection of Land and Sea to ensure the use of environmentally sustainable solutions and products for public buildings) covering the buildings part, lighting systems, public green areas and street furniture, as well as CAM for site management practices, considered a fundamental requirement in order to reduce to a minimum the impact the execution phase would have in the residential areas of the ancient city.

Products from the Mapestone System were chosen for the sections of paving according to the loads they have to withstand

Mapei solutions for the paving
To meet durability and sustainability requirements, the packages for the slab and block paving were designed according to the types of stresses and loads they would be subjected to, separating them into three groups: occasional traffic (class P7 according to Italian standard UNI 11714-1), limited traffic (class P8) and intense and general traffic (class P9).
The project specified the use of MAPESTONE SYSTEM to install the paving, according to the type of traffic.
Specifically formulated for making cost-effective, durable, urban stone paving with lower maintenance requirements, including paving exposed to high levels of traffic, MAPESTONE SYSTEM includes a range of products in exposure class XF4 that comply with the prescriptions and requirements of Italian standard UNI 11714-1:2018 and European standard EN 206-1 to guarantee the durability of paving. Thanks to its resistance to freeze-thaw cycles, de-icing salts and rain, paving made using MAPESTONE SYSTEM is a monolithic system that doesn't break apart and remains unaltered over time, thereby eliminating the need for maintenance work for a number of years. To install the 8/10 granite cubes and 6 cm thick slabs in class P7, an installation bed with an average thickness of 5 to 7 cm was created using MAPESTONE TFB CUBE pre-blended mortar, while MAPESTONE TFB 60 pre-blended mortar was used for the stone slabs in classes P8 and P9. In both cases, the MAPESTONE TFB CUBE and MAPESTONE TFB 60 installation mortars were supplied in bulk loads stored in silos for logistics and site sustainability purposes, as per project specifications.

The joints (average width 10 mm) were grouted with MAPESTONE PFS2 FLEX pre-blended mortar with a high modulus of elasticity and pull-off strength three times higher than traditional mortar, two properties that make it far more effective in cushioning stresses created by the passage of vehicles and by thermal expansion. These properties help increase the resistance of joints when in service, which play a key role in guaranteeing the durability of paving.
The joints were sealed with MAPEFLEX E-PU 30 NS two-component, thixotropic epoxy-polyurethane sealant with high resistance to chemicals, high mechanical properties and high modulus of elasticity.
A special approach was adopted for the important road link, used on a daily basis for traffic to and from the city centre, including public transport and heavy-goods vehicles.
14 cm thick granite slabs were used for the continuous slabbed paving in Sentierone Avenue, the historic main thoroughfare of the city, and were installed with MAPESTONE SYSTEM comprising MAPESTONE TFB 60 and MAPESTONE PFS2 FLEX.
For the block-paved part a different technical solution was adopted because the area continues along from the asphalt road surface and is in correspondence with the crossroads between both directions of the Centro Piacentiniano, which means it is subjected to far more stresses from the passage of vehicles.
The 14 cm granite cubes, therefore, were installed on a loose bed of crushed porphyry and, because of its thickness, the joints were double-grouted with MAPESTONE JOINT solvent-free polyurethane resin for elastic and pervious paving.
Work on the second lot started in February, 2021 and on the third lot in February, 2022 and was completed at the end of February, 2023, a faithful recreation of the original project and perfectly in time for the launch of the Bergamo and Brescia Capital of Culture 2023 festivities. With just a few days to go before the inauguration, the new Centro Piacentiniano invites everybody, inhabitants and tourists, to take part in a wonderful stroll and prove that the objective of the City Council and the project to bring inhabitants back and enjoy the city centre has been achieved.

Grazia Signori. Architectural Stone Paving Line, Mapei SpA

Find out more
MAPESTONE TFB CUBE




1 and 2. Application and cleaning of MAPESTONE PFS2 FLEX used to grout joints. **3.** Samples of the mixes used to install (MAPESTONE TFB 60) and grout (MAPESTONE PFS2 FLEX) the stone paving were tested to make sure they were prepared correctly and complied with the specified performance properties. **4** The completed paving made up of stone slabs and cobblestones and the expansion joint.

PROJECT INFORMATION
Centro Piacentiniano (Lot 2 and Lot 3), Bergamo (Italy)
Period of the intervention: supplying products to renovate granite paving
Owner: Bergamo City Council
Design: Flanerie (Luigino Pirola, Mariola Peretti, Carlo Peretti, Gianluca Gelmini, Simone Zenoni e Elena Franchioni)
Works direction: Rossella Lacanna (Bergamo City Council)
Operational works direction: Annalisa Romeo (Bergamo City Council)
Landscape works direction: Federico Pelucchi
Project manager: Angelo Brena (Bergamo City Council)
Safety manager: Federico Giuseppe Mele (Bergamo City Council)
Main contractor: CAR.BA srl (Lot 2), ICG srl (Lot 3)
Technical director for the main contractor: Mauro Carminati (Lot 2), Armando Nonnis (Lot 3)
Contractor for stone paving: Foresti e Aceti (Lot 2 and 3), Pezzotta Pose (Lot 3)
Mapei coordinators: Grazia Signori, Federico de Niederhausern, Luca Pretini and Alberto Fornasari, Mapei SpA (Italy)
Mobile laboratory for sample testing: Luca Lanzini, R&D; Mapei SpA
Tests on materials: Paolo Fornoni, R&D, Mapei SpA
Photos: Gianni dal Magro

MAPEI PRODUCTS
Installing stone paving: Mapestone TFB 60
Grouting stone paving: Mapestone TFB Cube, Mapestone PFS2 Flex, Mapestone Joint
Sealing joints: Mapeflex E-PU 30 NS

For further information on products, please visit mapei.com

by **Gianluca Gelmini**

A texture to be knitted together and extended

THE ARCHITECTURE OF THE REFERENCE LINE WAS REDEFINED TO CREATE THE MOST EFFECTIVE DIALOGUE WITH THE BUILDINGS OF CONTEMPORARY BERGAMO

Apart from being one of the key projects in the Bergamo-Brescia Italian Capital of Culture 2023 dossier, refurbishment work on the Centro Piacentiniano in Bergamo was also an important and challenging team effort that has given a new, beautiful look to the very heart of the city. What is the background of this project?
The project was the result of an international competition launched by Bergamo City Council. We decided to take part by forming a group of professional colleagues, each one representing their own area of expertise and each one with considerable experience in architectural and urban redevelopment, landscape architecture and restoration.
The group has six members and, apart from yours truly, also includes Mariola Peretti and Carlo Peretti. Mariola Peretti is passionately involved in the urban quality of cities, and it is great to see how she manages to provide a full and complete interpretation of problems typical of urban redevelopment and the quality of communal spaces. This proved to be fundamental in order to redesign what we can see today. The other members of the group are the landscape architects Luigino Pirola and Simone Zenoni, who are obviously particularly sensitive to green issues and the characterisation of land, and lastly Elena Franchioni, who looked more deeply into restoration issues, particularly with regards to the fountain in the centre of Piazza Dante and the monument dedicated to Gaetano Donizetti. The fact that we know the city really well, its history, its characters and the contradictions that you inevitably encounter, certainly enabled us to propose solutions that, up to a certain point, were already embedded into the fabric of the city, already part of a texture we attempted to knit together and extend.

What challenges were you faced with during the design phase?
First and foremost, it was important to carry out a careful analysis of the existing situation, particularly the types of paving, their forms, the materials and colours of the Centro Piacentiniano. We created a map, a starting point from which we could then redesign the spaces, itineraries and green areas, in some cases proposing continuity with the pre-existing situation and, in other cases, a different vision.
And it is this second aspect that really sets our project apart: the idea to create a large urban park with lots of green areas, trees and spaces where you can truly inhabit and live the city. We redefined the architecture of the reference line by constructing a kind of "building" 50 cm high, 90 m wide and 400 m long: the public space within which the consolidated buildings and places comprising modern Bergamo are positioned.

> **We strived for finding a consensus between our vision for the whole project and respect for the past**

We were always convinced it was necessary to rethink the empty spaces and itineraries starting from a correct preparation of the scale, in line with the overall layout of the single parts.
This was the approach during the various discussions we had with the Local Heritage Authority throughout the design process for the four lots to be worked on, striving to never lose sight of how important it was to find a consensus between our vision for the whole project and respect for the past. Our intervention is in line with the original design by Marcello Piacentini. There is also the ethical issue, the fact that the existing should not be questioned, such as the underlying framework of the paving or other elements of the current situation. We should rather try and dialogue with them. This can also be seen with the decision to not introduce new materials: covering materials and finishes should be those already typically used in the Centro Piacentiniano, such as Ceppo stone, burnished steel and granite. It is quite a simple project in a way, one that is not looking to be in contrast with what exists, but rather in continuity with it.

And during the executive phase?
When we passed from the idea to actually making this idea achievable, it was very important that all interested parties were involved in the discussion. We discussed the initial design with the City Council first, then with its City Planning office and, lastly, with the Landscape Commission. We took on board new information at each step of the process. The overall design of the various parts was checked against all the elements that needed to be taken into consideration, both from a technical/economic and compliance perspective and with respect to any constraints imposed by the actual conditions, such as the layout of all the underground utility systems, many of which were not even fully mapped. Throughout this complex checks and balances process, our objective was to remain faithful at all times to the character and atmosphere of the winning project, managing all the design modifications without straying from the compositional, formal and material regulations it was based on.

What does it mean to operate within the operational and beating heart of a city that does not have the luxury of closing roads to traffic and to work to such a tight schedule, such as the one dictated by the Italian Capital of Culture festival?
It means having to contemplate all the variables in play in light of the ongoing operational discussions with all the parties involved. When the project passed from our desk to site it was no longer just an idea to be constructed; it became a concrete act involving a lot of people and a lot of operators. A project on paper was transformed into a collective act. Sites in public spaces then have another variable, which is that they have considerable impact on normal city life. In this sense, subdividing the work into separate lots meant we could contain the disruption caused by the work and the limits imposed both by the people that normally live and cross through the city, and by the flow of traffic. Directing the general plan guaranteed the success of the work, in spite of this inevitable parcelization of the works for obvious logistics needs.

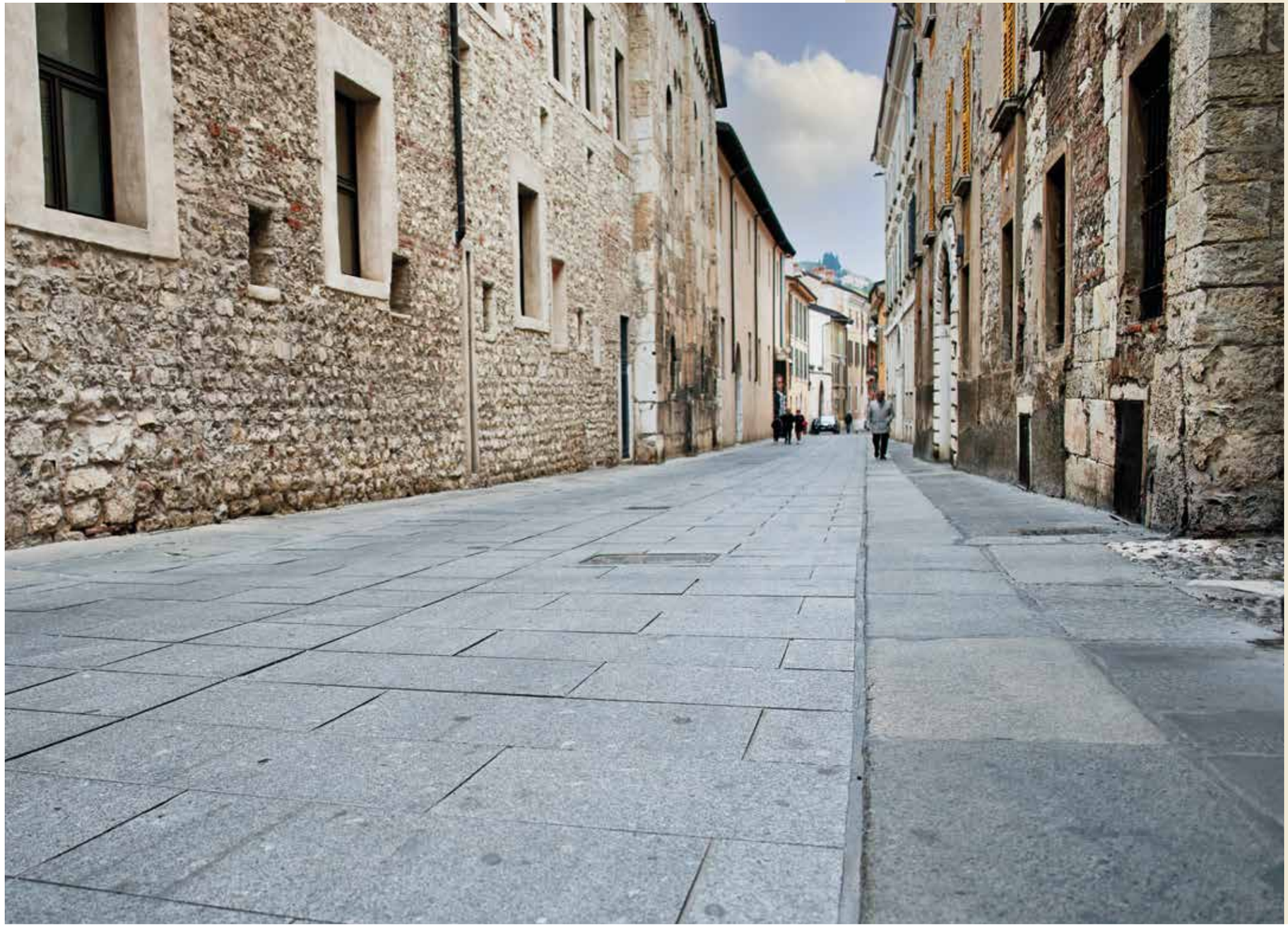
> **Covering materials and finishes reflect the typical materiality of the area, such as Ceppo stone, burnished steel and granite**

What advice would you give to a colleague commissioned for a project like yours?
In general, I think it is important to take on board any observations made. In my work, I have learned over the years to pay a lot of attention and respect to visions of things, even if they are in contrast with my personal way of reading a project. Architecture in general always represents an act of sharing, and architecture of public spaces even more so, because it regards the design of spaces that everybody lives and uses every day. This is why our project must always take into account a collective dimension which, apart from being evoked through its forms and materials, must also be practical, pleasant, comfortable and safe.

Gianluca Gelmini. CN10 architetti Srl

The kilometre of beauty

PRODUCTS FROM THE MAPESTONE LINE WERE USED FOR THE NEW STONE PAVING IN VIA DEI MUSEI IN BRESCIA



On the eve of the celebrations to kick off Bergamo Brescia's year as the Italian Capital of Culture 2023, the new paving in Via dei Musei in Brescia, which played a pivotal role in the bid, has been officially unveiled.
The work restored the stone paving along the Decumanus Maximus of ancient Brixia (so was the city called in ancient times) to its original splendour: today, this stretch of road is still overlooked by splendid ruins, with elegant columns in Botticino marble, the Sanctuary, the Capitolium and the Theatre, and the statue of Vittoria Alata (Winged Victory). Via dei Musei is, in fact, a road in Brescia where visitors can admire, one after the other, famous monuments in the city's Roman archaeological park, a journey through a UNESCO World Heritage site in 2011, and the San Salvatore – Santa Giulia monastery complex. The latter is now the home of the Santa Giulia Museum and a veritable treasure chest of extraordinary places from the Longobardic and medieval eras of the city of Brescia, as well as the home of nationally and internationally acclaimed exhibitions.
Each side of the road is lined with the former homes of the Brescia aristocracy built between the 16th and 18th centuries, one of which is Palazzo Martinengo, a museum highly appreciated as much for its permanent collection as for its temporary displays of important exhibits. Which is why the former Mayor of Brescia, Emilio Del Bono, affectionately renamed the road *"the kilometre of beauty"*. Located in the restricted traffic area of the city, up until 2021 Via dei Musei was a strip of asphalt, so certainly not in line with the monumental richness of the area.
To promote and enhance the itinerary, and to coincide with the celebrations for Bergamo-Brescia Italian Capital of Culture 2023, the City Council commissioned Brescia Infrastrutture to design the refurbishment of Via dei Musei as part of a more extensive plan to pedestrianise the old city centre and make it more citizen friendly. The project included the replacement of the asphalt with diorite stone paving slabs and blocks of porphyry in one section, and restoration work on the Sarnico sandstone pavements, repairs to the joints and the localised replacement of any compromised elements using the "touching-up" technique.

New resistant, durable and beautiful floors
The new road paving was turned into a mainly pedestrianised area with vehicle access restricted to local residents and vehicles serving the museums and local

businesses, with occasional access also for heavy-goods vehicles.
Because of the importance of the place, the tight schedule, the nature of the mechanical stresses and loads, which at times can be quite demanding, along with potentially harmful environmental conditions such as freeze/thaw cycles and the use of de-icing salts, the contractor commissioned to carry out the work proposed using the MAPESTONE SYSTEM, specifically formulated to create long-lasting and cost-effective urban stone paving with low maintenance requirements.
The MAPESTONE SYSTEM is made up of products from exposure class XF4 and complies with the requirements of European standard EN 206-1, thereby guaranteeing the durability of paving. Stone road surfaces installed using this system will only require maintenance work after a certain number of years thanks to their resistance to freeze-thaw cycles, de-icing salts and rain, and the mortars employed tend not to crumble and maintain their properties over the years.
They also have the capacity to absorb mechanical loads and stresses caused by the passage of vehicles, including heavy goods vehicles, and dangerous hollows caused by structural subsidence do not tend to appear. MAPESTONE TFB 60 pre-blended mortar was applied in a 5 cm thick to install the stones slabs, while the joints (average width 10 mm) were grouted with MAPESTONE PFS2 FLEX, a pre-blended mortar with low modulus of elasticity for grouting joints in architectural paving made of slabs, blocks and cobblestones.
Correct installation was monitored by taking samples of the mixes directly on site, indispensable to measure and verify the specified mechanical properties were achieved and to open the road to traffic quickly, as required by the City Council, without having to wait the 28 days prescribed for mortars mixed on site.

ABOVE.
Partial view from a side-street of Via dei Musei in Brescia, which was also refurbished with a central strip of Diorite stone paving slabs and classic cobblestones along the sides.

Find out more
MAPESTONE TFB 60

PROJECT INFORMATION
Via dei musei, Brescia (Italy)
Period of the intervention: 2022-2023
Intervention by Mapei: supplying products for architectural stone paving
Owner: Brescia City Council
Design: Brescia Infrastrutture, Stefano Bordoli
Installed materials: diorite stone and porphyry
Main contractor: BIOEDIL s.r.l.s
Works direction: Marco Agostini (Brescia City Council)
Operational direction: Rodolfo Eoli (Brescia City Council)
Project Manager: Gianpiero Ribolla (Brescia City Council)
Mapei coordinators: Grazia Signori and Francesco Cristini, Mapei SpA (Italy)
Sampling work with mobile lab: Luca Lanzini, Mapei SpA (Italy)
Testing materials: Paolo Fornoni, Research & Development, Mapei SpA (Italy)

MAPEI PRODUCTS
Installing stone paving:
Mapestone TFB 60
Grouting joints:
Mapestone PFS2 Flex

For further information on products, please visit mapei.com

by **Marcello Peli**

A sustainable and more liveable city

AN INVESTMENT PLAN HAS BEEN DEVISED FOR THE DEVELOPMENT AND IMPROVEMENT OF THE INFRASTRUCTURE SYSTEM IN BRESCIA

President Peli, could you tell us about Brescia Infrastrutture?
Brescia Infrastrutture was founded 10 years ago as a separate business division of Brescia City Council; firstly, to support any financial needs to complete the city's metro line, then going on to gradually broaden its scope of operation. Brescia Infrastrutture promotes important investments to develop and improve the city's infrastructure, as well as the setting up of an engineering company (certified ISO 9001) that would be able to take care of interventions strategic for the city.
It has numerous functions that give this in-house division of the City Council a constantly increasing amount of responsibility: from looking after the city's extensive patrimony, to investments into public (and not only public) mobility initiatives and the design and execution of important building works, urban refurbishment and environmental redevelopment included.
And going more into detail on this topic, over the years Brescia Infrastrutture has carried out various projects in the public mobility sector to facilitate connections between the urban transport network and traffic from outside the city by creating intermodal hubs: park and rides, for example, and important links such as the underground tunnel between the main railway station and the metro, a railway underpass aimed at making it easier to drive around what is the busiest part of the city. In other words, important intermodal exchange hubs, not only for private vehicles, but also for vehicles and trains from the province and other parts of the country heading towards the city centre. These interventions also bring with them significant environmental benefits, such as the park and ride at the Prealpino Metro station that will lead to an estimated 60,000 fewer private vehicles entering the city each year, with an estimated reduction of around 70 tonnes/year of CO_2.

You've come a long way in only 10 years...
And our intention is to go even further.

Since 2017 in particular, many of the company's engineering projects have been implemented.
Our engineering team is currently made up of 15 architects, engineers and surveyors divided into two operational units, each with the capacity to follow the development of public works projects, from the design stage right up to the executive and final commissioning phases. Over the last few years, we have developed more than 80 projects for Brescia City Council, works that also covered topics such as the re-naturalisation of decommissioned and abandoned production sites (former quarries) or the restoration of important features of the city's rich historic and cultural heritage, with the latter taking on particular significance due to Brescia-Bergamo being nominated this year's Italian Capital of Culture.

The refurbishment of Via dei Musei is also part of this scheme and was designed by your engineering team.
That's right. Via X Giornate and Via Musei represent the jewel in the crown for the old part of Brescia city centre and we played a part by giving it its functional and aesthetic qualities.

So Brescia, as a whole, represents a large-scale project focused on the present, but also projected into the future.
Twenty first century Brescia is undergoing a radical change that will lead to the city evolving from its industrial matrix to a more services and residential oriented place: beautiful, sustainable and liveable. And I'm certain that Brescia Infrastrutture will play a leading role in a large part of this process.

Marcello Peli. President of Brescia Infrastrutture

by **Stefano Bordoli**

Restoring the road to its former monumental role

THE PROJECT HAS ENHANCED AN OLD ROAD JUNCTION IN THE CITY

The refurbishment work on Via dei Musei touched one of the city's most ancient thoroughfares, the Decumanus Maximus of the city in Roman times, and a designated UNESCO World Heritage Site since 2011. What is the background of this project?
The historical significance of Via Musei, and the archaeological and museum sites located in the area in general, meant any refurbishment work had to be approached in such a way that the road would regain the monumental role attributed to it by history.
An indicator of this need was its inclusion in the list of UNESCO World Heritage Sites back in June 2011.
The objective of the refurbishment work was to transform Via dei Musei into a pedestrian zone so that the city would have a monumental site everyone could enjoy in complete safety.
Via Musei corresponds to the route of the Decumanus Maximus (the main east-wets oriented road) of ancient Brixia (so Brescia was called in ancient Roman times) and is the setting for archaeological sites from the ancient Roman times such as the Capitolino Temple, opposite Piazza del Foro, the remains of the Roman theatre and the medieval museum complex of Santa Giulia. Therefore, the project was a priority for the City Council.

> **"The challenge was to bring the road restoration project in line with the area's distinctive urban features**

What challenges were you faced with during the design phase?
The most important challenge was to come up with a general plan that took into consideration the length of the road (around 550 m) and the individual urbanistic features along the road, represented by historic buildings, archaeological sites and museums.
The central part of the road, corresponding to the UNESCO World Heritage Site, needed special attention in order to highlight its distinctive features with respect to the lateral parts of the road to the east and west.
As a result, the refurbishment work was carried out as follows:

- the western section, from Via Gabriele Rosa to Piazza del Foro, was paved with cubes of Trentino porphyry;
- the central section, from Piazza del Foro to Vicolo Settentrionale, with slabs of diorite stone;
- the eastern section, from Vicolo Settentrionale to the access steps to Via Avogadro, was also paved with cubes of Trentino porphyry.

To overcome the problem of how to blend in the different types of paving, transversal sections of reclaimed granite slabs were laid at the entrances to the Capitolino Temple and the Santa Giulia museum complex.

And during the executive phase?
To complete all work in time for the inauguration of the Bergamo-Brescia Italian Capital of Culture festival, we had to overcome the problem of utility systems running under the road, which were not always particularly deep, and programmed events in the museums that could not be postponed.

What was the most rewarding aspect of this project?
To have restored the road to its historical significance, which had been lost over the years, and to have given a sense of urban dignity to the archaeological sites and museums along the road.

Stefano Bordoli. Designer, Brescia Infrastrutture

by **Michela Tiboni**

THE IMPORTANCE OF CONTAINING OPEN SPACES

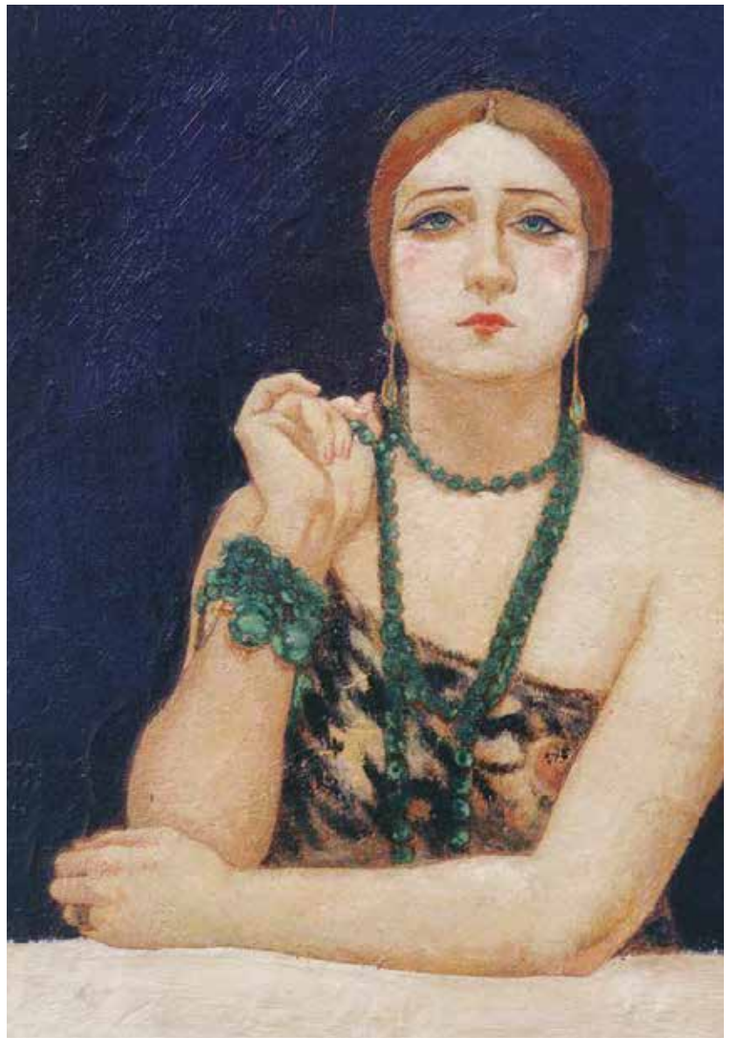
LIMITING EXPANSION AND URBANISATION ON OPEN SPACES CAN HELP PROMOTE THE REHABILITATION OF ABANDONED AREAS

The city of Brescia is characterised by the presence of a main historic centre which sets it apart from other cities because of its sheer size and importance, given by both the richness of the individual features of the centre and the overall historic significance of the surroundings. But the city is made up of numerous smaller neighbourhoods, each with its own centrality and history, to which the local council has always paid a great deal of attention when drafting policies for the territory.
During the ten years of administration under Mayor Emilio Del Bono, we have dedicated a lot of effort into containing the consumption of open spaces, not only because it is a rather limited and precious resource that needs to be preserved, but also because it is only by limiting expansion and the urbanisation of open spaces that it is possible to promote and encourage the rehabilitation and enhancement of abandoned areas and the existing stock of historic buildings.
This has shown to be a winning choice which has enabled numerous urban regeneration processes to be implemented in and around the city. Regeneration has not been confined to the perimeters of the areas where operators propose to intervene; thanks to the collaborative relationship between the public and private sectors, this regeneration process has been extended to include the surrounding public spaces with the objective of improving urbanisation from a quantitative and qualitative perspective. This has enabled more welcoming public spaces to be created for those who move around on foot or by bike: spaces that are also more attractive, so more likely to encourage social interaction.
The actions taken by the local council are obviously not limited to works deriving from urbanistic conventions pertaining to urban transformation. Important operations have also been implemented using their own resources, or funds from participating in competitions for national or European Union grants. For example, apart from the work carried out on Via Musei and Via X Giornate, and on Via Milano and Via Veneto, there are other interventions, such as those to be implemented to encourage adapting and mitigating climate change in Via Metastasio, or the environmental islands and Zone 30 that will be created to encourage students to go to school on foot as part of the "School and the centre of the future" project, one of the components of the Sustainable Urban Strategy for the Lombardy Region.
But it will undoubtedly be the important project that has been defined for the first tram line which will enable the roads it runs along to be rehabilitated. Just like with the light railway line, which recently celebrated its tenth anniversary, the tram line will be an important opportunity for the city to regenerate those public spaces most directly affected by the project, creating a more sustainable and liveable city.

Prof. Michela Tiboni. Councillor for Urban Affairs and Sustainable Development for Brescia City Council

Art and fashion intertwined

WORKS OF ART AND CREATIONS BY LEADING FASHION DESIGNERS ON DISPLAY AT FORLÌ CIVIC MUSEUM. MAPEI IS SPONSORING THE EXHIBITION



Anselmo Bucci, *Portrait of Rosa Rodrigo (La Bella)*, 1925, oil on canvas. Courtesy Matteo Maria Mapelli Arte Moderna e Contemporanea, Monza (Italy).

"One should either be a work of art or wear a work of art", so Oscar Wilde once said. This quote from the English author seems to have inspired an exhibition entitled *The Art of Fashion. The Age of Dreams and Revolutions, 1789-1968,* which opened in March at San Domenico Civic Museum in Forlì and will be running until 2nd July.
Clothes as a sign of power, wealth and recognition, but also as original creations inspired by painting, sculpture and the art world, interacting reciprocally to each other's gain.
Since the end of the 19th century and throughout the 20th century, the relationship between artists and fashion has grown even closer so that fashion has itself become an artform - a way of embracing worldly things just like philosophy or literature do - and is indeed inspired by art itself on an increasingly frequent basis since the second half of the 20th century. As Mondrian argued, "fashion is not only a faithful mirror of a given age, but also one of the most direct sculptural expressions of human culture".

Clothes and artworks compared and contrasted

The exhibition, devised and organised by the Fondazione Cassa dei Risparmi di Forlì bank in partnership with Forlì City Council and San Domenico Civic Museum and sponsored by Mapei as Partner, provides visitors with an overview of the ideas and insights that art and fashion have exchanged over the centuries. Art as a means of portraying the mood and feel of a given period in time that fashion expresses and brings to life in the people wearing its creations.
The exhibition includes over 300 works including paintings, sculptures, accessories and vintage/contemporary clothing. From Umberto Boccioni, Piet Mondrian and Giorgio De Chirico to Coco Chanel, Christian Dior and Giorgio Armani, the exhibition displays works by over 100 artists and 50 fashion designers and couturiers spanning a period of three centuries. From the Ancien Régime to the latter half of the 20th century, the works embrace the French Revolution, Romanticism, Impressionism, Symbolism and all the 20th century avant-gardes up to the present day.
Works of the most famous artists are contrasted with clothes from that period, in some cases recreated on the basis of careful documentation and in others borrowed from some of the world's most important collections.
Among the works on display are *Portrait of the Lawyer Carlo Manna* (1907) by Umberto Boccioni, *Large Composition A with Black, Red, Grey, Yellow and Blue* (1919) by Piet Mondrian, *Woman and Anemones* (1920-1921) by Henry Matisse, alongside *Marinetti's Waistcoat* (1923-1924) by Fortunato Depero, Gianfranco Ferré's *Orlando Shirt* (Autumn/Winter 2001-02), Mariano Fortuny's *Silk Delphos with Velvet Overcoat* (ca. 1920) dialoguing with a late 2nd century Eleusinian-style *Kore* and an evening dress by Elsa Schiaparelli displayed for the first time.

The exhibition displays works by over 100 artists and 50 fashion designers and couturiers spanning a period of three centuries.

A well-established relationship

Mapei's ties with the San Domenico Civic Museum began in 2016 and have resulted in the organisation of such important exhibitions as *Maddalena. The mystery and the image* (2022), *Dante. The vision of art* (2021) and *Ulysses. Art and Myth* (2020). A partnership deriving from Mapei's long-lasting interest and involvement in the world of culture, choosing to support such great institutions as La Scala Theatre and the Veneranda Fabbrica del Duomo in Milan or the Peggy Guggenheim Collection in Venice. Mapei is organising special guided tours for groups of clients throughout the entire exhibition.

At the "school of life" with mediafriends

The Art of Fashion. The Age of Dreams and Revolutions, 1789-1968 continues a partnership that first began back in 2014 between the Fondazione Cassa dei Risparmi di Forlì bank and the non-profit association Mediafriends.
Part of the proceeds from ticket sales will be donated to the "Scuola di Vita (School of Life)", a project aimed at helping build a future for so many lost and unemployed young people by providing them with training work.

Tangibile & Intangibile

TWO TOTEMS AT THE DESIGN WEEK IN MILAN PROVIDED AN OVERVIEW OF THE DELICATE BALANCE BETWEEN BUILDING EXPERTISE AND THE DISCOVERY OF NEW FORMS AND MATERIALS

Mapei took part in FuoriSalone 2023, the Design Week that took place in Milan from the 17th to the 24th of April, by supplying products and assistance for the Tangible & Intangible installation designed by One Works - an architecture and design firm founded by Leonardo Cavalli and Giulio De Carli - and created in partnership with the ICA Group.
Displayed in the courtyard of the University of Milan as part of the design event organised and coordinated by *Interni* magazine that this year focused on "Design Re-Evolution", the installation brought together the tangible and intangible, investigating the dualism in architecture between what is visible and can be experienced with the senses and what cannot be seen but can nevertheless be perceived.

Tangible & Intangible took the form of two totems placed on a platform. One of the two, which was all about the tangible, was made of layers of various building materials: mortars, sealants, render and other Mapei materials were superimposed on various simple building elements like profiles made of metal, wood and glass. The other totem had a thin metal profile that came to life, taking visitors into the intangible world of virtual experience. Scanning the QR Code in the middle of the totem with a smartphone allowed access to a game involving the visualisation of an imaginary city created by Artificial Intelligence. This highlighted how the extraordinary ability to generate images in the building industry and architecture is increasingly widening the gap between the imagination and actual construction.

EXPERIMENTING THE WAY DESIGN AND COMMUNICATION CO-EXIST

Leonardo Cavalli, Managing Partner of One Works.

The concept behind the exhibition-event curated by *Interni* for FuoriSalone 2023 is Design Re-Evolution, referring to a revolution that is also an evolution. What does it mean for One Works to be involved and what is the meaning of this evolution for you?
Evolution is commonly perceived as a forward-only process; but that is only a theory. One Works' integrated approach to design and communication views evolution as a sequence of steps, which ideally can be forwards, backwards or even sideways. We are guided in our work by the knowledge that the future can be directed as much by answers as by questions, i.e. by the ability to move across various dimensions of a project.
In one respect, our approach might be reminiscent of the opening scene in Inferno, a 2016 Ron Howard film in which the order of reality is disrupted without any fear of over-accentuating the seductive side of chaos.

Tangible & Intangible, perceived and unperceived: what role do they play for an architect in designing a project?
The Tangible & Intangible installation created in partnership with Mapei and ICA Group was one of the most surprising installations at the recent Design Week at the Milan State University. It was an experiment into the coexistence of design and communication, perceivable both in a vertical sense (physical, tectonic, stratified) and a horizontal sense (digital, indeterminate, panoptic).
We have probed into the future in a dual or double way, studying both the built and imaginary sides of architecture and the city - the atoms and bits of architecture - to make them visible and measurable.

What role can Artificial Intelligence play in the architecture of the future?
I like to point out that 'architecture', 'art' and 'artifice' are words that all come from the same root.
The limits and possibilities of Artificial Intelligence (AI) are still a long way from being set. Of course, it is a means of arousing curiosity and fear: reactions that need to be suitably energised ready to be channelled into constructive activities. In the near future, digital applications will impact our ways of living and working in the same way as climate-related emergencies; that is why the design world will be increasingly called upon to discuss the best means of creating architecture along spatially, technologically and culturally sustainable lines.
An integrated approach to AI in architecture will help us emphasise the tension and creative energy that will shape space in the future, just as they always have in the past.

How are new technologies and materials influencing design?
Nowadays, the design world is called upon to study the best means of building sustainable architecture from every point of view. The latest horizons opened up by new materials and also the possibilities offered by integrated design are encouraging architecture, business and building firms to move out of the comfort zone they have been operating in for years and taking them to the cutting-edge of new ideas and solutions. They are now forced to observe, for example, what is happening and has happened in other realms of innovation, especially in industry.
Innovation in materials and technologies in the work of One Works means that the design, technical and creative processes (of designers and all the other stakeholders involved) are subjected to a kind of 'training' from which buildings, cities and infrastructures emerge in 'top shape'. We hope this will also apply to the forms of life that practice them now and in the future.

What did you like about working with Mapei?
Working simultaneously on design and communication is never easy, especially when the concepts and solutions to be communicated do not have any predefined form; it is much easier to instantly convey the qualities of a lamp or a chair than those of an innovative building or latest-generation coating. That calls for 'reverse thinking'.
In a project that is both local and temporary, simple and at the same time complex, this has been achieved thanks to the ability shown by both Mapei and One Works to interact and exchange views.
The project was devised and developed based on a "circular" partnership with both parties contributing to the construction process, step by step, generating a sort of sensor of what is happening today and may happen in the future in numerous cities around the world.

Our participation at trade fairs

FROM ADMIXTURES FOR CONCRETE TO PRODUCTS FOR BUILDING AND BITUMINOUS ROAD SURFACES: SPRING EXHIBITIONS ALL OVER THE WORLD

CONEXPO-CON/AGG

Las Vegas, Nevada (USA)
14th-18th March

The 139,000 visitors from 133 countries and 2,400 exhibitors from 36 nations enjoyed five days of sharing experiences and information, demonstrations, displays, training opportunities and networking events. We are talking about the recent edition of CONEXPO-CON/AGG, the North-American construction trade show held in Las Vegas, Nevada (USA) from 14th to 18th March. Mapei Corporation, the Group's US subsidiary, presented admixtures for concrete, solutions for repairing concrete and materials for underground construction work to professionals from the sector. Apart from the mortars from the PLANIGROUT line, the spotlight was also on the RE-CON line of admixtures for recycling returned concrete and PLANITOP 3D, an innovative mortar used with special 3D printers that enable structures to be constructed more quickly and more cost-effectively. CONEXPO-CON/AGG was also the stage for the international launch of CUBE System, an integrated approach developed by Mapei to help the concrete industry overcome the problems associated with the use of low-clinker cement and aggregates of variable quality.

SEA TRADE CRUISE GLOBAL

Fort Lauderdale (Florida, USA)
28th-30th March

Mapei Marine participated in SeaTrade 2023, a leading annual B2B event for the global cruise industry, that brought together over 500 exhibitors, including more than 80 cruise lines, and over 9,500 visitors from 121 countries.
"Many visitors from the most important cruise owners visited our booth. Designers also showed great interest in our products" Guido Sardi, Business Development Manager for the Mapei Marine line in the USA, said.
The new design of the booth provided an attractive display for Mapei Marine's newest products designed for application in the shipbuilding industry: MAPEDECK TERRAZZO, a classic terrazzo flooring; MAPEDECK TEAK EVOLUTION, a two-component, aliphatic, polyurethane, seamless, teak-effect coating; MAPEDECK MONODESIGN, a very versatile, one-component acrylic resin product for both horizontal and vertical surfaces; MAPEDECK MIRUM, the last state-of-the art, two-component polyurethane seamless resin flooring. All these products are certified to IMO (International Maritime Organization) and MED (Marine Equipment Directive) standards for primary deck coverings.

BAU

Munich (Germany)
17th-22nd April

Mapei Group was present again this year at BAU, a trade fair dedicated to architecture and the construction industry. From 17th to 22nd April the company was in Munich to present its portfolio of "Zero" products (materials with zero impact on climate change) from the building products line (MAPEGROUT EASY REPAIR ZERO, MAPEFER 1K ZERO and PLANITOP SMOOTH & REPAIR R4 ZERO) and from the product line for installing ceramic and stone materials (KERAFLEX EASY S1 ZERO, KERAFLEX EXTRA S1 LD ZERO, KERAFLEX MAXI S1 ZERO, ULTRALITE S1 FLEX ZERO, MAPESTONE MAXI S1 ZERO and ULTRACOLOR PLUS). Under the spotlight were solutions from the ULTRACARE line for the protection, care and maintenance of surfaces and MAPELEVEL spacers and levelling systems to help make the installation of ceramic and stone tiles easier and quicker, as well as sealants, chemical anchors, polyurethane foams and special profiles manufactured by Profilpas, a subsidiary of the Group which had its own stand at BAU. Visitors were able to test the effectiveness and completeness of the Mapei solutions thanks to product demonstrations dedicated to specific applications.

COVERINGS

Orlando, Florida (USA)
18th-21th April

This year, Mapei Corporation, a Group's North American subsidiary, was again present at Coverings, a North American exhibition devoted to the ceramics and stone materials industry. The 2023 edition of the trade fair attracted over 20,000 visitors and 1,000 exhibitors from 40 countries to Orlando, Florida.
The Mapei Corp. stand had a lot to offer: first and foremost, a vast array of colours as it showcased six new collections and 12 new shades of grouts, each embodied in a monochrome artwork displayed on the walls of the exhibition space.
Also in the spotlight was the company's commitment to sustainability with the launch of ULTRALITE MORTAR ZERO, the first ceramic adhesive in the North American industry whose CO_2 emissions are completely offset, and the ULTRACARE range for cleaning, protecting, and maintaining ceramic and stone surfaces.
Real Bourdage, Mapei Corporation's Director of Strategic Marketing, received the "Joe A. Tarver Service to the Industry" award from the U.S. Ceramic Contractors Association at Coverings 2023 in recognition for his commitment to developing the U.S. ceramics industry.


© Pietro Bertora

© Martina Orsini | Ambrogio Beccaria

BELOW. The start of the first stage of the Défi-Atlantique regatta in Poite-à-Pitre, Guadeloupe. **ABOVE.** From left, first leg in Horta, Azores Islands, and a picture of the finish line in La Rochelle, France.

© PGarenne

Atlantic winds blow Beccaria to another success

PRESTIGIOUS SECOND PLACE AT THE DÉFI ATLANTIQUE FOR THE MILANESE SAILOR AND HIS ALLA GRANDE-PIRELLI BOAT, WHOSE GLOBAL SPONSOR IS MAPEI

Another Atlantic regatta and another prestigious success for Ambrogio Beccaria and the Alla Grande -Pirelli team, whose Global Sponsor is Mapei. The sailor from Milan came second in the Défi-Atlantique, which set sail from the port of Pointe-à-Pitre in Guadeloupe on 1st April heading for La Rochelle, France.
The Défi-Atlantique is a "return transat", i.e. a competition created for teams who have decided sail their boats home by sea after winter transatlantic crossings to the Caribbean: 3,500 miles divided over two legs, the first up to Horta in the Azores Islands and the second departing from the Portuguese archipelago headed towards the finish line in France.
After placing second in the first leg, Beccaria finished the second leg in fourth place. Ian Lipinski sailing Credit Mutuel finished first with third place going to Alberto Bona on board Ibsa.
The regatta was trickly but also highly satisfying, as Ambrogio himself noted after the finish: "This second leg and the entire Défi Atlantique regatta as a whole was strategically tricky and a real sporting challenge full of potential pitfalls and traps. It was milder in terms of the weather than the Route du Rhum but just as tough in terms of analysing forecasting models and tactics. We sailed really well all the way to Cape Finisterre, then, seeing as the distances had been shortened, we decided to take risks, and this inevitably resulted in a few bad moves".
The regatta was similar to a bike race in some respects with all the contenders marking each other very closely with Ian Lipinski constantly having to fend off Beccaria and Bona. The two Italians tried to take advantage of every opportunity they got to make up the deficit after the first stage (2 hours for Beccaria and 5 for Bona), but it was not enough. In the final sprint towards La Rochelle, Beccaria and his crew chose to head north to try and gain some distance on Ian Lipinski and keep ahead of him right to the finish, even at the cost of losing positions in the stage rankings.
"It was still a fantastic stage with dolphins paving the way for us," so Beccaria told us. "I had the time and opportunity to study Alla Grande-Pirelli better. I discovered many of its strengths and certain things that could be improved upon. It's a great boat to sail and we are unbeatable at close quarters.".
Gianluca Guelfi, the boat's designer, and Alberto Riva, the skipper and electronics manager, were both on board with Ambrogio. The team is already busy at work for the Normandy Channel Race, a two-man regatta that Beccaria will set sail from Caen (France) on 4th June.

TOGETHER ON THE OPEN SEA

It is now a year since Mapei joined forces with Ambrogio Beccaria and his "Alla Grande" sailing project. To celebrate the first year of sponsorship, Ambrogio chatted with the author and radio presenter Matteo Caccia on 16th May at the Mapei showroom in Milan. The event was also attended by Veronica Squinzi, CEO of the Mapei Group, Simona Giorgetta, member of the Mapei Board of Directors, and Ermanno Rampinini, Chief Operating Officer and Head of Human Performance Lab at Mapei Sport. In addition to plenty of anecdotes and interesting facts, they talked about the tenacity and passion that Ambrogio and Mapei put into everything they do, the numerous sporting feats undertaken by both the ocean sailor and the company itself, as well as the research work and multi-sectoral support (ranging from nutrition to training and sleep) that Mapei Sport provided him with in preparation for the regattas. Not forgetting the new adventures that are fast approaching as Mapei is once again ready to set sail alongside Ambrogio Beccaria.

FROM LEFT. Ermanno Rampinini, Simona Giorgetta, Ambrogio Beccaria, Matteo Caccia and Veronica Squinzi.

An example of commitment to young people

VICTORY IN THE VIAREGGIO CUP AND THE "GENERATION S" PROJECT PAY TESTAMENT TO THE WORK SASSUOLO DOES ON BOTH A COMPETITIVE AND SOCIAL LEVEL

Sassuolo captain Asan Mata is handed the Viareggio Cup by the local officials and organisers of the international tournament.

Sassuolo excelled at the Viareggio Cup. This season, the club managed another victory in this important international tournament held in Tuscany. Sassuolo won the tournament back in 2017 by beating Empoli in the final and again in 2022 after defeating the African team Alex Transfiguration. At this year's Viareggio Cup, the club fielded a mix of Under-18 and Youth Team players, beating Torino 2-1. Although founded back in 1920, Sassuolo has only been in professional football for a few years, nevertheless it has already won this prestigious trophy (in the shape of a Burlamacco carnival mask symbolising of the city of Viareggio) three times with all three trophies proudly on display at Mapei Football Centre in Sassuolo.
The match against Torino at Ferracci Stadium, that took place on the 3rd of April in Torre del Lago (Central Italy), was a very even balanced final that Sassuolo managed to win thanks to goals by Francesco Corradini and Luca Baldari. This great team success was just reward for Francesco Pedone, manager of the Sassuolo Under-18 team, who joined forces with the youth team manager Emiliano Bigica.

Action from the Viareggio Cup final: Luca Baldari (on the right) skips past a Torino midfielder; on the left, Simone Cinquegrano.

FRANCESCO PALMIERI TALKS ABOUT WORKING WITH YOUNG PEOPLE

"Our players," so Francesco Palmieri noted, Head of Sassuolo's Youth Sector, "played in the Viareggio tournament with a real desire to put on a good show and perform as well as possible. We as managers are keen to take part in the Viareggio Cup and Sassuolo's youth sector has always been international class. We managed to beat some very good teams and this third success makes us very happy. We will probably only realise later in the future how important it was to win the 2023 Viareggio Cup and just how well these young players performed. We combined the youth team with the Under-18s and all the players deserve credit, along with the managers and the rest of the team staff".
The fans will want to know when Baldari, Corradini and some of the others will be making their first team debuts. "My work and that of all the staff in the Youth Sector is aimed at developing players ready for the Italian Serie A or other top international leagues. There are always a few players manager Dionisi is interested in for the first team squad, and we have sent others out on loan to other clubs for training purposes. We have created just the right environment for developing young players. We must be brave enough to believe in our work and, most importantly, keep on trying to progress.".
It is hard work for the scouts to try and spot new talent everywhere. "Sassuolo's catchment area is not large", so Palmieri explained, "and we are surrounded by provinces whose teams have been around much longer than us. Sassuolo's youth sector has now reached a good level, but Bologna, Modena, Parma, Reggiana, Spal Ferrara and Cesena are clubs with a much longer history, and we have to compete with them to find new players. We must grow, otherwise we will struggle even more to find the best talent."

"GENERATION S" IS ONGOING

Sassuolo's "Generazione S" (Generation S) recreational/social progamme is continuing to help young people. This enterprise is so much more than just a means of recruiting players for the youth and first teams. Sassuolo's management and staff have made themselves available to amateur youth teams for organising special courses for team mangers and youngsters. The project is aimed at helping young people really enjoy and make the most of sport by improving their nutrition, training, culture and lifestyle.

CULTURE AND SPORT FOR KIDS AT MAPEI STADIUM

On 13th May, Mapei Stadium welcomed a different kind of audience as part of Internazionale Kids Festival, an event devoted to journalism for children being held in Reggio Emilia (Central Italy) from 12th to 14th May. Three days full of meetings and discoveries focused on children to talk about the environment, comics, music, science and much more. Over 200 people, including adults and children, took part in a day of sport and culture organised by Mapei Stadium and "Generazione S" (Generazione S). Astrophysicist Amedeo Balbi, associate professor of astronomy and astrophysics at University of Rome Tor Vergata, talked about the stars and planets. This was followed by a tour of the facility from the changing rooms to the stands to discover all the stadium's secrets. An important moment for Mapei Stadium: the first in a series of projects during which it will open up its facilities to culture and the city.

Francesco Alesi

Francesco Alesi

MAPEI WORLD NEWS

EVENTS, SPONSORSHIPS, AND PROJECTS BY THE GROUP'S SUBSIDIARIES

PUERTO RICO - RENEWED SPONSORSHIP OF PAN-AMERICAN UNION RACING TEAM

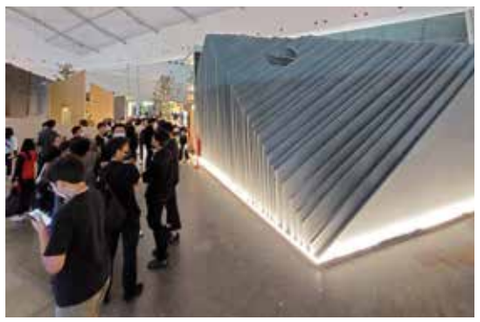
For the second consecutive year, Mapei Caribe, the Group's subsidiary in Puerto Rico, is sponsoring Pan-American Union Racing Mountain Bike Team (PURMTB). The team, set up in 2017 to offer professional cyclists from Puerto Rico the chance to compete across the border, will be even more "international": in the 2023 season it encloses Puerto Rican cyclists (Georwill Pérez, Darren Colon, Angel Manuel Rodriquez and Edrick Anaya) as well as Colombian athletes like Jhonatan Botero and Mexicans like Esteban Herrera. The racing kit with its new logo and colours is an accurate reflection of the team's international status.

PORTUGAL - IN LISBON FOR URBAN REGENERATION WEEK

From 29th-31st March, Lusomapei, the Group's Portuguese subsidiary, was a Gold Sponsor of Lisbon's Urban Regeneration Week, the largest city event in Portugal devoted to urban regeneration and sustainability featuring over 60 exhibitors and partners, 20 meetings and 120 speakers. The 2023 edition focused on the different districts of Lisbon. In addition to showcasing its own exhibition space, Lusomapei took part in a presentation held on 30th March about a renovation project for the Lisbon Conservatory of Music involving products from the MAPE-ANTIQUE range.

INDONESIA - THE "FAVOURITE BOOTH" PRIZE FOR MAPEI INDONESIA AT ARCH:ID

Arch:ID is an Indonesian exhibition focused on a synergy between manufacturers of building materials and architects. From 16th-19th March visitors to ICE BSD in Jakarta got the chance to admire a stand, awarded the "favorite booth" and designed by Atelier Riri, who wanted to recreate the atmosphere of a rain forest and evoke the origins of Indonesia's national identity. The 98 panels of the structure were covered with ULTRAFOP LOFT cementitious system, the surfaces of the internal walkway coated with MAPEFLOOR SYSTEM, and the substrates of the indoor pond were waterproofed with MAPELASTIC.



NEW ZEALAND - MBP (NZ) LTD SPONSORS THE CONCRETE INDUSTRY AWARDS

The Royal New Zealand Yacht Squadron welcomed 250 professionals to the NZ Concrete Industry Awards 2023 held on 23rd March. The evening saw the presentation of prizes that Concrete NZ, the New Zealand concrete association, awards to projects that have stood out for their innovations in the supply, design, and sustainability of concrete structures. MBP (NZ) Ltd, the Group's New Zealand distributor, was a first-time sponsor of the event and the General Manager Paul Tanner stated that: "The awards highlighted the durability and versatility of concrete, two properties that Mapei solutions contributes to".

QUESTIONS & ANSWERS

TWO DIFFERENT TYPES OF INSTALLATION TO MEET DIFFERENT PROJECT REQUIREMENTS

by **Angelo Giangiulio**

Wooden floors: floating or bonded?

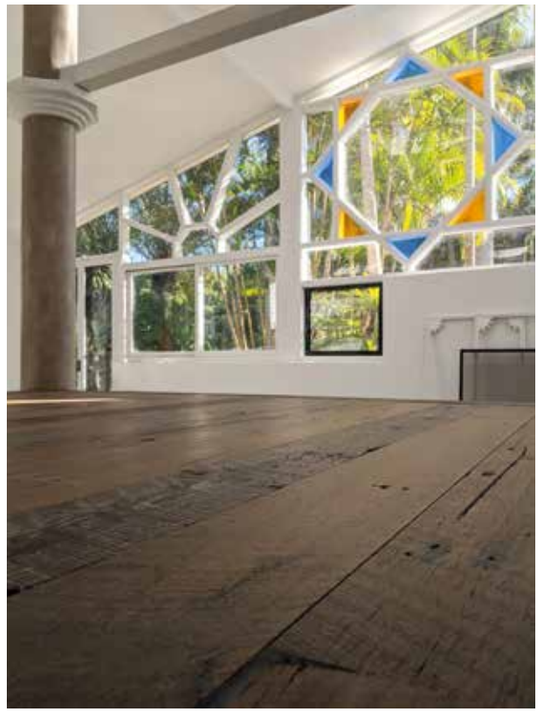
The starting point in creating a functional, durable interior environment with high aesthetic impact is a correctly installed floor. This is also true for wooden flooring, which can be installed by either bonding or using a floating system. With the first method the flooring is bonded to the substrate with specific adhesives, while with the second method the wooden covering is placed on the installation surface without using a chemical "anchor".
The second solution is becoming very popular because of its obvious advantages: installation is quick and simple, and surfaces are highly reversible. This is why, apart from flooring that needs to be installed using an adhesive system, the portfolio of many wooden flooring manufacturers also proposes types of flooring that do not need to be bonded.
Both types of installation, bonded and floating, certainly have their advantages and disadvantages. Each one is more or less suitable according to the type of surroundings in which the flooring is installed and their type of use in the short term and in the long term. So, these are two different solutions to meet different design requirements.

In which cases should you opt for a floating system?
A floating system is more suitable for those environments with a shorter life cycle, or which are used on an "occasional" basis, such as pop-up stores, trade-fair spaces and residential properties that are only used every now and again (such as holiday homes). It is a particularly suitable choice for those cases in which a more "aggressive" use of surfaces could lead to increased wear (such as floors where users are less careful).
Another situation where a floating system is recommended is when installing wooden flooring over existing flooring in a different material (such as ceramic or textile materials), for example, when it is not possible to remove the existing floor (rented properties, tight installation schedules or to reduce costs).
We should also take into consideration the indications given by manufacturers of wooden flooring to identify the application limits of floating wooden flooring. If there are conditions such as perfect flatness and the possibility of maintaining a constant level of surrounding humidity and temperature, floating wooden flooring is feasible. In all cases, whether it is a floating floor or a bonded floor, installation needs to be carried out by a professional to guarantee the correct properties of the final surface.

And when, on the other hand, is it better to bond wooden flooring?
Installing wooden flooring with an adhesive system is the most suitable solution when we need to guarantee a more durable surface, such as to remain in line with the rest of the features and structural elements in a building.
Besides, in areas subjected to intense use, floors in schools, commercial buildings and restaurants for example, it is usually recommended to bond wooden flooring.
Also, in the case of wooden floors with decorative patterns, using a silylated polymer-based adhesive (such as ULTRABOND ECO S958 1K) in a range varying from a "soft" to a "hard" category, allows you to comply with any design requirement. In fact, generally speaking, wooden flooring installed with adhesives guarantees better technical properties and extended durability, and it is also able to comply with a wide array of requirements.

What type of floor is "noisier", bonded or floating?
There are technical properties that can actually be improved by bonding wood flooring. One of these is that "empty" or "hollow" sound, the sound you hear when walking over the surface of a floor originating from the movement of components and then propagated through the surrounding structural elements. A typical characteristic of floating floors is that "hollow sound" caused by someone walking over it, which is usually louder than the type of sound generated on a bonded floor. This occurs because the air under floating flooring acts like a soundboard and the vibrations produced by the sound are amplified. This phenomenon is easy to recognise by those who use wooden flooring and, in the long term, can become a problem for end users.
Bonding, on the other hand, prevents the presence of an isolated layer of air between the substrates and flooring, so the noise it produces is less. The acoustics of internal surroundings are obviously determined by other factors (the quality of the flooring, echoes, type of shoes, etc.), but we can affirm that installing wooden flooring with an adhesive system reduces those "hollow" sounds caused by walking on the floor.

And if wooden flooring is installed on a heated floor?
Nowadays, many new builds have heated floors, but this solution can also be chosen for renovation work, such as to create systems with lower energy consumption or to install a new heating system. Bonded floors conduct heat generated by a heating system more efficiently than floating floors, which can lead to quite a saving on heating costs and lower energy consumption.
What is more, installing flooring with adhesives means that thinner wooden coverings can be used which, in turn, improves the thermal characteristics of the floor.



Installing wooden flooring with an adhesive is recommended for environments of high standard where durability and high-performance properties need to be guaranteed.

Which type of installation is more sustainable?
It is obviously easier to dispose of floating wooden flooring when it reaches the end of its service life, and also to recycle, where possible, any materials that make up the floor. Bonded flooring, however, guarantees better overall use in the long term and surfaces are more durable because the flooring is, in fact, "fastened" to the substrate. The higher initial costs are actually an investment in the long term and, what is more, a bonded floor can be sanded and coated and, therefore, renovated. This is a type of surface that could "evolve" over the years and be adapted to suit the surroundings in which it is located.
Durability and adaptability, therefore, make wooden flooring installed with adhesives a truly eco-sustainable choice which will also lead to a reduction in renovation costs and the amount of raw materials used throughout the entire life cycle of the floor.

Angelo Giangiulio. Corporate Product Manager, Wooden Flooring Line, Mapei Group

PRODUCTS IN THE SPOTLIGHT

PROTECTING CONCRETE FLOORS, WATERPROOFING ROOFS, AND INCREASING MECHANICAL STRENGTHS OF CONCRETE

1

Mapecrete Lithium Protector

FOR WEAR-RESISTANT AND DURABLE CONCRETE FLOORS

Liquid surface treatment with consolidating, water-repellent and protective effect for natural concrete floors or concrete floors finished with dry shake mineral hardener. It is used for the protection of coloured concrete or concrete with exposed aggregates. The treated support is more durable, more resistant to abrasion, and dustproof; it resists to UV and weathering; the formation of stains and efflorescence is greatly reduced; it is easier to clean and to maintain.
It is suitable for new or existing cementitious civil and industrial floors, where also the ease of cleaning and maintenance and the dustproof properties are important features.

2

Mapecube 60/60W

FOR CONCRETE WITH LOWER ENVIRONMENTAL IMPACT

Liquid admixtures that, by optimising the hydration of cement phases, increase the mechanical strength of concrete and mortar at all ages.
They are particularly suitable for all types of concrete mixtures, regardless of the type of binder used. They allow the specified strength class of the concrete to be maintained with a significant reduction in cement dosage, lower CO_2 emissions and a lower environmental impact.
They favour maximum reactivity and maximum development of the final mechanical strengths.
The products belong to the CUBE SYSTEM, which is available on the international market.

3

Mapeplan T M Broof (t1) - (t2) - (t3)

SAFE AND ECO-SUSTAINABLE WATERPROOFING OF ROOFS

Synthetic FPO/TPO waterproofing membrane, produced by a multi-extrusion coating process using high quality raw materials.
The membrane, in compliance with EN 13956 standard, is designed to waterproof mechanically fixed exposed roofs.
It is characterized by excellent resistance to U.V. rays and weathering. It is a highly sustainable product: the Smart White top layer - a special white color that ensures excellent solar reflectance (SRI) and a reduction of more than 50% of the surface temperature of the roof, when compared to a dark color cover - make it ideal for the realization of Cool Roof systems with high energy efficiency.