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TAKING HOLD OF THE FUTURE BY FOCUSING ON YOUNG PEOPLE

ADRIANA SPAZZOLI.
Realtà Mapei International's
Editor-in-Chief

Dears Readers,

Before taking a look at the contents you will find in this issue of *Realtà Mapei International*, I think it might be worth commenting on the current trend in manufacturing, an industry that is going through a recession in all industrialised nations at the moment.

This strategic sector, which has always been the very backbone of growth, is witnessing a gradual drop in the number of people it employs all over the world. Italy, in particular, is a great manufacturing nation and, however important they might be, Art, the Environment and the Farm-food Industry cannot compensate for the weakness in this sector. We need to recapture the spirit that transformed the nation from a second-bracket farming country into Europe's second-biggest manufacturer after Germany and fifth in the entire world.

Another worrying fact that needs to be studied in great depth is that the number of young people in Italy aged between 15-30 classed as NEETs (not in education, employment or training) is almost 2 ½ million. In Europe the number of NEETs is 7 million and, although there are significant differences between the various member states of the European Union, in all of them changes in the GNP have had a greater impact on employment among young people than the population as a whole. Indeed, the slowdown in economic growth has seen a rise in the unemployment rate for young people. There has been a notable increase in the number of NEETs in all member states, except for Luxembourg, since the onset of the economic recession.

In planning and building the future we cannot afford to overlook this wealth of young resources, and the economic system must show it can update and grow drawing on this unexploited reservoir of energy.

The great challenges of globalisation and an ageing population can only be overcome by getting young people fully involved in society, the working world and Research. Research that must certainly be focused on increasing the profits of those companies that support it, but which must also be directed towards the study and creation of new products designed to ensure a sustainable future. This is the path that professional companies like Mapei have been following for a long time now and which has enabled us to achieve some great results. Like, for instance, EPDs (Environmental Product Declaration), a new means of sustainability and competitiveness supported by Mapei within the building industry.

Not all nations share these values, but for Mapei, which has always led the way, this is a clearly marked path that it has been following for years without deviating or dithering. We need to react to this tricky period in time, which, amongst all the negatives, is also showing some positive signs as, for instance, seems to be the case in the building industry. Taking part in international autumn trade fairs in this sector, such as Cersaie and Marmomacc, we have noted an increase in the number of foreign visitors, which entitles us to feel a certain degree of optimism. A positive sign showing that there has, to some extent, been a revival in trading and we are also pleased to note our particular market is still at the focus of interest and attention.

The truth is that the future's roots lie in the present and whether we live better or worse in the short and medium term depends on the choices we make now. Those who fail to prepare the terrain properly today and do not sow seeds with great care cannot expect to reap the rewards tomorrow. This applies both to individuals, Nations and Businesses.

In accordance with its usual editorial line, this issue of *Realtà Mapei International* focuses on issues we have always been committed to while providing further insight into the company's workings and growth. These topics include Research, Eco-sustainability through the EPD System, Solutions to prevent damage caused by seismic events, the international Trade Fairs Mapei has recently taken part in, and, last but not least, the excellent results Sassuolo has achieved both in Italy and Europe.

Mapei is continuing to grow all over the world because it knows how to envisage a better and sustainable future based on values and products that are always at the very cutting-edge, justifying the choices we make on a day-to-day basis.

The articles in this issue of *Realtà Mapei International* also fall in line with this vision, because only transparent and constantly verifiable information enables communication to really make sense and be appreciated. We hope you understand our editorial line and enjoy and benefit from reading this latest issue of our magazine.

SUMMARY

ERRATA
The name of the installation company and Mapei distributor in the article about the Fondazione Poliambulanza Hospital in Brescia in issue no.59 of *Realtà Mapei International* (pg. 38) were both wrong. The work was actually carried out by Centro Pavimenti Srl, which also supplied the Mapei products. We apologise to those concerned and to our readers.

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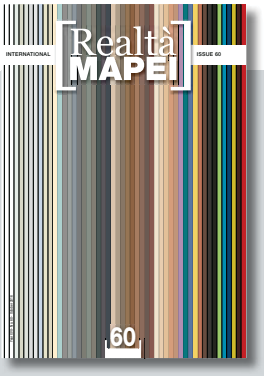

COVER STORY
At Cersaie 2016 Mapei introduced the new range of Coloured Grouts for ceramic tiles and stone: 50 colours, as well as a transparent version for sealants, to meet all the requirements you are likely to come across on the building sites when installing ceramic tiles or new, more difficult materials.

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HIGH-INTENSITY R&D

in the name of innovation and sustainability

MARCO SQUINZI DESCRIBES THE MAPEI GROUP'S STRATEGY FOR RESEARCH AND DEVELOPMENT

Research, scientific development and technological progress open up fresh prospects for well-being and have important effects for the whole of society.
Mapei, which has built its corporate credo on these bearing columns offering the most innovative products for the building industry, knows that improvements cannot be made in this realm without constantly striving to raise the bar of innovation. This is the only way of providing high-tech products that are extremely good value for money. All accompanied by the best service possible on an international scale, with the help of its staff, innovative solutions and highly qualified assistance and support catering for every imaginable building need or requirement.
It is worth pointing out that what Mapei has achieved is the result of notable investments in research and development, equal to 5% of its overall revenue, over 100 million Euros a year.

» THERE IS NO QUESTION OF STOPPING INNOVATION, WHICH WOULD MEAN HALTING A PROCESS OF GROWTH AND DEVELOPMENT THAT IS AN INTEGRAL PART OF OUR CORPORATE VISION

This is crucial for enhancing and upgrading its wide range of over 1600 products, divided into 15 different lines, designed for all kinds of operations ranging from products for ceramics and concrete to thermal insulation and coating materials. Every new product represents the culmination of a lengthy process of study and analysis involving numerous different variables, starting with sustainability and respect for the environment.
Research and development work lies behind every single new Mapei product launched on the market, the real key to grasping all this great endeavour. There are certain specific products, such as ULTRALITE and KERAPOXY CQ for example, that need studying and experimenting with for a long time. There is no question of stopping innovation, which would mean halting a process of growth and development that is an integral part of our corporate vision.
The key issues are speed, expertise and multi-disciplinarity. The speed of markets calls, first and foremost, for immediate reaction times in creating new products, but this can only be achieved as part of a team, just like in sport. It is the team that wins, not the individual. And this is why people with various different skills work in our laboratories, because without a combination of expertise we would never be able to keep up with innovation.
In order to come up with the right final formula, before being launched on the market the physical-chemical properties of every single product are carefully tested, exposed to thermal and humidity changes and analysed in terms of their emissions to reduce the level of volatile organic compounds to a minimum. All these operations are carried out by hundreds of researchers, who use the most sophisticated machinery for performing analyses to study interactions between particles much smaller than a micro. This has allowed the development, for example, of "lightweight" adhesives that can cover the same amount of surface area using smaller quantities of material.
New products that are supervised by the Mapei Corporate Research Centre in Milan but actually created working closely with 17 other Mapei research laboratories all over the world.
The only way to make the internationalisation process effective is to be "glocal": i.e. by supporting a loop involving input from individual markets, each with their own needs, and central coordination, whose critical mass allows across-the-board research to be carried out.
The lines of development in terms of innovation are multiple, ranging from constantly developing well-established products, mainly guided by the need to improve their sustainability, durability and the possibility of recycling materials, to research operations aimed at creating authentic technological discontinuity, as in the case of nano-technologies used for the building industry. These are the unexplored realms of research in which Mapei opens up to the academic world, setting up partnerships with several universities to notably bridge the gap between theoretical studies and market applications.
But innovation also means developing new business by drawing on the company's know-how, as in the case of RE.CON ZERO admixture for concrete, which allows what is leftover in truck mixers after unloading (200 million cubic metres-a-year on a global scale) to be salvaged for the production cycle.
Moving beyond thinking in terms of products to thinking in terms of systems is another source of innovation, which requires a real commitment on our part to create a full range of solutions for solving a specific problem, such as, for example, thermal insulation or masonry repair.
Results of the highest order that continue to bear fruits backed up by virtuous interaction between innovation and sustainability, such as KERAFLEX MAXI S1 ZERØ, the first adhesive with residual greenhouse gas emissions that have been eliminated through certified offsetting.
The future of forthcoming generations crucially depends on both innovation and sustainability, which Mapei has been investing in for years with great success and satisfaction.

Marco Squinzi. Mapei Group's Director of Research & Development

SET the **MOOD**

Personalize your space with the **new Mapei grout colour collections**.

Learn more on **grouts.mapei.com**

www.mapei.com

MAPEI®

ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

SET the **MOOD**
THE NEW MAPEI GROUT COLOUR COLLECTIONS

Mapei used sophisticated 3D imaging to study and develop the colours for their coloured grouts range in combination with the latest trends in tile design. This cutting-edge research has led to the creation of a new colour chart with 50 new shades for grouts and sealants, which also includes a transparent version.
The colours are also divided into five different collections: Serene, Traditional, Natural, Romance and Glamour. The aim is to make it easier to choose the right grout according to the requirements of each particular project and the personal preferences of each client.
This really is a complete range, the only one of its kind on the market for the vastness of its range of products and the wide choice of colours. A range that meets every requirement in ceramic tile laying, whatever the surroundings, whether it is residential, commercial or industrial.
To help display the new coloured grouts Mapei has updated the presentation folders with samples of the colours on offer, with special dedicated versions available for the world of design and for the world of retail: the first folder contains a collection of the colours available for ULTRACOLOR PLUS, KERAPOXY, KERACOLOR and FLEXCOLOR, the second folder contains the colours for KERAPOXY CQ, while the third folder contains those for KERAPOXY DESIGN.
All the colours for all the products are also contained in a special colour chart and in a dedicated leaflet, both available on request.
For further information go to the website fughe.mapei.it

NEW GROUT COLOUR COLLECTIONS

SET the **the MOOD**

Personalize your space with the new Mapei grout colour collections

SERENE

999 | *Transparent*

799 | *White*

100 | *White*

710 | *Ice White*

700 | *Translucent*

103 | *Moon White*

110 | *Manhattan 2000*

111 | *Silver Grey*

170 | *Crocus Blue*

new 137 | *Caribbean*

290 | *Cream*

131 | *Vanilla*

182 | *Tormaline*

TRADITIONAL

112 | *Medium Grey*

282 | *Bardiglio Grey*

720 | *Pearl Grey*

728 | *Dark Grey*

113 | *Cement Grey*

new 115 | *River Grey*

new 116 | *Musk Grey*

174 | Tornado

new 119 | *London Grey*

114 | *Anthracite*

NATURAL

729 | *Sahara Yellow*

133 | *Sand*

134 | *Silk*

135 | *Golden Dust*

new 152 | *Liquorice*

142 | *Brown*

147 | *Cappuccino*

136 | *Mud*

143 | *Terracotta*

ROMANCE

130 | *Jasmine*

132 | *Beige 2000*

new 138 | *Almond*

new 139 | *Pink Powder*

141 | *Caramel*

162 | *Violet*

GLAMOUR

171 | *Turquoise*

172 | *Space Blue*

150 | *Yellow*

145 | *Terra di Siena*

144 | *Chocolate*

149 | *Volcano Sand*

120 | *Black*

183 | *Lime Green*

173 | *Ocean Blue*

283 | *Sea Blue*

151 | *Mustard Yellow*

146 | *Rich Brown*

165 | *Cherry Red*

THE MAPEI COLOUR LINE INCLUDES DIFFERENT PRODUCTS:

CEMENTITIOUS GROUTS

Ultracolor Plus
Fast setting and drying, high performance, polymer-modified, anti-efforescence, water repellent grout for joints from 2 to 20 mm with DropEffect® and mould-resistant with BioBlock® technology (available in 34 colours).

Keracolor SF
Fine-grained, high-performance, white cementitious mortar for grouting joints up to 4 mm wide.

Keracolor FF
High-performance, polymer-modified water-repellent cementitious mortar with DropEffect® for grouting joints up to 6 mm (available in 14 colours).

Keracolor GG
High-performance, polymer-modified cementitious mortar for grouting 4 to 15 mm joints (available in 14 colours).

Keracolor PPN
High-strength, quick-setting grey cement pozzolan mortar with very low water absorption for grouting paved floors with joints from 5 to 30 mm wide subject to heavy loads and intense traffic.

EPOXY GROUTS

Kerapoxy
Two-component, acid-resistant, epoxy grout for joints over 3 mm. **Kerapoxy** is used for internal and external grouting of ceramic floor and wall tiles and stone material, that are subject to heavy traffic or where complete hygiene and strong chemical resistance are required (available in 20 colours).

Kerapoxy Design
Two-component, decorative, translucent, acid-resistant epoxy mortar for grouting glass mosaics, ceramic tiles and stone material with a particular aesthetic value, to be used in conjunction with **MapeGlitter** (available in 32 colours + **MapeGlitter** Light Gold and Silver).

Kerapoxy CQ
Two-component, acid-resistant epoxy grout which is particularly easy to apply and clean with a bacteriostatic agent, ideal for grouting ceramic tiles and mosaics (available in 19 colours). This product is certified by the University of Modena (Italy) according to ISO 22196:2007 standards as a grouting mortar protected against the formation and proliferation of micro-organisms.

Kerapoxy IEG
Two-component epoxy mortar with an extremely high resistance to chemicals, for grouting tile joints with a minimum width of 3 mm (available in 2 colours).

Kerapoxy P
Two-component, acid-resistant grey cement epoxy mortar which is particularly easy to apply and clean, for grouting tile joints wider than 3 mm.

READY-TO-USE PASTE GROUTS

Flexcolor
Ready-to-use, polymeric, DropEffect® water-repellent and BioBlock® mould-resistant paste for grouting tile joints from 2 to 10 mm in ceramic tiles (available in 3 colours).

Fix & Grout Brick
Ready-to-use, high-performance, mould-resistant with BioBlock® technology paste for bonding brick slips and lightweight cementitious and synthetic resin conglomerate decorative elements on internal and external surfaces (available in 3 colours).

SEALANTS

Mapesil AC
Mould-resistant with BioBlock® technology, solvent-free, silicone sealant with acetic crosslinking for movement joint of ±20% of the inizial size. It perfectly forms elastic gaskets between different construction elements in building, mechanical engineering, ship-building, automobile manufacturing, etc. (available in 34 colours + transparent).

Mapesil LM
Mould-resistant with BioBlock® technology, solvent-free, odourless neutral cross-linking silicone sealant for natural stone and ceramic tile finishes (available in 9 colours + transparent).

All Mapei grouts for ceramics and stone comply with EN 13888 standards.

CERSAIE 2016: NOT ONLY COLOURED GROUTS

Once again Mapei's presence did not go unnoticed this year at Cersaie 2016, the international exhibition of ceramic tile and bathroom furnishings held in Bologna from 26th to 30th September, organized by EDI.CER SpA, promoted by Confindustria Ceramica (Association of Italian ceramic tiles and refractory materials manufacturers) in cooperation with BolognaFiere.

Mapei is a regular at this event, where it presents lots of new products and organises all kinds of profitable meetings and appointments.

The outstanding figure for the 2016 edition of Cersaie was the total attendance of more than 106,000 (almost 5,000 more than in 2015; +4.7%). This included growth in numbers of both Italian and international visitors, the latter exceeding 50,000 for the first time in Cersaie's history.

As usual, the commercial side of the show was complemented by events catering for the world of architecture, interior design, installation and end consumers.

The six exhibition sectors hosted 852 exhibitors from 43 different countries (four more than in 2015) in an exhibition surface of 156,000 m^2, and there were 335 non-Italian exhibitor companies, almost a third of the total.

The show's appeal coupled with a strong economy in a number of international markets fuelled double-figure attendance growth, including a recovery in numbers of Italian visitors after several years of stagnation (+3.8% to a total of 55,623) and a continued rise in international visitors (+5.7% to 50,976). These figures confirm Cersaie's position as a key event for developing global business in the floor and wall ceramic tile and bathroom furnishing sectors.

Visitors also found the events organized in the "Tiling Town" area very interesting: Area 49 hosted the world of ceramic tile installation, with an important series of

events running through the exhibition itself. The events included "work in progress" sessions, technical seminars and presentations of EPD. Mapei was actively involved in many of these events, as we will explain later in this article.

A STAND FULL OF SURPRISES

As a foretaste of what will be one of the leitmotifs of forthcoming communication campaigns, Mapei used its spacious, over 800 m² exhibition space to focus on the concept of transparency, which has always been one of its distinctive traits in every aspect of the building industry.

For Mapei, Cersaie also was the occasion to present its Environmental Product Declarations (EPDs): an Environmental Product Declaration is a comprehensive report created according to internationally agreed standards (e.g. ISO 14025, EN 15804, etc.) which documents the ways in which a product affects the environment throughout its life cycle.

This is a further confirmation of Mapei 's commitment to transparency. A commitment that Mapei promotes by implementing its own code of ethics, adopting and respecting sustainable policies, listening to and dialoguing with its partners and, above all, offering products certified by third party institutions and bodies (see the following article).

Mapei has both Standard EPDs, which cover a single product and report all specific information for the studied product, and Model EPDs, which are structured according to chemical composition and cover all products within a certain range of formulations and applications. EPDs for Mapei products are available on "The International EPD® System" website (http://www.environdec.com/) and on Mapei website (www.mapei.it).

To demonstrate Mapei's global success, all the best case histories achieved during 2016 were screened in various areas of the Mapei Gallery; testimony of the validity of Mapei products and of the Company's internationality.

In fact, Mapei operates all around the world through its various subsidiaries: 81 companies, with a total of 70 production facilities located around the world in 32 different countries and in 5 different continents.

Sustainability was one of the highlights at Cersaie 2016. Mapei's communication also focused on EPDs, the Environmental Product Declarations.

In support of the Mapei products presented at the exhibition there was a special demonstration area where Mapei technicians showed how to use the company's products, as well as display panels featuring various systems.

SPECIAL PRODUCTS FOR INSTALLING CERAMIC TILES

At Cersaie 2016 Mapei introduced the new range of Coloured Grouts for ceramic tiles and stone: 50 colours, as well as a transparent version of sealant, to meet all the requirements you are likely to come across on the building sites when installing ceramic tiles or the new, more difficult materials, such as large-size, thin porcelain tiles.

The new range of colours, called "Set the Mood", is divided into 5 collections for you to create just the atmosphere you desire, both at home and in areas used on a daily basis: Serene, Traditional, Natural, Romance and Glamour. New colours with the same Mapei guarantee as always. The Coloured Grouts collections are available in different shades, from pastels to strong, trendy colours, a perfect match for today's modern ceramic tiles.

During the exhibition Mapei launched its new high performance adhesives, particularly easy to use and in compliance with S1/S2 class according to European standard EN 12004, which means performance characteristics able to match contemporary materials: KERAFLEX EASY S1, the new cementitious adhesive with very low emission level of volatile organic compounds (VOC) for installing large-size ceramic tiles over large surfaces, and the evolution of KERABOND, KERABOND PLUS, a cementitious adhesive with extended open time and very low emission of volatile organic compounds, which, when mixed with ISOLASTIC latex, is recommended for installing all types of medium-size ceramic and natural stone not sensitive to moisture.

Alongside these novelties, at the exhibition Mapei also proposed its S1 range of rapid adhesives, particularly appreciated in the renovation sector of the building industry because they allow you to repair flooring in just a few hours: GRANIRAPID, KERAQUICK S1, ULTRALITE S1 QUICK. In the spotlight at Cersaie 2016 the Mapei C2 class adhesives: a range of high-performance, non-slip cementitious adhesives with extended open time. Amongst the range, the novelty KERABOND PLUS; ADESILEX P9 and ADESILEX P10, the former recommended for installing on existing flooring and heated substrates, the latter for installing glass mosaics; KERAFLEX recommended for installing medium and large-size ceramic tiles and natural stone on deformable substrates; ULTRALITE FLEX lightweight adhesive recommended for routine in-

stallation work, particularly thin porcelain tiles. At Cersaie Mapei also highlighted its family of ULTRALITE lightweight adhesives: a family of unique, cutting-edge products with high performance characteristics. These adhesives contain lightweight natural aggregates or glass micro-spheres that make it easier to handle the bags of product (just 15 kg) and to spread the product. They feature 80% higher yield compared with other adhesives with the same classification.

Also on show at the exhibition was KERAFLEX MAXI S1 ZERØ cementitious adhesive for ceramics which was recently introduced onto the market, a leader in terms of performance and with zero impact. It is the first adhesive with zero effect on climate change: residual greenhouse gas emissions, impossible to eliminate from a technical point of view, are offset by purchasing certified CO_2 credits.

The theme of energy savings is also very important: Mapei proposed complementary products during the exhibition, such as MAPETHERM TILE SYSTEM, which allows large-size ceramic tiles to be installed on thermal insulation systems, an increasingly common technique which is adopted to meet the growing demand for energy saving interventions, using adhesives ideal for these applications, such as ULTRALITE S2 and the rapid version ULTRALITE S2 Quick.

Mapei proposed ULTRATOP LOFT, a system for creating floors and surfaces with a highly natural effect, often used in the residential, commercial and hospitality sectors.
The numerous products and systems that Mapei presented at Cersaie were much admired by all the international visitors, who always have a keen eye for any new ideas and a real interest in exploring what the market has to offer.
This was, then, a successful Cersaie and the next edition of the event will be taking place in Bologna again from 25th to 29th September, 2017.

PRODUCTS FOR WOODEN AND CEMENTITIOUS FLOORS

Apart from ceramics and stone material other materials are becoming increasingly used as floor and wall coverings, such as wood, for which Mapei boasts a range of eco-sustainable, solvent-free products to safeguard the environment and protect the health of floor installers and end users, such as the ULTRABOND line.
Apart from adhesives, Mapei also has a wide range of products available to help maintain the beauty of wooden flooring and this year the Company introduced an updated range of 4 products, as well as an innovative lightweight tool: ULTRACOAT CLEANER, a concentrated detergent developed for cleaning varnished and oiled wooden floors, ULTRACOAT REMOVER PLUS detergent to remove old wax and stubborn dirt and stains, ULTRACOAT POLISH ANTI SLIP to provide an anti-slip protection and ULTRACOAT POLISH MATT, which forms a protective, wear- and stain-resistant finish.
The new, innovative tool MAPEI SPRAY MOP has been developed to help clean domestic environments quickly and efficiently and may also be used to carry out periodic maintenance on wooden floors to remove old wax and apply new wax.
To meet the increasingly demanding requirements of designers at Cersaie

AT CERSAIE THE CHAMPION'S LEAGUE OF EUROPEAN TILE INSTALLERS

For the first time ever a selected group of 20 tile installers, from various European countries, had the chance to demonstrate their experience and pit their skills against each other at Cersaie 2016. The EUF Workshop was a very important event for all those taking part, made possible by the hands-on involvement of Paolo Colombo, President of Assoposa (the Italian National Ceramic Tile Installers Association) and EUF (the Federation of European Tile-fixers' Associations). The Cersaie exhibition is undoubtedly the most appropriate place to host such an event.
In fact, for a number of years the organisers of the exhibition have been organising "Tiling Town", a special display area dedicated to new tile installation techniques and technology. And, after guest appearances by both the winner of the 2012 World Tiling Championships and the three joint-winners of the 2013 Championships, this year's Tiling Town hosted the most highly skilled tile installers from various European countries in a contest to install large-size thin ceramic tiles. It seems superfluous to point out that these are the issues everyone is talking about at the moment; manufacturers are churning out larger, more technological ceramic tiles, designers appreciate this trend and are proposing them more often and consumers are turning to them even more.
But the question everyone is asking is the following: who is going to install them and how are they going to install them? It wouldn't be an exaggeration to say that installation represents around 51% of the value of a floor or wall covering and it is pretty obvious that, if ceramic tiles are not installed correctly and perfectly, they will ruin the entire surface, causing damage and an inconvenience to everyone. So much the better, therefore, for a chance to compare tile installers not only in Italy, but also throughout the whole of the European market. Both similarities and

differences emerge through this type of comparison, but above all the chance and desire to better oneself also emerges, to obtain more prestigious professional qualifications in line with the needs of the market. And as part of the Tiling Town display, to echo this new trend, a special "right/wrong" area was set up where it was possible to work with master installers and see at first-hand a "right" installation and a corresponding "wrong" installation. Just for example purposes: grout lines not perfectly straight, joints filled with silicone sealant with the wrong application, chipped ceramic tiles, grout lines with humps and hollows, and more.

Graziano Sezzi.
Confindustria Ceramica

EPD: SUSTAINABILITY AND TRANSPARENCY

THE ROLE OF ENVIRONMENTAL PRODUCT DECLARATIONS FOR THE PURPOSES OF ENVIRONMENTAL IMPACT ASSESSMENT

Innovation, specialization, internationalization, environmental sustainability and social responsibility: these are the pillars for Mapei success. In this way all stakeholders can trust in Mapei which is the first leader in Italy and among the best manufacturers of chemical building products in the world.

MAPEI: SUSTAINABILITY AND TRANSPARENT COMMUNICATION

70% of Mapei R&D efforts are directed to develop eco-sustainable and environmentally friendly products which give important contribution **to all main green rating for eco-sustainable programs such as LEED and BREEAM. Mapei is always fighting against unfair competitors**, and the traditional care of sustainability has been focused for the last few years on **fighting against "green washing"**, the deplorable communication strategy to build a misleading positive self-image under the environmental profile.

Mapei declarations are always measurable, measured and verified by third party bodies, to communicate in a more transparent way the environmental performances of the products. Therefore, a special corporate function has been created to assess the environmental impact across the whole life cycle of Mapei products.

In 2013 Mapei joined the "Call for the Analysis of the Carbon Footprint during the Life Cycle of Consumer Goods", promoted by the Italian Ministry of the Environment. This experience made the company aware of the importance of LCA (Life Cycle Assessment) study,

in order to measure and reduce the impact of products on the environment.
In May 2016 Mapei SpA Sustainability Deaprtment obtained the EPD (Environmental Product Declaration) process certification by Certiquality (an Italian organisation which is accredited for the certification of quality, environmental and health and safety management systems), according to EPD International® General Programme Instruction.
Using this process certification, which is periodically verified by third party bodies, Mapei can measure how a product will impact on the planet, and can also demonstrate that calculations are right. Consequently, Mapei can release and publish their EPDs as transparent certifications with measured and controlled data.
EPDs are published on platforms of "Program Operators", independent bodies which certified that the declarations are properly written according to ISO standards. Mapei, thanks to their process certification, publish their EPD with EPD International, a Swedish Program Operator which is internationally recognized.

EPDS: WHAT ARE THEY?

An Environmental Product Declaration (EPD) is a comprehensive report created to internationally agreed standards (e.g. ISO 14025, EN 15804, etc.) which documents the ways in which a product affects the environment throughout its life cycle.
Typically an EPD will include information about a product's impact on categories as the global warming caused by greenhouse gas emissions, the ozone depletion, the natural resources depletion, the eutrophication (abnormal growth of aquatic organisms, such as algae, which causes the depletion of aquatic fauna), the acidification due to pollutants (which causes for example the acid rain), etc.
In the construction sector, EPDs help architects, designers, contractors and other purchasers to better understand a product's sustainable credentials and environmental impact.
As a result, EPDs allow customers to make more informed purchasing decisions on the basis of transparent, measured and certified information.

EPDS: WHAT'S THE PURPOSE?

The construction industry is subject to increasing requests to improve and demonstrate the sustainability credentials of its products.
Certification organizations such as LEED (the United States' Green Building Council's Leadership in Energy & Environmental Design), BREEAM (the UK's Building Research Establishment Environmental Assessment Method), DGNB (the German Sustainable Building Council), and HQE (the French High Environmental Quality certification) have started to implement sustainability criteria, mostly for buildings, but also defining specific construction product requirements based on life cycle analyses, eco-balances and emissions.
Besides, architects and green procurement bodies (the GPP, Green Public Procurement, is now mandatory in some countries of the European Union, Italy included) are requesting products that meet international sustainability standards. Furthermore, the Construction Products Regulation 305/2011 of the European Parliament and European Council has included the requirement for 'Sustainability', and Belgium and France have a national legislation requiring EPDs for construction products with an environmental claim.
The construction industry is faced with growing requests for information about its products to prove they meet the requirements of sustainable construction projects. The request is increasing even though the impact of a Mapei product in terms of the raw material and energy consumption related to the building as a whole may be negligible.
The best way to demonstrate the environmental credentials of a product is the so-called Environmental Product Declarations.

EPDS - TYPES AND ADVANTAGES

There are several types of EPDs, with the difference based on the way in which the data are assessed.

1 – STANDARD EPDs

A single EPD is developed for every individual product by a single producer. Standard EPDs report all specific information for the product, but they are a high burden for the industry because of the huge effort it would take to develop and maintain EPDs, since a revision is necessary whenever the formulation and/or the raw materials change.
The EPDs for 19 Mapei products (manufactured in Italy) are already available for stakeholders, as you can see in the table below.

2 – AVERAGE EPDs

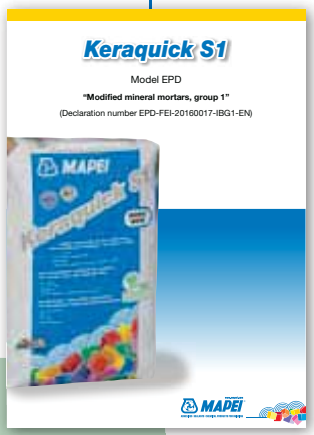
The average EPDs are calculated for specific product groups, covering well-defined products with similar functions, prepared from different companies. They are usually published by Product Manufactures' Associations. They report average environmental im-

MAPEI PRODUCTS WITH STANDARD EPDS

- Keraflex Maxi S1 Zero, Keraflex Maxi S1 Ultra White
- Ultraplan, Ultraplan Eco, Ultraplan Maxi, Novoplan Maxi
- Keraflex, Keraflex Easy S1, Kerabond Plus
- Topcem Pronto, Mapecem Pronto
- Granirapid, Elastorapid, Kerabond+Isolastic 50%, Kerabond+Isolastic 100%
- Mapelastic, Mapelastic Smart, Mapelastic Foundation, Mapelastic Turbo

pacts for products and manufcaturers involved in the study.

3 – MODEL EPDs released by FEICA



The model EPDs released by FEICA (Association of the European Adhesive & Sealant Industry) are the most suitable not-standard EPDs for Mapei adhesives, sealants, coatings, flooring and mortars.
Rather than covering a particular range of products, they are structured according to chemical composition and cover all products within a certain range of formulations and applications. As the environmental impact of a product to a building is comparatively low (<1-3%), any differentiation between products would not contribute any additional meaningful information due to the complexity of the system.
Model EPDs are developed using a "worst case scenario" approach. Although there is a high workload in the development phase to achieve an accepted and verified system, in the end they may be used by all eligible members of FEICA and can easily and conveniently accommodate new products.
IBU (Institut Bauen und Umwelt e.V.) has verified and published 17 FEICA Model EPDs, which can all be downloaded from the IBU (http://ibu-epd.com) and FEICA websites (http://www.feica.eu/our-priorities/key-projects/epds.aspx)
These model EPDs can be used by Mapei and all other FEICA members only for products manufactured in Europe, and for five years from the publishing date, if it can be proven that the products are compliant with the right EPD.
For this reason FEICA published guidelines for calculating and verifying if a product can be compliant with a specific model EPD.
More then 40 Mapei products compliant with FEICA model EPDs are mentioned on Mapei website (www.mapei.it).
Other European associations released model EPDs, as EFCA (European Federation of Concrete Admixtures Associations) did for concrete admixtures: six EPDs have been released and can be used by the association's members, like Mapei.
These EPDs cover all kinds of concrete admixtures, such as superplasticizers, accelerators, air entraining agents, etc.

SUSTAINABILITY AND DURABILITY

Last but not least, a general consideration. Talking about sustainability in the building field, we cannot only consider the environmental impact reported in the EPD, such as the reuse of materials at the end of life, which are commonly sent to landfill.
The quality and the durability of the products are extremely important as well: the longer the life of a product is, the more it is sustainable, since during its whole life cycle it reduces the amount of waste, and the energy, water and natural resources consumptions.

EPD MODELLO (MODEL EPD, PROGETTO DI FEICA, L'ASSOCIAZIONE EUROPEA DI ADESIVI E SIGILLANTI)

ADESILEX P9	MAPESIL Z PLUS
ADESILEX P10	PRIMER SN
ECO PRIM PU 1K	TIXOBOND WHITE
ECO PRIM PU 1K TURBO	ULTRABOND ECO 571 2K
KERACOLOR SF	ULTRABOND ECO P909 2K
KERACOLOR FF	ULTRABOND ECO P992 1K
KERACOLOR GG	ULTRABOND ECO PU 2K
KERAPOXY CQ	ULTRABOND ECO S940 1K
KERAPOXY DESIGN	ULTRABOND ECO S948 1K
KERAPOXY IEG	ULTRABOND ECO S955 1K
KERAPOXY P	ULTRABOND ECO S968 1K
KERAPOXY	ULTRABOND ECO S1000 1K
KERAQUICK S1	ULTRABOND S965 1K
KERASET	ULTRABOND S997 1K
MAPEFLEX PU40	ULTRACOLOR PLUS
MAPEFLEX PU45	ULTRALITE FLEX
MAPEFLOOR PU 460	ULTRALITE S1
MAPEFLOOR PU 461	ULTRALITE S1 QUICK
MAPEFLEX PU50 SL	ULTRALITE S2
MAPEFLOOR I300 SL	ULTRALITE S2 QUICK
MAPESIL AC	ULTRATOP
MAPESIL BM	ULTRATOP LOFT F
MAPESIL GP	ULTRATOP LOFT W
MAPESIL LM	

Roberto Leoni, Mikaela Decio, Marco Mazzetti.
Mapei SpA Environmental Sustainability

URBAN DESIGN AND INSTALLATION OF STONE ACCORDING TO MAPEI

As in previous years, Mapei took part in Marmomacc, the international exhibition dedicated to marble, granite, processing technologies, design and training, whose 51st edition took place at Veronafiere from 28th September to 1st October.

The event was more international than ever with final results highlighting steady growth.

"The 51st edition - said Maurizio Danese, President of Veronafiere - set new records, starting off with +10% of exhibitors for a total of more than 1,650 companies from 53 countries, and 67,000 specialist operators arriving from 146 countries. The show covers the entire value chain, combining products, machinery and culture in a unique event with a strong history that continues to evolve, as evidenced by the new Marmo+Mac brand summarizing our identity while equally looking to the future."

Giovanni Mantovani, CEO & Director General of Veronafiere, said: "International visitors attending this edition of the show increased by 5%, to more than 60% of total. We achieved marvelous confirmation from markets such as the United States, Germany and Spain, not to mention the astonishing 45% increase for Chinese operators and an equally significant increase of 11% from Great Britain."

Attendance figures also include more than 300 new international top-buyers and architects selected as members of official trade delegations arriving from 32 countries, with debuts for Nigeria and Mozambique.

COMPLETE AND WINNING PRODUCT SYSTEMS

Mapei participated in Marmomacc with a special focus on urban design, proposing systems such as MAPESTONE and MAPEI COLOR PAVING, the new Coloured Grouts for ceramic tiles and stone material and adhesives and complementary products for installing stone.

The MAPESTONE system is a complete system for repairing, installing and grouting architectural stone road surfaces. Easy to use, it is extremely strong and highly resistant to stresses, chemicals, de-icing salts and freeze/thaw cycles. The system is made up of:

MAPESTONE TFB 60 ready-mixed mortar for installation screeds, MAPESTONE PFS 2, MAPESTONE PFS PCC 2 and MAPESTONE PFS2 VISCO ready-mixed mortars for architectonic stone floors. The MAPESTONE system is widely used for repairing ancient pedestrian zones and streets when the finish and appearance needs to remain in keeping with their surroundings.
The other solution dedicated to urban design displayed at Marmomacc 2016 is MAPEI COLOR PAVING, proposed by Mapei to build concrete road surfaces with an exposed aggregate effect finish. This system meets the requirements of both designers and clients, as well as requirements often encountered when working on site. The wide range of granulates and coloured pigments available, as well as the possibility of combining the binders with local stone, make it the perfect solution for creating a pedestrian or road surface for vehicles that integrate perfectly with the surrounding where it is employed.
MAPEI COLOR PAVING has exceptional mechanical performance characteristics and is highly durable thanks to a special combination of admixtures, developed in the Mapei Research & Development laboratories, fibres and coloured pigments.
MAPEI COLOR PAVING includes the following products: COLOR PAVING PRONTO ready-mixed screed, COLOR PAVING BINDER ready-mixed binder, COLOR PAVING ADMIX ready-mixed powdered admixture, COLOR PAVING STONE granules (available in various colours and grain sizes), MAPECOLOR PIGMENT coloured pigments to personalise the road or surface and MAPEWASH PO top-surface deactivators, which give the concrete an exposed aggregate look.
Apart from the solutions for urban design, at Marmomacc 2016 Mapei presented the new Coloured Grouts, available in 50 different colours as well as a transparent version.
All Mapei high performance and technologically innovative solutions for installing and grouting stone materials have been presented at the exhibition with special display panels and progress slabs to illustrate how to use the products correctly, depending on the type of intervention to be carried out.

Hoping to reconfirm the fantastic results of this year, the 52nd edition of Marmomacc is scheduled at Veronafiere from 24th to 27th September 2017.

MAPESTONE, the system developed by Mapei for repairing and installing architectonic stone floors, was in the spotlight at Marmomacc 2016.

LES DOCKS VILLAGE IN MARSEILLE

INSTALLING NATURAL STONE AND CERAMICS FOR A SHOPPING CENTRE OVERLOOKING THE SEA

After more than two years of work Les Docks Village, a large, iconic building in the Joliette area of Marseille, has been given a new lease of life. What used to be a warehouse and then a business centre today houses 65 boutiques and restaurants in lively, fashionable surroundings.
Its new look was designed by the Italian design studio 5+1AA with Alfonso Femia and Constructa Urban Systems, who worked with the distributor and flooring contractor Mattout to install ceramic tiles and natural stone inside the complex.

THE HISTORY

Marseille Docks were built in the middle of the 19th century to store goods in transit. Designed by the architect Gustave Desplaces, they were made up of four main warehouses, each one built around a central courtyard, and a building for the management and administration offices. Whether it was due to superstition or a belief in numerology, the design was inspired by the idea of an universal clock: 365 m in length (the number of days in a year) with 52 doors (like the number of weeks in a year), 7 floors (the number of days in a week) and 4 internal courtyards (the four seasons).
In the 1990's, thanks to the Euroméditerranée project, the Docks were transformed into a modern business centre. In 2007 JP Morgan Asset Management acquired the area on behalf of a number of institutional investors who wanted to turn it into a "centre of life". In October 2015 Les Docks Village reopened with the intention of combining shopping, leisure time and fun.
In spite of its use being changed over the years, this grand, famous building has always maintained the same name and has become an iconic symbol of Marseille.

A PLACE OF HONOUR FOR COLOURS...AND FOR ITALY

Taking inspiration from its position as both an urban and maritime feature, the 5+1AA architectural design studio imagined turning it into a meeting place with views of both the city and the sea.
The décor and atmosphere for the four internal courtyards (Place du port, Grand Place, Place des palmiers and Place du marché) help to enhance the stone and ceramic used, as well as the plants and the light. An invitation to take a tour of Italy thanks to the choices made by 5+1AA to use noble Italian materials and products: ceramics from Modena, glasswork from Murano and Venice and

LEFT. Les Docks Village is a large, iconic building in the Joliette area of Marseille. **RIGHT.** 1,300 m² of Moleanos stone slabs were bonded to the floors in Place des Plamiers and Place du Marché squares with KERAFLEX S1. The joints were grouted with ULTRACOLOR PLUS.

plants from Florence. The architects Alfonso Femia and Gianluca Peluffo took special care over the colour schemes. To make the mosaic panels for Place du port they chose seven shades of blue and white mosaics by Casalgrande Padana, while for the Grand Place they chose seven (again that special number seven!) shades of green for the 1,800 lozenge-shaped wall tiles.

EXPERT WORKMANSHIP

The family-run Mattout company, founded in 1963, was chosen to install the mosaic and natural stone. "I was completely impressed by the project" admitted Works Director Pierre Mattout, "It is the first time we had taken on such a technical and decorative contract. We were all so enthusiastic! And, of course, we chose Mapei products to install the material". Mattout and Mapei have actually been working together for around twenty years: a collaboration that is based on common values: trust, only quality products and appreciation for the true value of "know-how".

Moleanos stone was chosen for the road surfaces in Place des palmiers and Place du marché in three different effects (flamed effect, bush-hammered effect and chiseled effect) and was bonded using KERAFLEX S1 cementitious adhesive in its white shade, a product which is manufactured and distributed on the French market by Mapei France. The joints were grouted with ULTRACOLOR PLUS high performance mortar in the colour Manhattan 2000 (No. 110).

The most difficult part of the work was the installation of the blue mosaic panels in Place du port. "We had to make 780 panels of mosaic mounted on stainless steel plates measuring 1.5 m by 0.8 m. Our job normally consists of installing tiles: in this case, however, and for the first time, we had to break them into pieces before bonding them!" told us Pierre Mattout. The 7x7x10 mm fragments, obtained by breaking up 40x40 cm tiles, were bonded directly to the

PLACE DU PORT

ABOVE. In Place du Port square the mosaics were installed on over 780 panels using Mapei products.
BELOW, LEFT. Fragments of ceramic tiles were bonded to steel panels with MAPEFLEX PU 45.
RIGHT. Mosaic was bonded on the floors and some of the walls of Place du Port with KERABOND T+ISOLASTIC.

GRAND PLACE

ABOVE. Three shades of green were chosen for the panels fastened to the walls in the Grand Place square.

stainless steel with MAPEFLEX PU45 polyurethane sealant and adhesive with a high modulus of elasticity. Recommended by Mapei Technical Services, this product allowed the work to be carried out quickly and to a very high standard. In total, more than 2,200 cartridges of product were employed. The joints were again grouted with ULTRACOLOR PLUS in the colour shades Manhattan 2000 (No. 110) and Cement Grey (No. 113).

The installation of the mosaics was carried out with great care and attention: "Each panel was different to the others and had to contain a certain percentage of blue and white, according to a precise model supplied by the architect" continued Mattout, "And we put our trust in the ability, precision and creativity of the group of ladies who carried out the work. In total, 7 people worked in our workshop for 5 months".

In February 2015 the panels were installed, using special steel supports made by Bodino, on the 10 chimneys decorating the walls of the square.

The mosaic for the floors and some parts of the walls were created on site and bonded with KERABOND T+ISOLASTIC. "This experience has been particularly enriching for us" explained Mattout. "It was an ambitious and particularly technical decorating project that has allowed us to learn a new way of working. Mapei were by our side for the entire duration of the building site. We are extremely proud of what we have achieved because the end result is truly magnificent".

This article was published in *Mapei et Vous* no. 44, the in-house magazine by Mapei France, the French subsidiary of the Group. Our thanks go to Constructa Urban System, 5+1AA design studio and Mattout company for all their kind help in writing this article.

IN THE SPOTLIGHT

MAPEFLEX PU45

It is an one component, thixotropic, easy-to-apply polyurethane-based sealant and adhesive with a high modulus of elasticity. MAPEFLEX PU45 is used for sealing expansion and distribution joints in horizontal and vertical surfaces. It is also recommended for flexible bonds between similar and different material. It meets the requirements of **ISO 11600** class **F20 HM**. It is solvent-free, odourless and certified as EC1 R as a product with very low emission level of volatile organic compounds. It can contribute up to **4 points** to obtain the **LEED** certification.

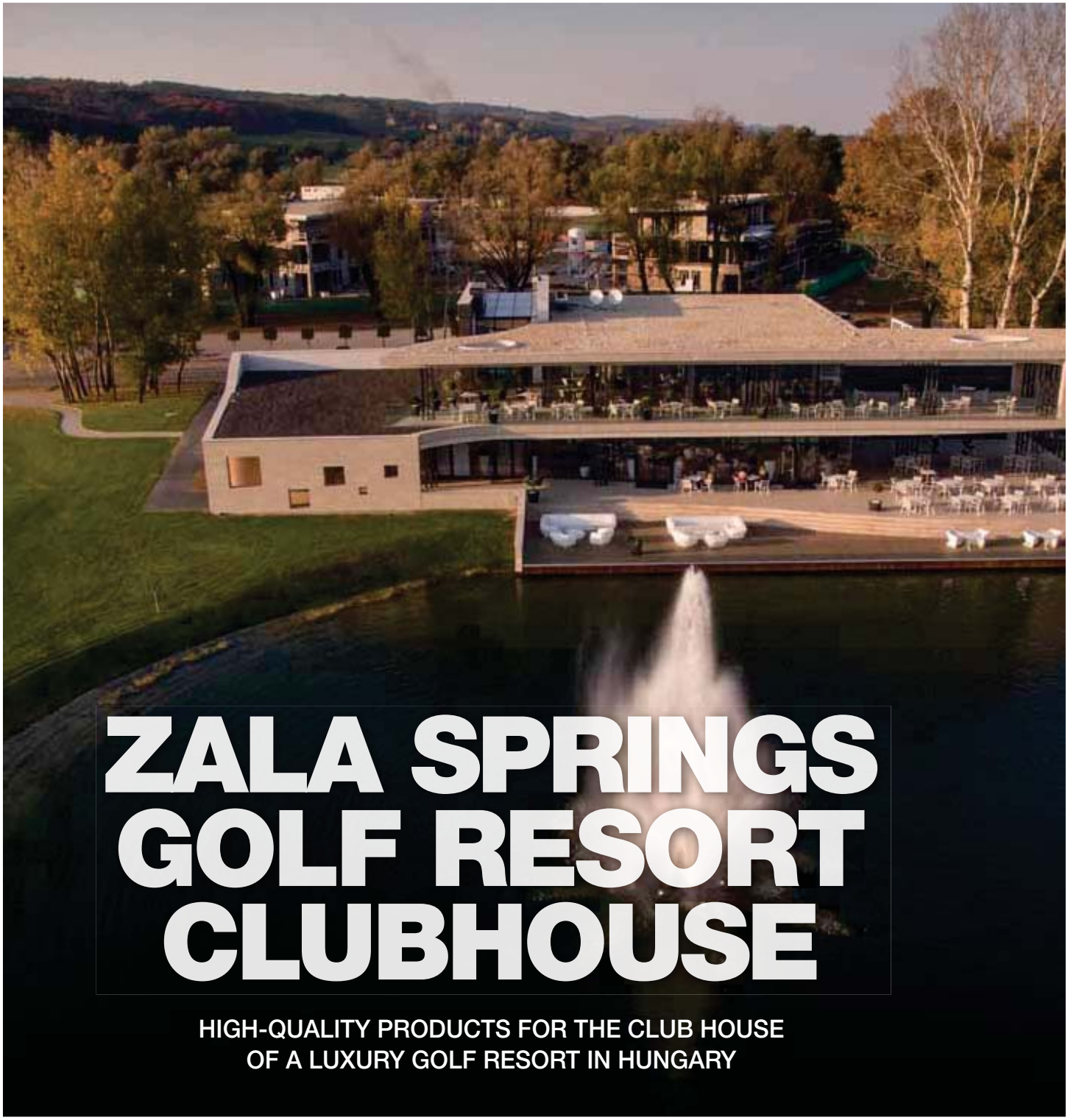
TECHNICAL DATA

Les Docks Village, Marseille (France)
Period of Construction: 1858-1864
Original Design: Gustave Deplace
Period of the Renovation: 2013-2015
Period of the Mapei Intervention: October 2014-May 2015
Intervention by Mapei: supplying products for installing ceramics and stone materials and grouting joints
Clients: J.P. Morgan Asset Management-Global Real Asset, Constructa Urban Systems
Design: 5+1AA Alfonso Femia Gianluca Peluffo,
Design Office: Secmo, Garcia, R2M
Main Contractor: Dumez Méditerranée (Vinci Construction France)
Ceramic Installation Contractor: Mattout Enterprise (Pierre Mattout and Laurent Renaud)
Works Direction: Veritas
Mapei Co-ordinators: Jimmy Fischer, Mapei France
Photos: Yann Bouvier, J. Cabanel, Luc Boegly, Les Docks, Jimmy Fischer, Mattout Enterprise

MAPEI PRODUCTS

Installing ceramic tiles: Kerabond T+Isolastic, Keraflex S1
Grouting joints: Ultracolor Plus
Sealing expansion joints: Mapeflex PU 45

For further information on products see www.mapei.fr and www.mapei.com



ZALA SPRINGS GOLF RESORT CLUBHOUSE

HIGH-QUALITY PRODUCTS FOR THE CLUB HOUSE OF A LUXURY GOLF RESORT IN HUNGARY

The Zala Springs Golf Resort is the brainchild of one of the most famous golf course designers in the world, Robert Trent Jones, Jr. The 18-hole grounds cover an area of 168 ha and are intended to house golf events ranging from beginners courses to international tournaments. With its lovely ponds and hills the golf course at Zalacsány is a wondrous gem of landscape architecture that blends perfectly in the beautiful natural landscape of Zala county in Southwestern Hungary. Golf players and visitors also have a two-storey 3,000 m^2 club house at their disposal. The facility is similarly characterized by exclusive quality, elegance and refined harmony. Plenty of services are available and the restaurant is open all year round.

MAPEI AS SUPPLIER OF GUARANTEED QUALITY

The general contractor intended to carry out the construction works of the club house in cooperation with the manufacturer of the building materials and Mapei was the chosen one as for several product categories. The Company was also chosen due to its ability to supply a warranty for all solutions offered. Several Mapei product lines were used for the construction of the club house. Numerous Mapei adhesives and grouts for joints were selected and the building was thermally insulated and its façade was covered with ceramic tiles using the MAPETHERM TILE SYSTEM. Floor substrates were levelled with levelling compounds belonging to the Mapei ECO line and the

ABOVE. ULTRALITE S2 was used to bond ceramic tiles in outdoor areas. KERALASTIC T, ELASTORAPID, and KERAFLEX LIGHT S1 were used to bond ceramics in other areas of the club house.
LEFT. The roof of the building was waterproofed with MAPEPLAN M15, manufactured by Polyglass, a Mapei Group's subsidiary.

flat roof and the underground structures of the building were waterproofed with membranes by Polyglass, a subsidiary of the Mapei Group.

SPECIAL ADHESIVES FOR LARGE AND SMALL TILES

Mapei adhesives worked excellently with both small and large ceramic tiles. KERALASTIC T was used for installing huge (1 × 3 m) porcelain tiles. This two-component, high-performance polyurethane adhesive with no vertical slip was also especially useful when ceramic tiles and metal profiles had to be bonded onto vertical surfaces such as those of the façades. KERALASTIC T was also used for installing ceramic tiles in the kitchen due to its acid-resistant properties.
ELASTORAPID highly-deformable, quick-setting and drying cementitious adhesive was used to bond stone slabs on the façades.
In the service rooms small-size tiles were installed with KERAFLEX LIGHT S1, a product manufactured and distributed in Hungary by Mapei Kft., whereas larger tiles were bonded with ULTRALITE S2 lightweight cementitious adhesive. This adhesive was also used to bond ceramic floors in the exteriors.

SUBSTRATE PREPARATION, THERMAL INSULATION AND GROUTING JOINTS

Indoor substrates were prepared with PRIMER G synthetic resin primer and smoothed over with ULTRAPLAN ECO 20 levelling compound (manufactured and distributed in Hungary by Mapei Kft), before installing the floor coverings.
Before thermally insulating the façades, PLANITOP HDM two-component, high-ductility, pozzolan-reaction mortar was used between the two layers of polystyrene insulating panels, in combination with MAPEGRID G 120 pre-primed, alkali-resistant glass fibre mesh for strengthening the walls.
KERACOLOR FF FLEX, a grout manufactured and distributed in Hungary by Mapei Kft, proved to be perfect for grouting tile joints, except those in the kitchen, where the epoxy grout KERAPOXY CQ was used to make joints easy to clean and resistant to chemicals.
The joints on the façade were grouted with ULTRACOLOR PLUS anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent DropEffect® and mould-resistant BioBlock® technology.
MAPESIL AC acetic silicone sealant was used to seal expansion joints in all the inside areas.

LONG-LASTING WATERPROOFING

In the bathrooms, MAPELASTIC TURBO rapid-drying elastic cementitious mortar was chosen for waterproofing the substrates, in combination with MAPEBAND alkali-resistant rubber tape with felt.
On the flat roof, on the other hand, MAPEPLAN M15 synthetic roofing waterproofing membrane in PVC-P was installed, while the substructures were waterproofed with PLANA P PREMIUM bituminous membrane. PLANA P PREMIUM is a

ABOVE. Before installing the covering on the façades using ELASTORAPID adhesive, the walls were thermally insulated with MAPETHERM TILE SYSTEM.

plastomeric waterproofing membrane made of a latest generation distilled bitumen-based compound modified with polypropylene and highly performing non-woven polyester stabilized reinforcement. The characteristics of this membrane guarantee good versatility and adaptability to various types of use.
Both MAPEPLAN M15 and PLANA P PREMIUM are manufactured by Polyglass, a subsidiary of the Mapei Group.

IN THE SPOTLIGHT

ULTRALITE S2

It is a cementitious (C), improved (2), rapid-setting (F), extended open time (E), highly deformable (S2) C2FE S2 class adhesive, according to EN 12004. It is used for bonding all types and sizes of ceramic tiles (double-fired, single-fired, porcelain, klinker, terracotta, etc.) on internal and external substrates; bonding stone on internal and external substrates; bonding all types and sizes of thin porcelain tiles on floors and walls, including external façades. It is especially suited for use in large floor areas and for the installation of large-size tiles without the need to back butter. Because of its high wetting capacity on the backs of tiles, it is particularly suitable for laying any type of thin porcelain tile (using the double buttering technique), including on thermal insulation systems such as MAPETHERM TILE SYSTEM. It can contribute to obtain up to **7 points** for the **LEED** certification.

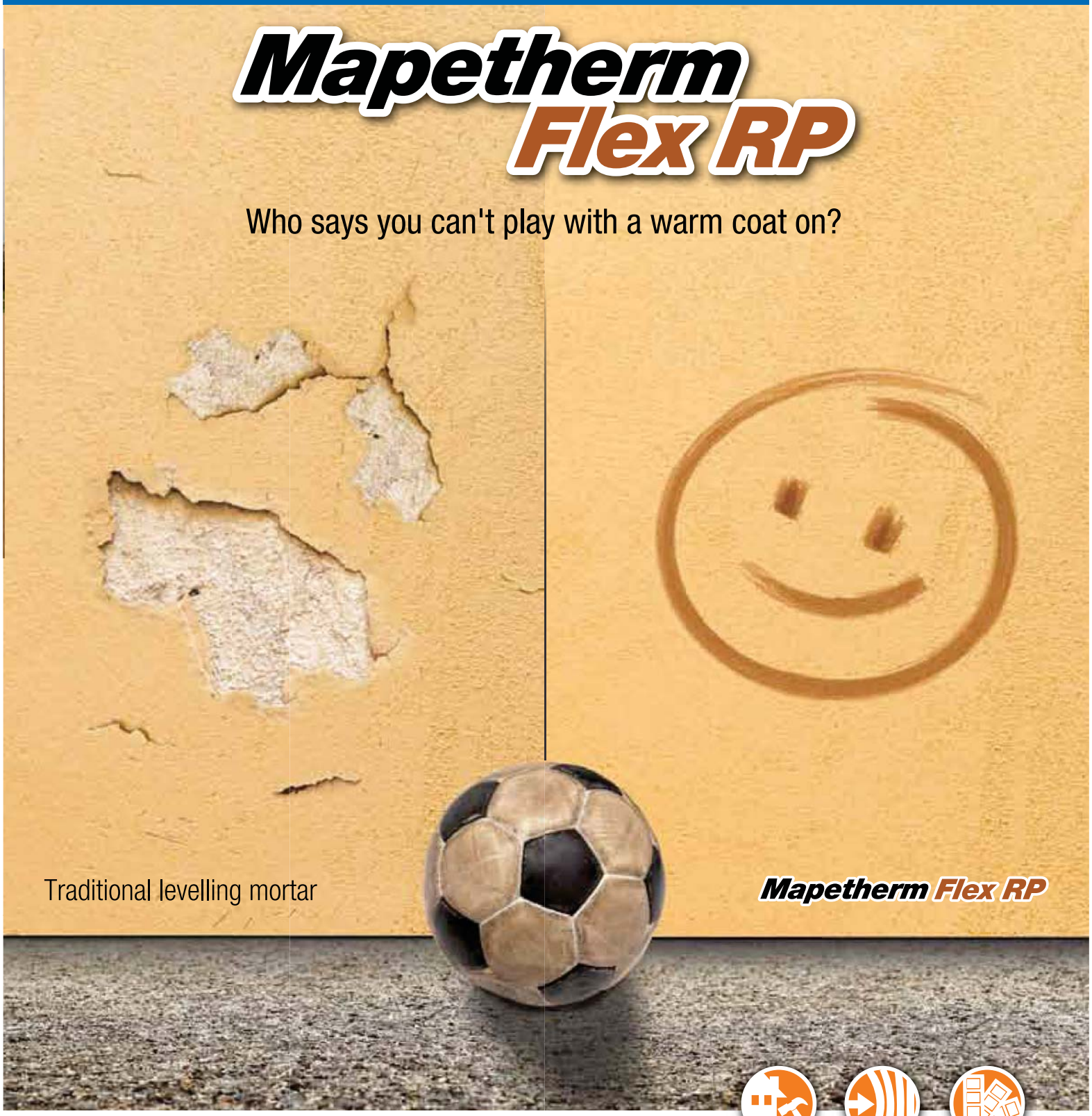
TECHNICAL DATA
Zala Springs Golf Resort Clubhouse, Zalacsány (Hungary)
Year of Construction: 2015
Year of the Mapei Intervention: 2015
Intervention by Mapei: supplying products for thermally insulating the facades, treating the substrates, installing ceramic tiles, grouting joints, waterproofing substrates, the roof and underground structure
Client: SGH Birdie, Prime Constructions Ltd.
Design: STOA Architects, Inc
Contractors: SGH Birdie, Prime Constructions Ltd.
Works Direction: Bálint Ásztai Ceramic Installation
Contractors: Valda Ép Ltd., Classico BV Ltd.
Mapei Distributor: Velünk Ltd.
Mapei Coordinator: Roland Horváth, Mapei Kft. (Hungary)
Photos: Mario Bere, Mapei Kft.

MAPEI PRODUCTS
Preparing the susbstrates: Primer G, Ultraplan ECO 20*
Installing the ceramic tiles: Keraflex Light S1*, Ultralite S2, Elastorapid, Keralastic T
Grouting joints: Kerapoxy CQ, Ultracolor Plus, Keracolor FF Flex
Sealing expansion joints: Mapesil AC
Thermal insulation: Mapetherm Tile System, Planitop HDM Maxi, Mapegrid G 120
Waterproofing substrates: Mapelastic Turbo, Mapeband
Waterproofing the roof: Mapeplan M15**
Waterproofing the underground structures: Plana P Premium**
*These products are manufactured and distributed in Hungary by Mapei Kft.
**These products are manufactured by Polyglass, a subsidiary of the Mapei Group.

For further information on products see the websites www.mapei.hu and www.mapei.com

Mapetherm Flex RP

Who says you can't play with a warm coat on?



Mapetherm Flex RP is a **ready-mixed, cement-free flexible levelling mortar** that is **extremely elastic** and **resistant to aggressive mould and mildew**. It also features **high impact strength** and can be used for **repairing deteriorated thermal insulation systems**.

- HIGH IMPACT STRENGTH
- HIGH ELASTICITY
- TINT WITH AUTOMATIC COLOURING SYSTEM
- FOR INTERIORS AND EXTERIORS
- RAPID INSTALLATION
- MOULD RESISTANT

Product info

/mapeispa

Mapei is with you: let's take a closer look at **www.mapei.com**

MAPEI®
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

TOUGH STUFF HARLEY-DAVIDSON IN KONZ-TRIER

THE SHOWROOM OF THE FAMOUS AMERICAN MOTORCYCLE BRAND CHANGED ITS HOME AND LOOK

LEFT. The Tough Stuff Harley-Davidson showroom features an industrial look. **RIGHT.** The existing substrates were treated with ECO PRIM GRIP (and levelled with ULTRAPLAN BASIC) or PRIMER G. Natural stone slabs were laid on the floors with KERAFLEX VARIO QUICK S1. Joints were grouted with KERACOLOR FL-S.

Harley-Davidson make motorcycles whose design is deeply rooted in the American culture. They reflect the long and unique history of the brand which combines power and aesthetics, tradition and technology.
The company Tough Stuff Harley-Davidson has recently extended its store in Konz, near Trier (Germany).
Fashionable stoneware tiles with a vintage look have been bonded on the floors to match the coolness of the concrete walls. The installation of the large-sized tiles on two different types of substrate was carried out using products from the Mapei professional range.

CULT BRAND IMAGE IN A COOL INDUSTRIAL DESIGN

Since 1989, the company Tough Stuff Parts & Accessoires for Harley-Davidson Motorcycles in Konz has been associated with the American motorcycle cult label. In April 1999, after 10 years in the accessories market and operating as an independent workshop, the company took over the agency for Harley-Davidson + Buell for Trier and the surrounding region in Western Germany. This required relocation into a new building in 2015.
With the extension and restyling of the store, the company, as one of Germany's largest Harley-Davidson branches, has given a new dimension to its marketing of the American cult brand motorcycle. On around 1000 m^2 of sales and showroom floor space, the Harley feeling can be experienced in many ways: from the Harley-Davidson motorcycle models, parts and accessories to original Harley-Davidson motor clothes and complete leisure outfits, etc.
The heart of the Harley-Davidson branch is the new store and showroom featuring a cool loft style with plenty of steel, concrete and wooden surfaces. The industrial look is enhanced by large-size stoneware tiles measuring 60x120 and 30x60 cm and covering the walls.
To create a properly flat ceramic floor, a number of technical aspects needed to be addressed during the installation works. One of these involved the two different kinds of existing substrates: old ceramic tiles and a screed. Another one was the use of large-size tiles which, in a motorcycle store, could result in damages due to significant thermal variations, high mechanical loads and vibrations.

These conditions posed technical challenges that could be met using Mapei systems and products.

PREPARING SUBSTRATES AND INSTALLING CERAMIC TILES AND STONE

The existing ceramic tile substrates were prepared using ECO PRIM GRIP ready-to-use bonding promoter and primer. The surfaces were then levelled with ULTRAPLAN BASIC, an extremely low-VOC-emissions and self levelling compound which is manufactured and distributed on the German market by Mapei GmbH. A decoupling membrane was then applied on the primed existing tiled surface using KERAFLEX VARIO QUICK S1, a flexible adhesive for ceramic tiles and natural stone, which is also manufactured and distributed on the German market by Mapei GmbH.
The existing screed, on the other hand, was prepared with PRIMER G, a synthetic resin primer in water dispersion with very low emission level of volatile organic compounds (VOC).
The large-size natural stone slabs were bonded on the substrate using KERAFLEX VARIO QUICK S1.
The joints were grouted using KERACOLOR FL-S, a flexible grout which is also manufactured and distributed on the German market by Mapei GmbH .
Thanks to the use of Mapei products, the launch of the Harley-Davidson brand in Konz could take place on firm footing.

IN THE SPOTLIGHT

ECO PRIM GRIP

Ready-to-use bonding promoter and primer made from synthetic acrylic resin and silica inerts with a very low emission level of volatile organic compounds (VOC) for renders, smoothing and levelling compounds and adhesives for ceramic tiles.
It can contribute up to **3 points** to obtain the **LEED** certification.

TECHNICAL DATA

Tough Stuff Harley-Davidson Showroom, Konz/Trier (Germany)
Period of Construction: 2014-2015
Year of the Mapei Intervention: 2015
Intervention by Mapei: supplying products for preparing floor substrates and installing natural stone
Design: BKS Architekten, Trier
Clients: Johann J. Lautem and Hans Lautem, Konz/Trier
Stone Installation Contractor: Scholtes Fliesen & Naturstein, Trier
Mapei Distributor: Scholtes Fliesen & Sanitär Handels GmbH
Mapei Co-ordinators: Martin Streit and Marcus Winkler, Mapei GmbH (Germany)

MAPEI PRODUCTS

Preparing the substrates:
Eco Prim Grip, Primer G, Ultraplan Basic*
Installing stone and grouting joints:
Keracolor FL-S*, Keraflex Vario Quick S1*

* These products are manufactured and distributed on the German market by Mapei GmbH (Germany).

ABOVE. The five-storey Midfield concourse (MFC) includes the Automated People Mover (APM) concourse, the arrival and departure concourse, a retail hub which houses various coffee shops, restaurants and retail outlets. Stone floors were installed in several areas using Mapei high-technology products.
BELOW. The MFC opened in December 2015 at Hong Kong International Airport.

HONG KONG INTERNATIONAL AIRPORT MIDFIELD CONCOURSE

HIGH-TECH PRODUCTS FOR THE FLOORS IN ONE OF THE BUSIEST AIRPORT IN THE WORLD

Being one of the busiest airport in the world, it is essential for Hong Kong International Airport (HKIA) to invest in new developments to continue the competitiveness. The long-term development of the three-runway system will allow the airport to handle an annual of 102 million passengers, 8.9 million tons of cargo and over 600,000 aircraft movements by 2030.

The Midfield concourse (MFC) is the medium-term development to prepare HKIA to cope with the annually increasing passengers and aircrafts traffic. It opened in December 2015 and is located between the two existing runways with an area of 105,000 m^2. The five-storey MFC has the capacity to serve additional 10 million passengers per year and provides 20 parking stands. The Midfield concourse includes the Automated People Mover (APM) concourse, the arrival and departure concourse, a retail hub which houses various coffee shops, restaurants and retail outlets.

Hong Kong Airport Authority awarded the over 690 million Euro valued MFC project to Gammon Construction Ltd. as the main contractor, Mott MacDonald-Arup Joint Venture as the lead consultant and Aedas Ltd. for the architecture design.

The Midfield concourse was designed and built with a lot of eco-sustainable features, such as high performance façade glazing to maximize the use of natural light, over 1,200 m^2 of rooftop solar panels for renewable energy, low energy lighting system and selection of "Green and Sustainable" construction materials. This intended objective allowed the Midfield concourse to win sustainability awards such as the BEAM Plus Gold Rating, Green Building Awards and the Be Inspired BIM Awards.

MAPEI PRODUCTS AT WORK

Mapei, through its Hong Kong subsidiary Mapei China Ltd., also took part in this prestigious project by supplying innovative, high-technology products for installing stone materials in the premises of the Midfield concourse. The intervention involving Mapei products lasted from February to August 2015 and the installation work was completed by Poon Por Engineering Co. Ltd.

When preparing the substrates, PLANIPATCH fine-grained, ultra quick-drying, thixotropic cementitious smoothing compound, mixed with LATEX PLUS elasti-

cising latex, was used to smooth over the substrates of the areas between the gateways and air bridges.
PLANICRETE synthetic latex rubber was used as admixture to prepare bonding slurries.
GRANIRAPID two-component, high-performance, deformable, quick-setting and drying cementitious adhesive was used to install the large-sized (600x600x20 mm) agglomerated stone slabs at the hallway and foyer area of the arrival/departure concourse. This adhesive is suitable for bonding all kinds of interior and exterior ceramic tiles, as well as conglomerate, artificial and natural stone and marble on walls or floors, especially in environments subject to heavy traffic.
Joints were grouted with ULTRACOLOR PLUS high-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent Drop-Effect® and mould-resistant BioBlock® technology for grouting joints from 2 to 20 mm wide.
GRANIRAPID and ULTRACOLOR PLUS were also used to bond stone coverings on the floors of the automated people mover concourse, which cover a total area of 30,000 m^2.

TECHNICAL DATA
Hong Kong International Airport Midfield Concourse, Hong Kong (PRC)
Period of Construction: 2014-2015
Period of the Mapei Intervention: February-August 2015
Intervention by Mapei: supplying products for preparing substrates, bonding stone materials, and grouting joints
Design: Aedas Ltd.
Client: Hong Kong Airport Authority
Main Contractor: Gammon Construction Ltd.
Ceramic and Stone Installation Contractor: Poon Por Engineering Co. Ltd.
Mapei Coordinator: Kevin Ho, Mapei China Ltd. (Hong Kong, PRC)

MAPEI PRODUCTS
Preparing substrates: Latex Plus, Planicrete, Planipatch
Installing ceramic tiles and stone materials and grouting joints: Granirapid, Ultracolor Plus

For further information on products see the websites www.mapei.com.hk and www.mapei.com

3

PHOTOS 1 and 2. GRANIRAPID adhesive and ULTRACOLOR PLUS grout were used for installing stone floors in the hallway and foyer area of the arrival/departure concourse.
PHOTOS 3 and 4. GRANIRAPID and ULTRACOLOR PLUS were also used to bond stone coverings on the floors of the automated people mover concourse, which covers a total area of 30,000 m².

4

IN THE SPOTLIGHT

GRANIRAPID

It is a deformable, fast setting and hydration, two-component cementitious adhesive for ceramic tiles and stone materials. It suitable for the installation of stone material that is moderately unstable to moisture and requires a rapid drying of the adhesive, as well as for floors subject to heavy traffic. Because of its extraordinary bonding and fast-setting characteristics, GRANIRAPID is particularly suitable for rapid re-tiling jobs and flooring that has to be in service within very short time. It can contribute up to **5 points** to obtain the **LEED** (Leadership in Energy and Environmental Design) certification.

MAPEI SPECIFICATION CENTER

A CENTRE OF EXCELLENCE RIGHT IN THE HEART OF LONDON DEVOTED TO CUTTING-EDGE DESIGN FOR BUILDING PROJECTS WORLDWIDE

The Mapei UK Specification Centre of Mapei has been successfully operating for over an year in the district of Clerkenwell, London. This new facility owned by the British subsidiary of the Group is entirely devoted to the world of design, a sector that is really booming in the United Kingdom. Indeed, London has now gained a worldwide reputation as an international centre of modern architectural design: more and more skyscrapers and towers are spiralling up into the London skies, often designed by famous international architects: the Shard by Renzo Piano, the "Walkie-Talkie" by Rafael Viñoly Beceiro, the Gherkin by Norman Foster, and many others. An unstoppable trend: lots of new futuristic projects are on the way, not just in the city centre but also out in the suburbs. Old buildings and residential estates will soon be replaced by large-scale architectural projects featuring extremely tall towers in many new opportunity areas. This race to project London "upwards" is clearly a symptom of an extremely dynamic property market, on which major construction companies operate, that has resulted in the sale of a dazzling number of apartments. All this thanks to British and international investments, which place London at the focus of the world of architectural design and experimentation.

WORKING FOR LONDON, THE UK AND THE WHOLE WORLD

As the district of Clerkenwell can boast an extremely high concentration of design and architecture firms, the new Mapei showroom and specification centre clearly has an international vocation. Here architects and designers from all over the world can draw on permanent technical assistance, full information about innovative products, practical solutions to every possible issue in the realm of building, and support with design work and drawing up specifications.

The facility, designed by the architect Marco Manzoni working for the mother company Mapei SpA, is concrete

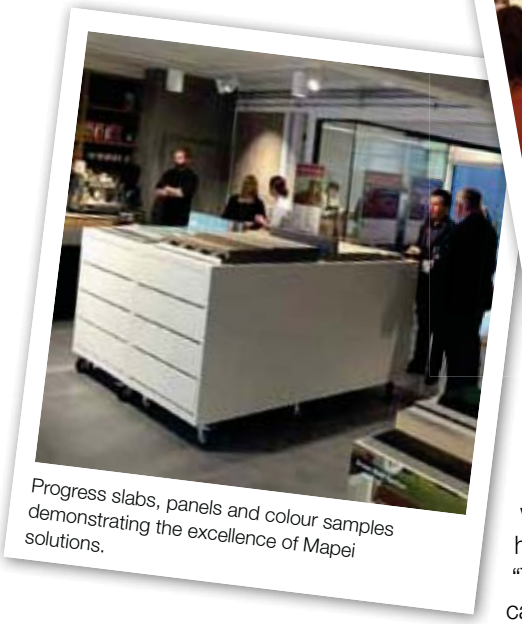
OPPOSITE PAGE. The Mapei Specification Center is located in London's design district, Clerkenwell.
ABOVE. London has gained a worldwide reputation for modern international architecture, design and creativity.
PHOTOS 1-2. The Specification Centre has product samples, project references and video clips to help architects and specifiers choose the right product.
PHOTO 3. On 2nd July, 2015 the opening ceremony for the Mapei Specification Centre was attended by members from Mapei Group's Board of Directors, Mapei UK's staff, British authorities and VIP.

evidence of just how important the Mapei Group considers the relationship between designer and manufacturer. A relationship that can produce important synergies on technical level, so that innovative solutions can be supplied all over the united Kingdom and all over the world.
Expert Mapei technicians are available all year round in a special area of the showroom, ready to provide dedicated training and practical/theoretical support in choosing, applying and looking after Mapei products. There is an extensive schedule of training events covering a wide array of issues: quick-to-apply screeds, solutions to the most common problems associated with installing ceramics, the preparation of the substrates, and effective waterproofing.
All 15 lines of Mapei products are on display at this new facility in the form of textured samples, progress slabs, panels and images of prestigious international projects the company has been involved in, backed up by video clips and technical documentation.
All this is designed provide architects, contractors and designers with precise guidelines and all the information required to include Mapei products in their specifications. There is also a model in the middle of the showroom clearly showing the different realms of application for Mapei products in various sectors of the building industry.
On 2nd July, 2015 the opening ceremony for this new design facility was held in the presence of members of the Mapei Group's Board of Directors, Mapei UK's staff and British authorities and VIP, such as the Italian Ambassador to London, Pasquale Terracciano, and Lord Digby Jones of Birmingham Kt, a former British Minister of State for Trade and Investment.
The Mapei UK Specification Center has been busy since the day of its opening with training sessions, meetings and special events, such as those organized last spring by the Group's British subsidiary.

MAPEI WORLD TAKES CENTRE STAGE AT CLERKENWELL DESIGN WEEK

THE MAPEI SPECIFICATION CENTRE IN LONDON OPENED ITS DOORS TO DESIGNERS FROM ALL OVER THE WORLD DURING THREE DAYS DEVOTED TO DESIGN

Ian Hunter and the audience in the Mapei Specification Center during the "Marvellous Materials" presentation.



Progress slabs, panels and colour samples demonstrating the excellence of Mapei solutions.

Beside being the cradle of modern architecture, the Clerkenwell district in London is also one of the world's leading design centres with one of the highest densities of creative people on the planet.

Lots of buildings have been converted into showrooms for famous design and architecture firms in an area where craft workshops, printing works, clockmakers and jewellers used to be located.

Each spring, this dynamic and creative neighbourhood celebrates by opening its doors to thousands of visitors from all over the world: this is Clerkenwell Design Week (CDW).

This year it was held from 24th to 26th May: around 90 showrooms, 150 local businesses and over 300 brands met visitors from over 70 countries, 65% of whom were architects and designers, to take part in over 400 events organised especially for the occasion.

"Conversations at Clerkenwell" was a series of meetings that drew crowds to meet with celebrities from the world of architecture and design, such as Daniel Libeskind, Patricia Moroso and Tom Dixon.

Some of the most eye-catching events were organised by Mapei through its British subsidiary, Mapei UK.

MAPEI WORLD IN LONDON CITY

To inform designers, architects and specifiers about its innovative solutions, Mapei UK opened the doors of its own Specification Centre for three busy days holding events strategically linked to the wide range of products available to customers.

For Mapei's first Clerkenweel Design week event, the British showroom paid homage to its Italian roots by holding a "Taste of Italy" event on 24th May, showcasing solutions for the food and drinks industry.

Progress slabs, panels, colour samples of various products, brochures and special leaflets focused on Mapei systems designed for those industries involved in manufacturing, conserving, processing, distributing and consuming food were on display.

A lavish buffet of Italian delicacies was a hit with visitors with over 400 people tooking part in the event and showing a keen interest in all the products, particularly the range of cementitious and resin floors and materials for installing ceramics.

The next day attention turned to an event devoted to top-class design. The architect Ian Hunter, previously of Foster & Partners, led a seminar about "Marvellous Materials" and how to create extraordinary effects to a high quality.

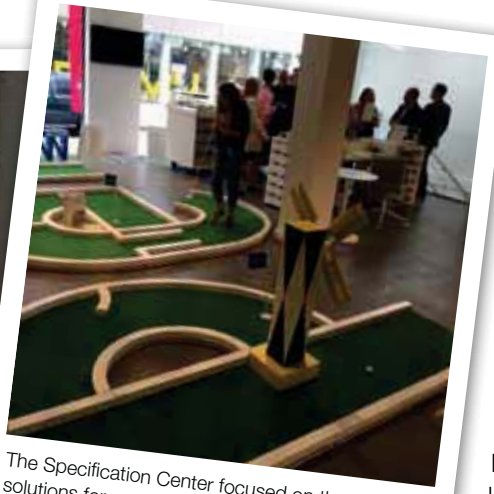
The event attracted plenty of architects and designers, who were educated about the benefits of using Mapei products, such as ULTRATOP LOFT, a trowellable cementitious paste for decorative floors, and KERAPOXY DESIGN grout for joints embellished with MAPEGLITTER.

The interest aroused by Hunter's presentation then allowed Chris Orme, Mapei UK's Product Manager for the range of cementitious and resin floors, to provide a more detailed overview of ULTRATOP LOFT's technical features and potential uses.

Mapei organised three events during the last edition of the Clerkenwell Design Week. The Mapei Specification Center coordinated colour scheme in accordance with the theme of the day.

A guest presentation on large-format thin ceramic tiles by Alan Collie, Domus's Commercial Director, was well attended and reflects the popularity for this recent trend.
On the penultimate evening (25th May), the Clerkenwell Design Week re-opening of the Specification Centre took place as part of an "Evening with Mapei" event. The evening exceeded all expectations with over 700 guests attending the event, including a number of important architects and designers, as they welcomed the chance to meet Mapei UK's technicians, sales representatives and Product Managers.
On 26th May, the final evening saw a focus on Mapei solutions for sports surfaces and facilities, most notably the MAPECOAT TNS system. As well as dedicated informative progress slabs, panels and brochures, a mini golf course was set up in the Specification Center allowing visitors to play for prizes of vouchers to be spent on golf products.

The various colours of the Mapei wall coatings and cementitious and resin floors also came under the spotlight.



The Specification Center focused on the Mapei solutions for sports surfaces on 26th May.

Again the figures speak for themselves: over 400 visitors attended the evening event.
Mapei UK also organised a special draw throughout the whole of Clerkenwell Design week, with the main prize being a professional cycling jersey with the Mapei logo being awarded to a member of staff from architect practice Foster & Partners, further proof of the kind of qualified people who visited the showroom and all the opportunities for Mapei UK that emerged during the busy schedule of events.

PROJECTS IN THE UK

MAPEI HAS BEEN OPERATING ON THE BRITISH MARKET FOR OVER 25 YEARS WITH ITS SUBSIDIARY MAPEI UK. THE COMPANY'S PRODUCTS ARE USED TO BUILD AND RENOVATE ANY KIND OF BUILDINGS: RESIDENTIAL COMPLEXES, INFRASTRUCTURES, SCHOOLS, SHOPPING CENTERS, OFFICES, HOTELS, ETC. IN THESE PAGES ONE FINDS A SHORT SELECTION OF THE BRITISH PROJECTS RECENTLY COMPLETED WITH MAPEI PRODUCTS.

READING BRIDGE
READING, BERKSHIRE

Reading Bridge, built in 1927, is a road bridge over the River Thames in the Berkshire town of Reading. Supporting a three lane highway and two footways, the structure was in need of major strengthening works in order to extend its longevity. The refurbishment required bonding carbon fibre reinforcement to the deck, thickening the reinforced concrete abutment walls, deck waterproofing and protective coating to the structure.
CARBOPLATE pultruded carbon fibre plates were bonded to the soffit of the bridge deck slab and beams with ADESILEX PG1. Highly stressed spandrel columns were wrapped with MAPEWRAP C UNI-AX carbon fibre fabrics, to increase their shear capacity. The wrap was bonded to the columns with MAPEWRAP 31 adhesive. The road construction was stripped back to the bridge deck and MAPEROD C carbon fibre tubes were inserted into slots cut into the top surface of the deck at the transverse beam supports to strengthen the deck slab in the hogging regions. MAPELASTIC was used to provide waterproofing protection to the carbon fibre against ultraviolet light. The final protective and decorative coating was provided using ELASTOCOLOR PAINT.

TECHNICAL DATA
Year of Construction: 1927
Year of the Intervention: 2015
Period of the Mapei Intervention: March-August 2015
Intervention by Mapei: supplying products for structural strengthening, waterproofing and coating
Client: Reading Borough Council
Consulting Engineers: Peter Brett Associates
Contractor: Volker Laser
Mapei Distributor: Volker Laser
Mapei Co-ordinator: Paul Russel and Mohammed Aljan, Mapei UK

MAPEI PRODUCTS
Adesilex PG1, Carboplate, MapeWrap C UNI-AX, MapeWrap 31, Maperod C, Mapelastic, Elastocolor Primer, Elastocolor Paint

BEAUMONT MAYFAIR HOTEL
LONDON – UK

The Beaumont Mayfair Hotel is a luxury, five-star hotel with just 50 rooms, 13 studios and 10 suites, superbly located in London, on a quiet garden square, close to the boutiques, galleries and museums of Mayfair, Marylebone, St James's and the West End. Grand in style yet intimate and welcoming, its design is inspired by the great Art Deco hotels of the 1920s, with beautifully appointed rooms and public areas, including the glamorous Colony Grill Room restaurant, the stylish American Bar, an exclusive residents' lounge and an elegant spa and gym. A striking element of the hotel is ROOM, an inhabitable sculpture commissioned from the Turner Prize-winning British artist, Antony Gormley. Forming the bedroom of a suite, ROOM is a massive, modular piece made of stainless steel and fumed oak, placed on a low-level wing to the south side of the building's facade.

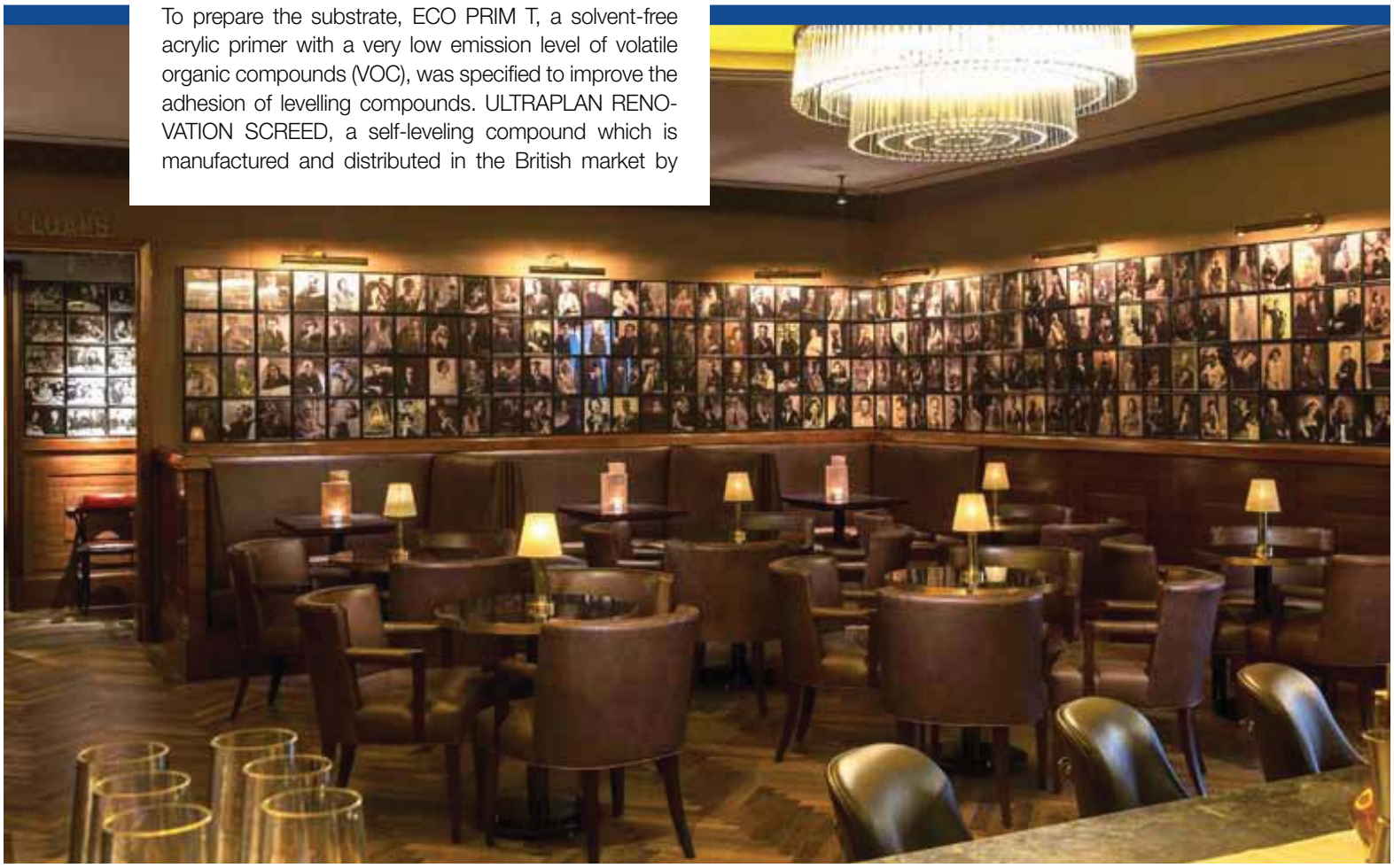
A complete Mapei wood flooring system has been used to install oak flooring at the Beaumont Mayfair Hotel. Traditional fumed oak herringbone wood flooring, which combines a classic design with a stunning dark aesthetic, was specified for over 1,300 m^2 interior floors alongside Mapei's eco system and installed, by AJK Wood Flooring, throughout all suites, bedrooms and public areas.

To prepare the substrate, ECO PRIM T, a solvent-free acrylic primer with a very low emission level of volatile organic compounds (VOC), was specified to improve the adhesion of levelling compounds. ULTRAPLAN RENOVATION SCREED, a self-leveling compound which is manufactured and distributed in the British market by Mapei UK, was then applied, prior to installation of the wooden flooring using ULTRABOND ECO S955 1K one-component, solvent-free, sililated polymer adhesive with very low emission level of VOC, which is ideal for all types of wooden floors.

TECHNICAL DATA
Period of Construction: 1926
Period of the Mapei Intervention: October 2013- December 2014
Design: Richmond International
Client: Marcus Sullivan
Main Contractor: The Byers Group
Wooden Floor Installation Contractor: AJK Flooring
Mapei Co-ordinator: Tracy Barker, Mapei UK

MAPEI PRODUCTS
Eco Prim T, Ultrabond Eco S955 1K, Ultraplan Renovation Screed*

*This product is manufactured and distributed on the British market by Mapei UK



CHELSEA CREEK
LONDON


Copyright of St George

Chelsea Creek is London's newest and most prestigious waterside development, by award winning developer St. George (Berkeley Group). Situated on a tranquil waterway leading to the River Thames, Chelsea Creek offers a perfect contrast to the vibrancy and energy of London City.

ULTRAPLAN RENOVATION SCREED, a fibre reinforced self-levelling compound manufactured and distributed on the British market by Mapei UK, was laid to level the differences in thicknesses of the substrates. This product was specified as it is compatible with undertile heating systems such as those installed throughout the bathrooms at Chelsea Creek.

MAPEGUARD WP 200, an alkali-resistant waterproofing and anti-fracture membrane, was used to waterproof the surfaces before installing the ceramic tiles. This membrane was specified for its excellent waterproofing capabilities, with the product also protecting the ceramic finish tiles from stress fractures which could possibly occur without the installation of this system.

The benefits of using TOPCEM PRONTO, a ready-to-use, normal-setting, controlled-shrinkage mortar, were also evident during the installation at Chelsea Creek, allowing shower trays to be installed after only 4 days.

KERAQUICK S1 quick-setting, deformable cementitious adhesive, mixed with LATEX PLUS additive, was used to install the large-size porcelain tiles and stone in the luxury bathrooms, since it allowed fast-track bonding of the floor coverings.

KERACOLOR FF high-performance, polymer-modified cementitious mortar was used to grout the joints.

TECHNICAL DATA
Period of Construction: 2015-ongoing
Period of the Mapei Intervention: 2015–on going
Client: Berkeley Group
Main Contractor: Classique & Co
Installer Company: Classique & Co
Mapei Co-ordinator: Simon Pashley, Mapei UK

MAPEI PRODUCTS
Fugolastic, Keracolor FF, Keraflex Maxi S1, Keraquick S1, Latex Plus, Mapeguard WP 200, Topcem Pronto, Ultraplan Renovation Screed*

*This product is manufactured and distributed on the British market by Mapei UK.


Copyright of St George

BDP ARCHITECTS
BRISTOL - UK

BDP are a major international practice of architects, designers, engineers and urbanists, creating outstanding buildings and places for people. Originally established in 1961 as Building Design Partnership, BDP now have studios across the world.
BDP have recently refurbished the floors within their Bristol office using MAPEFLOOR COMFORT SYSTEM AR/X in grey color. This was the first completed project worldwide using the new system. The floors in the meeting, library and toilet areas were involved.
Due to its elastic properties, MAPEFLOOR COMFORT SYSTEM proves advantageous when a good level of comfort is required underfoot. This is provided from the rubber matting at the base of the system which also has excellent soundproofing capabilities and reduces the impact of noise transmission. It has a high resistance to wear and abrasion from foot traffic and moveable office furniture such as castor chairs. The floor is seamless and, if required, it can be coved, making the floor area easy to clean and maintain.
Initially the existing carpet and vinyl tiles were removed exposing the substrate. The flexible rubber matting MAPECOMFORT, made from granules of recycled rubber, was first bonded on the substrate and then its porosities were sealed by using one single product: MAPEFLOOR PORE FILLER. Once this had cured, MAPEFLOOR PU 460 two-component, coloured, elastic, polyurethane resin was applied on the rubber mat previously prepared. The top coat of the entire system was carried out with the application of MAPEFLOOR FINISH 58 W two-component, aliphatic, matt, polyurethane finish, tinted to match the same color of the underlying MAPEFLOOR PU 460.

TECHNICAL DATA
Period of the Mapei Intervention: 2015-2016
Intervention by Mapei: rebuilding the floors in the meeting room, library and toilet area
Client: BDP Architects
Main Contractor: Coatech
Mapei Distributor: Coatech
Mapei Coordinator: Mohammed Aljan, Mapei U.K. and Giovanna Novella, Mapei SpA (Italy)

MAPEI PRODUCTS
Mapecomfort, Mapefloor Pore Filler, Mapefloor PU 460, Mapefloor Finish 58 W

ECOBUILD

SUSTAINABLE GROWTH AND PRODUCT INNOVATION

Ecobuild, the most important exhibition in the United Kingdom devoted to eco-sustainable building, attracts over 33,000 professionals every year, including architects, representatives of building companies, manufacturers and designers. This year's edition was held at the Excel Centre in London from 8th to 10th March and was attended by over 800 exhibitors from various different countries.

MAPEI AT ECOBUILD

The stand set out to evoke a forest with a path running through it. Visitors travelling along the path could find out all about the various products systems with the help of progress slabs, technical documentation and a video clip about the Mapei Group's enduring commitment to eco-sustainability.

This allowed Mapei UK to focus on its wide range of sustainable solutions: thermal insulation systems, products for waterproofing and installing ceramics, adhesives for resilient materials, protective and decorative wall coatings, etc. Special attention was focused on MAPEPROOF HW, a bentonite geotextile sheet waterproofing membrane, which was launched on the British market for the first time at this event.

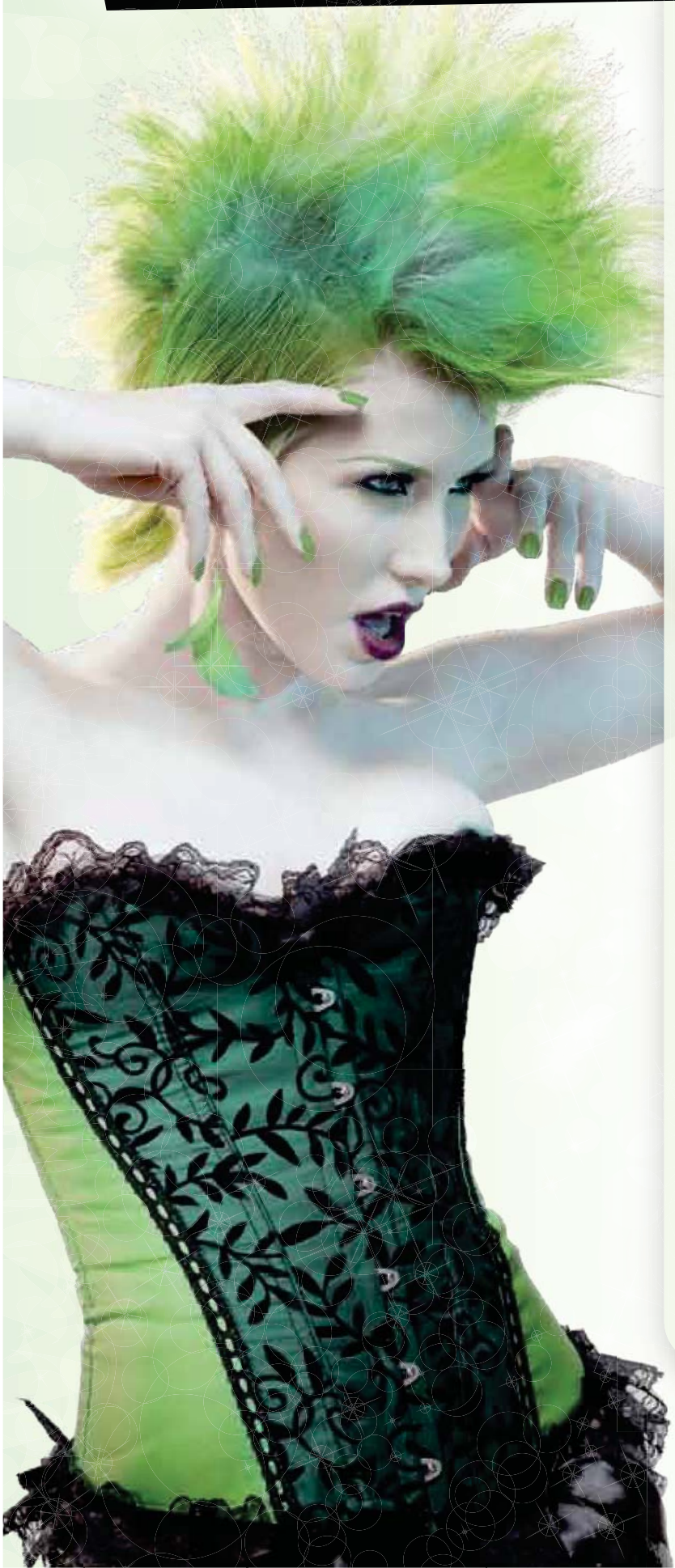
Various product demonstrations given over the three days of the event provided visitors with a better understanding of the advantages of certain Mapei materials, such as those for thermal insulation. For further information on eco-sustainable products see the section devoted to eco-sustainability at www.mapei.it.

Ecobuild 2016 also provided the chance to launch "Green by nature", an advertising campaign in the name of eco-sustainability. Mapei UK launched a competition with a camera as the prize on the first day of the trade fair: visitors got the chance to take a photograph with a model covered in leaves and dressed in green, which they could then post on their Facebook and Twitter profiles. The prize went to the person who took the most original photograph: the architect Matthew Taylor, who posed with the model while pretending to be a tree.

Ecobuild 2017 will be held from 7th to 9th March 2017.

ABOVE. The Mapei stand at Ecobuild 2016 was designed to look like a forest.
RIGHT. As well as becoming more familiar with the company's eco-sustainable solutions, visitors also got the chance to take part in the "Green by nature" campaign, which turned out to be a resounding success.

FASHIONABLY GREEN FOR OVER 30 YEARS



THE 14 CONCRETE EXAMPLES OF MAPEI'S GREENNESS

1 A HISTORY OF COMMITMENT
Certified products for the building industry with full respect for the wellbeing of the environment and the final user.

2 BIOBLOCK TECHNOLOGY
Innovative technology to avoid the formation of mould.

3 LOW DUST TECHNOLOGY
This technology considerably reduces the amount of dust released into the environment during production and use.

4 ULTRALITE TECHNOLOGY
This technology allows lightweight adhesives to be produced, offering higher yield, less effort and less environmental impact due to transport.

5 PRODUCTS SAFEGUARDING THE ENVIRONMENT
70% of our R&D investments is devoted to the development of products which respect the environment.

6 RESEARCH & DEVELOPMENT FOCUSED ON THE INDOOR AIR QUALITY
Formulation of solutions with very low volatile organic compounds emissions.

7 GREEN EDUCATION STRATEGIES
Targeted training courses for professional installers for a correct use of Mapei eco-sustainable materials.

8 GLOBAL ENVIRONMENTAL MANAGEMENT
Mapei is a member of the chemical industry's global Responsible Care programme.

9 CONSTRUCTION OF GREEN BUILDINGS
Mapei's most recent production facilities are designed and built according to LEED certification criteria.

10 LOGISTICS AND SHIPPING STRATEGIES
Reduction in the consumption of fuel and pollutants by promoting the use of rail transport instead of road transport.

11 "REDUCE, REUSE, RECYCLE" STRATEGIES
Reduction of solid waste and wastewaters production and the use of recycled materials in the composition of many products.

12 ENERGY SAVING STRATEGIES
Rationalization of energy consumption and solutions for construction of energy-saving buildings.

13 SUPPORTING GREEN PROGRAMMES WORLDWIDE
Mapei products give an important contribution to Green Building Council programmes all around the world.

14 EVALUATION OF THE LIFE-CYCLE OF PRODUCTS
Dedicated team specialized in evaluating the environmental impact of the whole life cycle of our products.

www.mapei.com

/mapeispa

MAPEI
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

MAPLETREE BUSINESS CITY 2 IN SINGAPORE

SINGAPORE'S TALLEST HIGH-RISE BUSINESS PARK, A BENCHMARK FOR INTEGRATED ENVIRONMENTAL FRIENDLY BUSINESS HUB, WAS COMPLETED WITH MAPEI SOLUTIONS

Mapletree is a leading real estate development, investment and capital management company headquartered in Singapore. Its business units are divided into the following three main areas: capital management and investment, real estate development, and real estate management. Mapletree holds a diverse portfolio of commercial, retail, residential, logistics, industrial and mixed-used properties in Singapore and overseas. It has establishments across 12 economies globally in Asia-Pacific, Europe and USA. As at March 2016, the Group owns and manages 228 million Euros of office, retail, logistics, industrial, residential, corporate lodging/serviced apartment and student housing properties.

TRANSFORMATION OF THE ALEXANDRA PRECINCT

Propelled by its vision to revitalize and transform the old Alexandra Distripark in Singapore into a modern integrated business hub that caters to contemporary business, Mapletree conceptualized and built its flagship Mapletree Business City. The 13.5 ha development is sited along the Alexandra and Telok Blangah business corridor, just a 10 minute drive from the city.

The transformational phase began in 2008 with the establishment of Mapletree Business City phase 1. The over 185,000 m^2 development comprises an office tower, two business buildings, amenities and a retail block. Mapletree also redeveloped the under-performing retail podium of PSA Building into Alexandra Retail Centre, a three-storey shopping mall.

Phase 2 development oversaw the transformation of the old Comtech building into Mapletree Business City 2 (MBC2) which complements the existing state-of-the-art facilities at MBC (phase 1) with new elements and more amenities. The combined development of MBC and MBC2 is set to dominate the Alexandra Precinct as a new centerpiece and reinforced the development as a first-rate business hub concept.

MAPLETREE BUSINESS CITY 2

Mapletree Business City 2 sets to differentiate itself from traditional business parks by offering flexible and adaptive space solutions for modern businesses. The development covers a gross floor area of almost 125,000 m^2 which includes 108,900 m^2 of business space with Grade-A office specifications.

MBC2 comprise three low-rise blocks (of five, six and eight storeys) and a stepped terrace podium connected to a 30-storey tower, offering a dramatic architectural transition. It is the tallest business park building in Singapore. The tower affords commanding views of the southern waterfront corridor and surrounding greenery of several nearby parks.

Blending harmoniously with nature reserves in the vicinity, the four business blocks nestle in a lush 2.8 ha natural landscape, created by 1,400 trees. At the heart lies an over 90 m^2 inner garden, further complemented by landscaped walkways, open green spaces and roof terraces. MBC2 also houses extensive sports and recreational facilities to complement the state-of-the-art business and lifestyle amenities. Business facilities include a 294-seater auditorium with different seating configuration, seminar rooms and meeting rooms, all dedicated to hosting conferences and events. Sporting facilities include a sky gym, a 44 m heated infinity pool, a badminton hall, basketball and futsal courts, a jogging path that connects to nearby HortPark and Labrador Park, fitness stations, etc. Lifestyle amenities include an amphitheater for arts events/performances, F&B store and retail options.

The development of MBC2 cost an estimated 460 million Euros. Works started in 2014 and was completed in 2016. It is the first high rise business park development in Singapore which is intended to host big firms such as Google.

A SUSTAINABLE BUSINESS PARK

MBC2 is designed to meet the most stringent international green standards: Singapore Green Mark and United States LEED. In fact, the development has already won the highest level Green Mark certification by Singapore Building & Construction Authority (Green Mark Platinum award), and received the LEED Gold Level award. MBC2 has set the benchmark for raising the standards for sustainable business park design. Its environmentally friendly infrastructure includes some of the following key features: the district cooling plant channels waste heat to heat the swimming pool, the sky gym and provide hot water for F&B store and retail outlets; rain water harvesting and water saving fittings translate to higher water efficiency; low maintenance landscaping utilizes automatic irrigation system with rain water harvesting and rain sensors to reduce water consumption; 48 eco-friendly parking lots and 194 bicycle lots encourage environmentally friendly modes of commuting; carbon reduction of 4,300 tonnes per year; electricity savings of 8.6 million kWh per year.

THE MAPEI SOLUTIONS USED IN PHASE 1

Soon after the completion of MBC phase 1, major issues on the ceramic tile bonding surfaced. Installation materials were supplied by a Mapei's competitor and tiles from the toilets debonded causing potential danger. At the request of the owner, Mapei Sales Team did a thorough site inspection. It was discovered that there was mas-

ABOVE. Mapletree Business City is located along the Alexandra and Telok Blangah business corridor, just a 10 minute drive from Singapore City.
BELOW. Mapletree Business City 2 is a sustainable business park with many environmentally friendly features such as low maintenance landscaping utilizing automatic irrigation system. TOPCEM PRONTO mortar and KERAPOXY grout and adhesive were applied in the pond.

PHOTOS 1 and 2. In the atrium and walkways of Blocks 1 and 2, KERAFLEX was used for bonding granite floors and KERACOLOR SF for grouting joints.
PHOTO 3. In the toilets, KERAFLEX MAXI S1 was used for bonding homogenous tiles on walls and floors. Joints were grouted with KERACOLOR SF.

sive hollowness under the tiles in all the toilets. Mapei technicians' recommended remedial action was to remove all ceramic tiles and reinstall them with KERAFLEX MAXI S1 deformable cementitious adhesive with no vertical slip, extended open time and Low Dust technology and use KERACOLOR SF fine-grained, white cementitious mortar for grouting joints. This was approved by the architect. After its successful intervention in MBC phase 1, Mapei supplied plenty of solutions for phase 2, such as products for substrates preparation, installation of ceramic tiles and stone materials, materials for building works, etc.

PHASE 2: INSIDE AREAS

In the toilets, KERAFLEX MAXI S1 was used for bonding homogenous tiles on walls and floors. Joints were again grouted with KERACOLOR SF. PRIMER FD one-component primer was used for applying on the sides of the joints before using MAPESIL AC mould-resistant, acetic silicone sealant.

For the internal rooms and staircase of the tower, a coat of PRIMER G synthetic resin primer in water dispersion was applied on the uneven substrates followed by NOVOPLAN 21 fast-hardening, self-levelling smoothing compound, which is manufactured and distributed in Singapore by Mapei Far East.

In the walkways and atrium of Blocks 1 and 2, KERAFLEX cementitious adhesive with no vertical slip and extended open time was used for bonding granite

floors. KERACOLOR SF was used for grouting joints for the walkways, and atriums.

EXTERNAL WORKS

In external areas with uneven substrates and in the eco pond, TOPCEM PRONTO ready-to-use, normal-setting, controlled-shrinkage mortar was used to prepare the screeds. At the pond, KERAPOXY two-component, high-performance, anti-acid epoxy mortar and adhesive was then applied as adhesive and grout for joints.

For external driveways (e.g. drop-off points), walkways and atrium, KERAFLEX MAXI S1 was used to bond granite slabs and joints were grouted with KERACOLOR GG. MAPEFLEX PU50 SL polyurethane sealant and PRIMER PU60 were used for sealing expansion joints.

KERAFLEX was also used for bonding granite slabs at roof terrace, Block 4 external deck and podium. For the roof terrace and external decks, MAPEFLEX PU30 epoxy-polyurethane sealant and PRIMER PU60 polyurethane resin were used for applying the expansion joints.

For the planter areas, which are made with pebblewash, the contractor required a product that is algae and dirt resistant. MAPECRETE STAIN PROTECTION hydro-oil repellent and anti-stain treatment for concrete, natural stone and cementitious surfaces was used for this purpose, as well as for application on the external floor cov-

PHOTO 4. For external driveways (e.g. drop-off points), walkways and atrium, KERAFLEX MAXI S1 was used to bond granite slabs and joints were grouted with KERACOLOR GG.
PHOTO 5. KERAFLEX was also used for bonding granite floors at roof terrace, Block 4 external deck and podium.

PHOTO 6. MAPECRETE STAIN PROTECTION was applied in the planter areas, which are made with pebblewash for protection against stains.
PHOTO 7. For other planter curbs and curbs that also function as benches, KERAQUICK S1 was used for bonding the granite slabs and grouting joints.

IN THE SPOTLIGHT

KERAFLEX MAXI S1

It is a high performance, cementitious adhesive with no vertical slip, suitable for the installation of large-size ceramic tiles and natural stone, for interior and exterior bonding (up to 15 mm thick). KERAFLEX MAXI S1 is a deformable, improved, slip-resistant adhesive with extended open time. The Low Dust technology considerably reduces the amount of dust compared with standard cementitious adhesives, making floor-layers' work easier and healthier. It can contribute up to **4 points** to obtain the **LEED** certification.

8

PHOTOS 8 and 9. KERAPOXY was used as adhesive and grout for the ceramic coverings on water features, as well as for bonding granite slabs on metal surfaces at drain grating stone areas.

9

ered with pebblewash.

For other planter areas, PLANICRETE 50 synthetic rubber latex (which is manufactured and distributed in Singapore by Mapei Far East) was diluted in a 1:1 ratio and mixed with pebblewash mortar to strengthen the cohesion of the pebblewash and cement mix. PLANICRETE 50 was also used with pebblewash mortar at Block 3 escalator foyer.

For other planter curbs and curbs that also function as benches, KERAQUICK S1 quick-setting, deformable cementitious adhesive and grout was used for bonding for the granite slabs and grouting joints. This product was proposed to greatly minimize the occurence of efflorescence. Granite slabs on the feature walls were also bonded with KERAQUICK S1.

KERAPOXY was applied as adhesive and grout for the ceramic tiles on water features in order to ensure there is no efflorescence. The same product was also used for bonding granite slabs on metal surfaces at drain grating stone areas.

Along walkways near the greenery, the ground was topped with sand. Then the plastic Turpave paving mat was positioned on top of the sand.

Granite slabs were then bonded on top of the Turpave with ADESILEX PG2 SP two-component thixotropic epoxy adhesive, which is manufactured and distributed in Singapore by Mapei Far East.

TECHNICAL DATA

Mapletree Business City 2, Singapore
Period of Construction: 2014-2016
Period of the Mapei Intervention: 2015-2016
Intervention by Mapei: supplying products for preparing substrates, bonding ceramic tiles and stone materials, grouting joints, sealing expansion joints
Design: DCA Architect
Client and Main Contractor: Shimizu Corporation
Ceramic and Stone Installation Contractor: CSC Holdings limited, Yangzijiang International (S) Pte Ltd
Mapei Co-ordinator: Ryan Liaw, Mapei Far East (Singapore)

MAPEI PRODUCTS

Preparing substrates: Primer FD, Topcem Pronto, Planicrete 50*, Primer PU60, Primer G, Novoplan 21*
Installing ceramic tiles and stone materials: Adesilex PG2 SP*, Keracolor GG, Keraflex Maxi S1, Kerapoxy, Keraquick S1, Keraflex, Keracolor SF
Treating concrete surfaces: Mapecrete Stain Protection
Sealing expansion and movement joints: Mapeflex PU 50 SL*, Mapesil AC, Mapeflex PU 30

**These products are manufactured and distributed in Singapore by Mapei Far East.

For further information see the websites www.mapei.com and www.mapei.com.sg

MAPEI IS **GREEN** IN SINGAPORE

MAPEI FAR EAST, THE GROUP'S SUBSIDIARY IN SINGAPORE, RECEIVED THE "LEADERSHIP IN GREEN BUILDING PRODUCTS DEVELOPMENT" AWARD

PHOTO 1. 52 Mapei Products are currently achieving the award of Leadership in Green Building Products Development in the SGBC-BCA Sustainability Leadership Awards 2016. They are manufactured at Mapei Far East's plant in Singapore.

In the Asia Pacific, Mapei has made its presence felt since 1989 when Mapei Far East Pte Ltd was constituted in Singapore. Production facilities began from 1995, serving both the domestic and export markets. In Singapore, Mapei is renown as the "one-stop partner for construction needs from start to finish" has enabled the company to contribute solutions to the most diverse kinds of projects: Marina Bay Sands, Gardens by the Bay, Victoria Theatre, Capitol Development, Singapore University of Technology and Design, South Beach, Sultan Mosque, Downtown Line, The Interlace, etc.
Presently, Singapore is the regional base for the Management of Mapei Group in the Asia-Pacific. There are Mapei companies in 11 countries with plants in Korea, China, India, Vietnam, Malaysia, Singapore, Australia, Indonesia and trading subsidiaries in Hong Kong, New Zealand and Philippines.

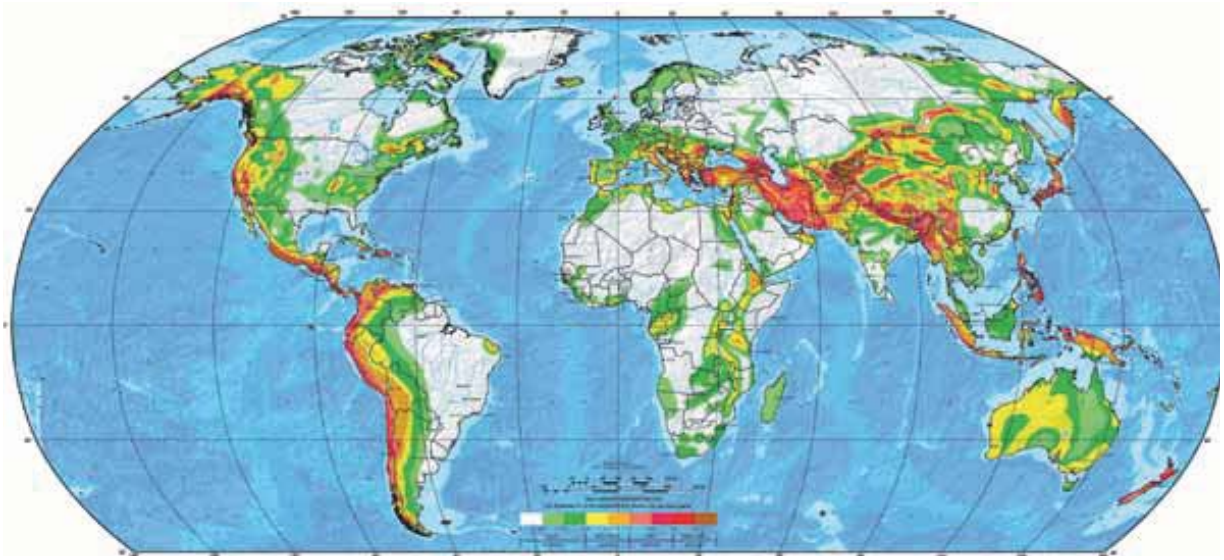
ECO-SUSTAINABLE PRODUCTS AND SYSTEMS AWARDED BY SGBC

Mapei is committed to developing eco-sustainable products and systems which contribute to safeguard the environment as well as the wellbeing of the workers and end-users all over the world. Mapei adheres to worldwide certification bodies and programmes: GEV, BLAUER ENGEL, DGNB, LEED, US GREEN BUILDING COUNCIL, RESPONSIBLE CARE, BREEAM.
In Singapore, Mapei is a member of Singapore Green Building Council (SGBC) currently with 52 SGBP product certifications achieving the award of Leadership in Green Building Products Development in the SGBC-BCA Sustainability Leadership Awards 2016.
Of these 52 products, 21 cover adhesives for ceramic tiles and stones, 6 cover adhesives for resilient materials, 3 cover mortar additives, 8 consist of waterproofing materials, 8 products are for wall coatings and 6 products are for floorings.
On occasion of the Gala Dinner "SGBC-BCA Sustainability Leadership Awards 2016" held on 6th September at the Pan Pacific Hotel in Singapore, the above award was announced. This recognition of Mapei Far East being the producer with the most number of certified products was presented by the Singapore Minister for the Environment and Water Resources, Masagos Zulkifli. Chua Kok Leong, Managing Director of Mapei Far East Pte Ltd received the award in the presence of Chia Ngiang Hong, President of SGBC, Masagos Zulkifli, and Lim Fook Sun, Chairman of BCA (Singapore Building and Construction Authority).

PHOTOS 2 and 3. Chua Kok Leong, Managing Director of Mapei Far East Pte Ltd received the award in the presence of Chia Ngiang Hong, President of SGBC; Masagos Zulkifli, Singapore Minister for the Environment and Water Resources, and Lim Fook Sun, Chairman of BCA (Singapore Building and Construction Authority).

THE RISK OF EARTHQUAKES IN ITALY AND AROUND THE WORLD: DAMAGE AND SOLUTIONS

NUMEROUS COUNTRIES ARE AFFECTED BY POWERFUL EARTHQUAKES THAT COST LIVES AND WIDESPREAD DAMAGE



The global seismic hazard map by the Global Seismic Hazard Assessment Programm (GSHAP).

Six years have gone by since the 12th of January 2010 when Haiti was hit by an earthquake that registered magnitude 7 on the Richter scale, the most powerful ever recorded in the western hemisphere, killing 250,000 people and devastating this Caribbean island. But there are also other countries around the world, such as the United States, New Zealand, Nepal, Japan and Turkey to name but a few, that are also at risk.

AMERICA

As far as the United States is concerned, the geographic area most at risk from powerful earthquakes is, first and foremost, Los Angeles, the second largest city in the country. According to the Geological Society of America the city risks being hit by a powerful earthquake within the year 2040, a potential disaster with devastating consequences, with thousands of people being killed or injured and an estimated 200 billion dollars worth of damage.

Another area at risk is the Mississippi Delta. This area was hit by earthquakes several times in the 19th century along the New Madrid Fault Line, which includes ares of Illinois, Missouri, Arkansas, Kentucky, Tennessee and Mississippi, not only inverting the flow of the River Mississippi, but also hitting an area three times larger than the one that struck San Francisco in 1906. In 2008 the US Federal Emergency Management Agency issued a warning that a powerful earthquake in the St. Luois and Memphis area could cause the highest amount of economic damage ever recorded in the United States, especially because of the lack of preparation for this type of disaster, unlike California and the North West Pacific area of the country.

Within the same geographic area is Peru, located in an area of high seismic risk, and during the course of its history the country has been hit by several powerful earthquakes, such as the one in 1940 of magnitude 7.3. The South American and Nazca tectonic plates have always been in danger of coming into collision and the risk of violent shocks and tsunamis is extremely high. The city of Lima is characterised by its dense urban conglomerates, with houses built with no regard to seismic safety features, and its 9 million inhabitants are unprepared for a potential natural disaster which, for intensity and size, could be comparable to the one that struck Japan in 2011 or Chile in 2014.

EURASIA

The zone known as the North Anatolian Fault Line is also causing serious concern to geologists. This zone includes Turkey which has been struck by earthquakes 6 times in the last 40

years alone, with more than 100,000 victims according to a report by the World Bank. According to scientific analysis the next earthquake could strike an area to the west of Izmit where, in 1999, an earthquake killed around 18,000 people, as well as to the west of Istanbul, the Turkish capital inhabited by 12 million people. This is why the government has invested a lot of resources to improve the structural conditions of the old buildings in Istanbul, but today most of the city's inhabitants are still living in buildings that were constructed quickly without the necessary safety features.

The North Anatolian Fault, one of the three largest in the world, also poses a threat to Iran, which has been hit by intense shocks in recent years, and to Teheran, a megalopolis with 15 million inhabitants that has gone through a period of whirlwind growth, with no particular regard for anti-seismic measures. According to experts, there is a 90% probability that an earthquake with a magnitude of more than 6 could hit this zone during the next movements.

Another high risk area is Nepal which last year was struck by a 7.8 magnitude earthquake, followed by a further 13 tremors with a magnitude of more than 6, causing more than 9,000 deaths and the destruction of 600,000 homes in an area with unsuitable construction techniques that was already particularly poor and almost unprepared for earthquakes. Nepal is a particularly seismic area, being located at a point where the Indian plate meets the Eurasian plate.

Situated in the middle of the ocean, with volcanoes scattered throughout the country, Japan is in a highly seismic area and sits in what is known as the Ring of Fire. The Tokyo and Yokohama areas, home for almost 58 million people, have a very high risk of being victims of a powerful earthquake in any moment, which is also due to the fact that Tokyo sits right above an important fault line in the Pacific Ocean. In 1995 the industrial area of Hanshin was struck by an earthquake that caused more than 6,000 deaths and 100 billion dollars worth of damage, and then in 2011 an earthquake of magnitude 8.9 hit north Japan. This earthquake triggered a tsunami with waves more than 10 m high that killed 13,000 people, thousands people were lost and there was incalculable damage. In fact, Japan has invested heavily to prepare its inhabitants in the event of seismic activity and to protect infrastructures but, in spite of all these efforts, the danger to densely populated cities is mainly the risk of tsunamis.

OCEANIA

Australia is in an inter-fault position, that is, it lies between the Pacific Fault, the Philippine Fault and the Eurasian Fault and any seismic activity it is subjected to is the result of tectonic movements that take place a long way from the continent that are very difficult to predict. Also, according to experts, the construction materials used in large cities such as Sydney are fragile, as demonstrated by the 5.5 magnitude earthquake that struck the city of Newcastle in 1989, causing more than one billion Euros worth of damage.

It is a different story for nearby New Zealand, one of the most high risk countries in the world as far as seismic activity is concerned, with an average of 15,000 tremors every year. According to official figures published by GeoNet, an agency founded through a collaboration between the Earthquake Commission and GNS Science, more than 20,000 tremors have been recorded in the last year alone. The magnitude of most of them was less than 3, which means they are imperceptible, some of them were moderate (with a magnitude of between 3 and 5), 90 had a magnitude of between 5 and 6 and 3 had a magnitude of more than 6. In 2011 an earthquake with a magnitude of 6.3 struck the city of Christchurch, the third most important city in New Zealand, and although there were few victims, it caused a large amount of damage to homes and infrastructures. In the months following the earthquake the city was struck by around 8,000 tremors while the ground settled and almost all the buildings affected had to be demolished, including the cathedral. New Zealand is one of the few countries in the world in which semi-obligatory building insurance against earthquakes is required and it covers around 95% of the total. Turkey and Romania are the only countries where insurance is obligatory, but the number of policies taken out in both cases covers less than 20% of the total.

» MANY COUNTRIES SUCH AS THE UNITED STATES, NEW ZEALAND, NEPAL, JAPAN AND TURKEY ARE AT RISK

The San Andreas Fault extends roughly 1,300 km through California, USA.

THE RISK OF EARTHQUAKES IN ITALY

In the last 2,500 years Italy has been hit by more than 30,000 medium and powerful earthquakes and, since 1900 until today, there have been 31 earthquakes on the Italian peninsula with a magnitude of 5.8 or more on the Richter scale. Earthquakes occur in Italy because it is at the edge of the point of convergence between the African Plate and the Eurasian Plate. Also, in Italy – due mainly to the fragility of its building stock – the relationship between the amount of damage caused and the level of seismic energy released is much higher compared with other countries at high risk, such as California, New Zealand and Japan.

POST-EARTHQUAKE BUILDING WORKS

One answer to the problem of seismic upgrading and reconstruction of buildings damaged by earthquakes is provided by products and systems to mitigate the effects of seismic activity; structural consolidation and strengthening solutions that the Mapei Group has been testing and developing in their laboratories for a number of years: the FRP System line, the FRG System line, some of the products from the MAPEWOOD and MAPE-ANTIQUE lines and special technologies such as PLANITOP HPC and PLANITOP HPC FLOOR. Innovative solutions that have often been applied, and that are currently being applied, all around the world to repair existing building stock and mitigate its vulnerability to seismic events. In these pages you can see a few examples of their application in building sites in areas Spain, Italy and New Zealand that had been damaged by recent earthquakes.

CITY CENTRE, CHURCHES, SCHOOLS, HOSPITALS
L'AQUILA - ITALY

At 3:32 on the night of the 6th of April 2009, an earthquake with a magnitude of 6.3 hit the city of L'Aquila, in Central Italy, causing 309 victims. Mapei was involved in the initial phase to make buildings safe as well as in the reconstructions of many different structures such as churches, hospitals, schools, houses, shopping centres, etc. Apart from providing on-site technical assistance and advising designers and the bodies and organisations in charge of the works, Mapei supplied cutting-edge products and systems to repair both modern and ancient buildings and to provide static and seismic upgrading of the buildings by applying fibre-reinforced composites. Among the products used one finds PLANITOP HDM, PLANITOP HDM MAXI, PLANITOP HDM RESTAURO, carbon fibre and glass fibre fabrics from the MAPEWRAP line, admixtures for concrete, and products for masonry repair from the MAPE-ANTIQUE line.

CHURCH OF SAN CRISTOBAL
LORCA - SPAIN

Mapei took part in the renovation and strengthening of the Church of San Cristobal which had been damaged by the earthquake in May 2011. Mapei's technical assistance proved to be a determining factor, from the design phase right up to the execution phase. The first phase of the work consisted in strengthening the arches in the central nave with MAPEWRAP C UNI-AX unidirectional carbon fibre fabrics, which were applied with resin-based products from the MAPEWRAP epoxy cycle. MAPEWRAP C FIOCCO glass fibre cord was also applied to help protect the fabric.

RESIDENTIAL AND COMMERCIAL BUILDING
LORCA - SPAIN

Amongst the various reinforced concrete structures damaged by the earthquake that hit Lorca in 2011 was this well known residential and commercial building at No. 6, Calle Alberca, which was repaired and strengthened using Mapei products and technology. This reinforced concrete building has one storey below ground level and five storeys above ground level. Repair work was carried out on the pillars of the building. It included filling the cracked areas with EPOJET, rebuilding some concrete sections of the pillars by protecting the reinforcement rods with MAPEFER 1K and applying MAPEGROUT T40 and MAPEGROUT HI-FLOW mortars. Strengthening work was also carried out by wrapping the pillars with MAPEWRAP C UNI-AX unidirectional carbon fibre fabrics.

DETACHED HOUSE
LORCA - SPAIN

Mapei was involved in the reconstruction of a detached house at No. 7-A Poeta Gimeno Castellar Road in Lorca. The two-storey masonry building, right in the heart of the city, had been severely damaged by the earthquake that hit the city in May 2011, with damage to the load-bearing walls, the façade, the slabs and various internal elements and features.
The load-bearing walls were consolidated by injecting MAPE-ANTIQUE I binder into the masonry, which was then reinforced with PLANITOP HDM MAXI mortar and MAPEGRID G220 mesh. MAPEGRID G120 was also used on the internal walls.

SHALE PEAK BRIDGE
CANTERBURY – NEW ZEALAND

As part of the strengthening work of large infrastructures in New Zealand which recently involved Mapei, the intervention carried out on the Shale Peak Bridge in Canterbury was particularly important. It included confining the reinforced concrete piles and applying a protective coating of MAPELASTIC SMART. The bridge piles were strengthened by confining them with MAPEWRAP C UNI AX unidirectional carbon fibre fabric, which is certified by the American Institute ICC-ES. The certificate complies with document AC125 (Acceptance Criteria for concrete and reinforced and unreinforced masonry strengthening using externally bonded fibre-reinforced polymer composite systems) and covers the MAPEWRAP C line of unidirectional carbon fibre fabrics. This certification system evaluates the mechanical performance characteristics and durability of composites when they are exposed to various environmental conditions. The fabrics were applied using an epoxy cycle including MAPEWRAP PRIMER 1 SP, ADESILEX PG1 and MAPEWRAP 31 SP (both MAPEWRAP PRIMER 1 SP and MAPEWRAP 31 SP are manufactured and distributed on the local market by Mapei New Zealand). To guarantee the durability of the structure, the intervention was completed by applying a coat of MAPELASTIC SMART waterproofing mortar.

» 22ND FEBRUARY 2011: a 6.3 magnitude earthquake struck the Canterbury region in New Zealand's South Island

TRINITY CHURCH
CHRISTCHURCH – NEW ZEALAND

Mapei has been active on various building sites in New Zealand as part of the repair and strengthening work being carried out on various structures following the earthquake in 2011. One of the most significant projects is the consolidation and strengthening work carried out on Trinity Church in the city of Christchurch. Work is ongoing and the first interventions were to consolidate the rubble filled walls using MAPE-ANTIQUE I super-fluid, salt-resistant, lime and Eco-Pozzolan-based hydraulic binder. Damaged parts of the building will be rebuild using MAPE-ANTIQUE ALLETTAMENTO and MAPE-ANTIQUE STRUTTURALE NHL mortars and the existing bond beam will be reinforced with PLANITOP HPC. Interiors will be repaired with MAPE-ANTIQUE RINZAFFO, MAPE-ANTIQUE MC and MAPE-ANTIQUE FC.

HOPETOUN APARTMENTS
AUCKLAND – NEW ZEALAND

As part of the interventions carried out to strengthen residential buildings in order to prevent damages due to earthquakes, one of the most significant in New Zealand was on the Hopetoun Apartments in the city of Auckland. The structural strengthening work included confining all the reinforced concrete pillars with MAPEWRAP C UNI-AX fabric, which was applied using an epoxy cycle comprising MAPEWRAP PRIMER 1 SP, ADESILEX PG1 and MAPEWRAP 31 SP (SP (both MAPEWRAP PRIMER 1 SP and MAPEWRAP 31 SP are manufactured and distributed on the local market by Mapei New Zealand).

In case of earthquake...

Behaviour of a buffer wall with no protection in the event of seismic activity

Buffer wall with added strengthening made with ***MapeWrap EQ System***, resists the effect of seismic activity

MapeWrap EQ System

The system acts like "seismic wallpaper" to give people more time to evacuate a building in the event of an earthquake.

- Stops walls collapsing or tipping over in the event of seismic activity
- Increases ductility so that dynamic stresses are distributed more evenly
- Easy and safe to apply both indoors and outdoors
- Adheres perfectly to rendered surfaces, as long as they are solid and compact
- The only antiseismic system certified **EMICODE EC1 PLUS**

World Innovation

MAPEWRAP EQ ADHESIVE
MAPEWRAP EQ NET

/mapeispa

Mapei is with you:
take a closer look at **www.mapei.com**

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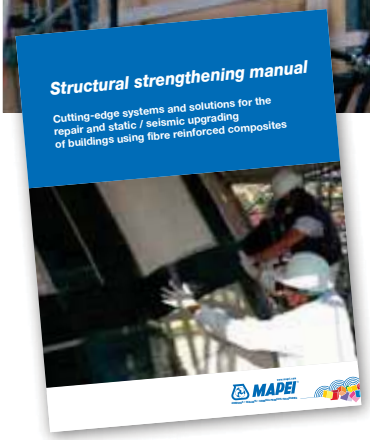
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

CUTTING-EDGE SOLUTIONS
FOR STRUCTURAL STRENGTHENING



Find out more by downloading the *Structural Strengthening Manual* at www.mapei.it!

REPAIR AND SEISMIC UPGRADING OF BUILDINGS USING FIBRE REINFORCED COMPOSITES

THE FRP SYSTEM

The Mapei FRP System is a complete range of composites made from very high strength and extremely high mechanical strength fibres and polymeric resins specially formulated for the strengthening and static and seismic upgrading of structures made from normal, pre-stressed and reinforced concrete, steel, masonry or wood.

The term FRP stands for Fibre Reinforced Polymer. FRP's are part of the more vast family of "structural composites" and are made from strengthening fibres set in a polymer matrix. In fibre reinforced composites, the fibres act as loadbearing members to offer strength and stiffness, while the matrix, apart from protecting the fibres, acts as an element that transfers the stresses between the fibres and matrix and the structural member to which the composite has been applied. The fibres may be subdivided into carbon fibres, glass fibres, basalt fibres and metallic fibres.

The fibres may be disposed in any direction, depending on design specifications, in order to optimise the mechanical properties of the composite in the directions required. The particular characteristic of structural composites is that they provide better, or at least more "complete", mechanical properties than those that would otherwise be provided by the single components.

The use of FRP's in the construction industry applies mainly to the renovation of weak or damaged structures and the static and seismic upgrading of structu-

res. In this context, repair work based on the use of high performance composites is more cost effective than traditional methods if the overall economic valuation takes into consideration the time required and the tools and equipment employed for the intervention, the costs involved in putting a structure out of service and the estimated working life of the structure itself once the intervention has been completed.

The Mapei FRP System for structural strengthening work consists of a wide range of:

- uniaxial, biaxial and quadriaxial carbon fibre fabrics (MAPEWRAP C) available in various weights, sizes and moduli of elasticity;
- uniaxial and quadriaxial glass fibre fabrics (MAPEWRAP G) available in various weights;
- uniaxial, high-strength basalt fibre fabric (MAPEWRAP B) available in various weights;
- steel fibre fabrics (MAPEWRAP S FABRIC);
- a wide range of cords in carbon fibre (MAPEWRAP C FIOCCO), glass fibre (MAPEWRAP G FIOCCO) and steel fibre (MAPEWRAP S FIOCCO);
- pultruded carbon fibre plates (CARBOPLATE), available in various sizes and moduli of elasticity;
- pultruded bars in carbon fibre (MAPEROD C) and glass fibre (MAPEROD G);
- pultruded carbon fibre tubes (CARBOTUBE) and a vast range of epoxy adhesives for impregnating and bonding (MAPEWRAP PRIMER 1, MAPEWRAP 11/12, MAPEWRAP 21 and MAPEWRAP 31).

THE FRG SYSTEM

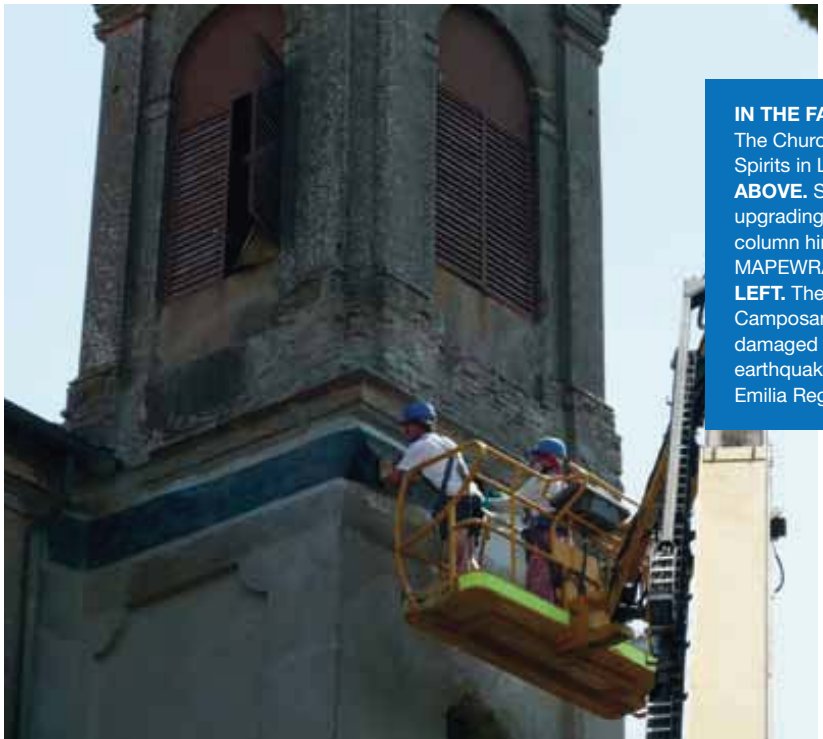
The Mapei FRG System is a complete range of composites which, unlike traditional FRP, uses an inorganic, pozzolanic mortar rather than a polymer matrix to guarantee excellent chemical-physical and elasto-mechanical compatibility with masonry substrates (stone, bricks and tuff). They are used for the repair or static and seismic upgrading of all types of concrete and masonry structures.

The term FRG stands for "Fibre Reinforced Grout". FRG's are made from strengthening fibres set in an inorganic matrix. These types of material offer a series of advantages, including when used on buildings of historical or artistic interest, such as high mechanical strength, low architectonic impact, high durability, ease of application, reversibility.

The application of this type of material overcomes the problem of the inherently low tensile and shear strength of masonry and increases the overall ductility of structures. This innovative consolidating system is used through a series of inorganic matrix composites consisting of glass or basalt fibre mesh with a square weave applied to structures using a highly ductile, two-component, ready-mixed cementitious mortar. For listed buildings strengthening materials must have specific characteristics. This is why technology implemented by Mapei employs composite materials consisting of the combination of a structure of high strength fibres with a matrix of lime and Eco-Pozzolan based mortar.

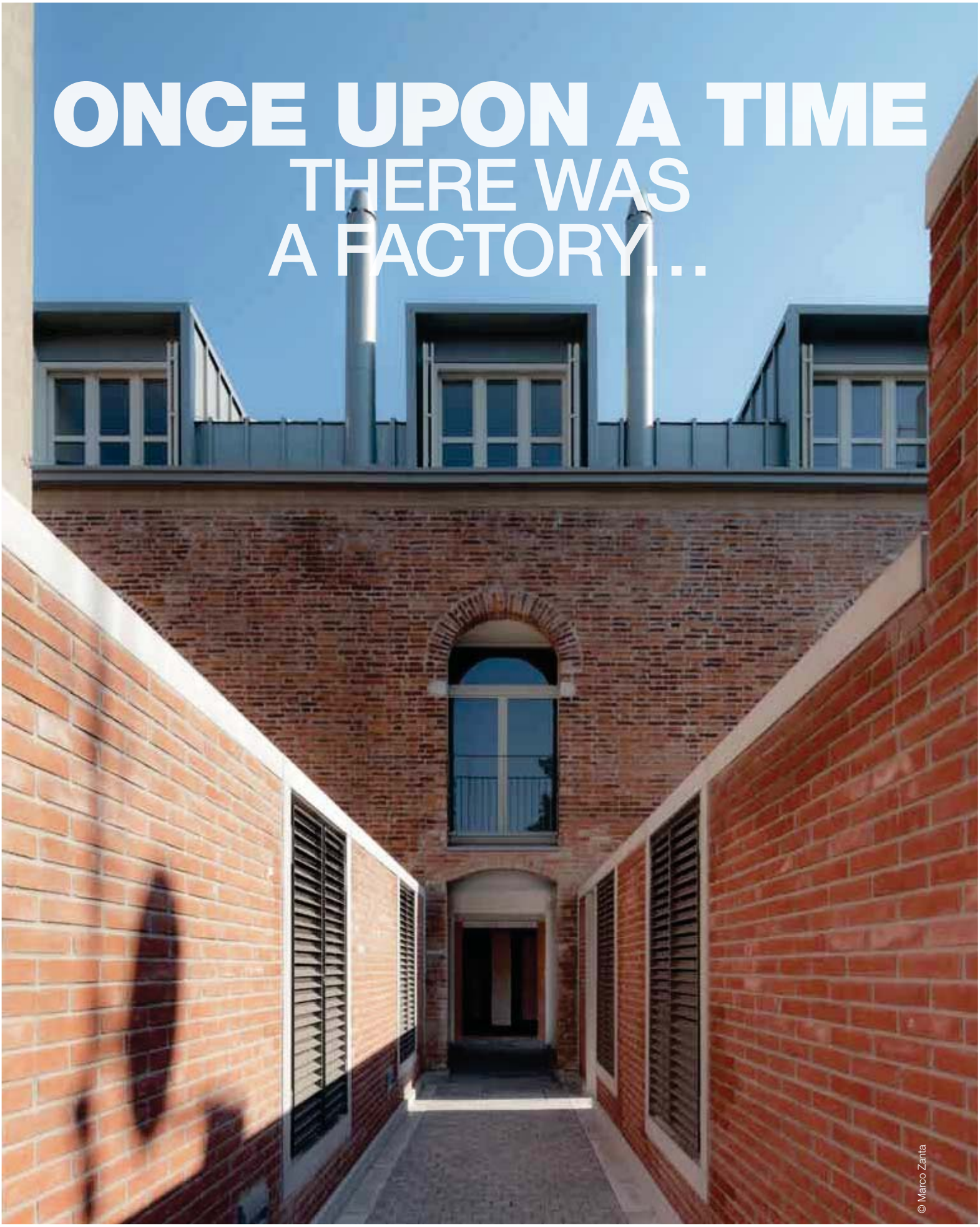
The Mapei FRG System consists of:

- pre-primed, alkali-resistant (A.R.) glass fibre mesh (MAPEGRID G 120 and MAPEGRID G 220);
- pre-primed basalt fibre mesh (MAPEGRID B 250);
- two-component, high ductility, fibre reinforced, pozzolanic reaction cementitious mortar (PLANITOP HDM / PLANITOP HDM MAXI);
- two-component, high ductility, ready-mixed hydraulic lime (NHL) and Eco-Pozzolan-based mortar (PLANITOP HDM RESTAURO).



IN THE FACING PAGE. The Church of the Holy Spirits in L'Aquila (Italy). **ABOVE.** Seismic upgrading of beam-column hinge zones using MAPEWRAP fabrics. **LEFT.** The Church of Camposanto (Italy), damaged by the earthquake that hit the Emilia Region.

ONCE UPON A TIME THERE WAS A FACTORY...



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ABOVE. The site of the Conterie Works in an old picture (Venice City Council-Communication Records).

REDEVELOPMENT OF THE FORMER CONTERIE WORKS IN THE ISLAND OF MURANO, VENICE

This intervention on the site of the former Conterie works on the Island of Murano (Venice) represents an important example of sustainable urban redevelopment, allowing what used to be a contaminated industrial site to be completely restored and used for new residential purposes. Mapei had a fundamental role in the success of this intervention, right from the initial environmental remedation of the area with the HPSS technology by Mapei, followed by the adoption of solutions from their building products range for the actual building work.

INTRODUCTION

According to a recent survey by ISPRA (Italian National Institute for Environmental Protection and Research), the consumption of land in Italy is constantly increasing and has gone from 8,000 km^2 in the 1950's to its current level of 21.000 km^2 [1]. Part of the land used up is represented by areas that are either contaminated or potentially contaminated, areas occupied by active or decommissioned factories, which represent more than 8% of the overall total [2]. There are 9,665 Italian sites that are potentially contaminated, where tests have shown that the reference values specified by Italian Ministerial Decree 471/99 and/or the CTC (Contamination Threshold Concentrations) specified by Italian Decree 152/06 have been exceeded [3]. Over the last few decades many of these sites have been included by urban development and expansion. With the progressive transformation of western economies, which tend to favour the service sectors rather than industrial activities, many of these areas have been decommissioned, creating large, empty urban spaces, known as "brownfields". According to EPA (U.S. Environmental Protection Agency) "brownfields" are real estate properties whose expansion, conversion or reuse could be complicated by the potential presence of dangerous substances or pollutants. In Italy, too, many urban redevelopment projects are progressively including the recovery and transformation of "brownfields" to create new areas of use. Redevelopment of such areas, which often includes measures to clean up the environment, is part of the process of sustainable urban development aimed at reconnecting these empty spaces to the rest of the city and, at the same time, developing the potential for important economic and commercial growth, without resorting to the occupation of new areas of land.

REDEVELOPMENT OF THE FORMER CONTERIE WORKS

The former Conterie works overlooks the point where Canal Grande meets Canale di San Donato and it is this central position that represents such an important feature from a town planning point of view. The Conterie works started to develop in 1830 along with the local glass-making industry and extended over an area of 22,000 m^2. At the end of the 19th century most of the plots had already been built on, with industrial units where the main activity was the production of coloured glass beads for the fashion and design sector which were exported all over the world. With the onset of the crisis that hit the sector in the 1970's, manufacturing went into decline and the works were finally closed and decommissioned in 1993.

After the entire area was bought in 1995, Venice City Council redefined its area of use to include housing, a hotel, shops and craft workshops. The new area encloses:

- craft workshops (buildings C, F and I);
- an extension for the Murano glass museum (building H);
- 36 homes by demolishing and partially rebuilding with an obligation to keep the north façade (building A);
- residential units (by transforming building B);
- 10 public residential units (by transforming building L) owned by A.T.E.R., the Italian council house association;
- land clearance, reclamation and redevelopment of open public spaces;

ABOVE. An aerial view of the former Conterie area in the island of Murano.

LETF. The abandoned warehouses following the closure of the Conterie works. **RIGHT.** A photo of the bank of glass furnaces after the works had been closed down.

• a further building for residential use and general services (building G), shops (building F) and a public meeting hall (building M);
• a hotel (building D) developed by Lagare S.p.A. who bought the area from Venice City Council.

Before the redevelopment work of the old buildings and construction of the new buildings could commence, around 14,000 m^2 of land had to be cleaned up down to a depth of around 2 m below ground level because it was contaminated by heavy metals (arsenic, cadmium, copper, mercury, lead and zinc), a result of the old manufacturing processes. The remediation programme was carried out according to "adaptive remediation and reuse" principles, by which the new uses and functions are gradually introduced onto the site – when environmental and safety conditions permit – according to the rate of progress of the clean-up operations.

THE MAPEI HPSS SYSTEM

The reclamation technique adopted was the Mapei HPSS System (High Performance Solidification Stabilization), an innovative technology developed in the Mapei R&D laboratories in Milan. This system allows contaminants in the ground to be immobilised within an inorganic binder matrix, thereby stopping them being released into the environment, and to remove the volatile and semi-volatile organic compounds. The HPSS process transforms contaminated soil into granular material with excellent mechanical properties, that passes leaching tests for reusable materials as specified by Italian Ministerial Decree 5/2/1988, and takes on the conditions of "end-of-waste" for artificial aggregates.

ABOVE. Artificial aggregates made using the HPSS system from soil taken from the former Conterie area.

Thanks to the use of HPSS technology it was possible to use the treated material from the HPSS process for the construction of various infrastructures and for other non-structural uses, thereby avoiding the unbearable cost of transporting the contaminated material to landfill sites and supplying new virgin material to fill the site, which alone would have exceeded the real estate value of the area and would have compromised the entire redevelopment project.

After reclaiming the site of the former Conterie works, the HPSS system was applied in numerous other remediation interventions and waste treatment operations, such as:
• Sacca Serenella on the island of Murano (heavy metals, completed);
• Former De Majo glassworks on the island of Murano (heavy metals, completed);
• Former Zanetti furnace in Oleggio (Province of Novara, Northern Italy) (heavy metals, completed);
• FibrexNylon works (Romania) (heavy metals and organic compounds, completed);
• Former Agricultural Consortium in Bagnolo Mella (Province of Brescia, Northern Italy) (heavy metals, ongoing);
• Former Ferro glassworks on the island of Murano (heavy metals, ongoing);
• Valdaro Canal, a National Heritage Site in Mantova, Northern Italy (heavy metals and organic compounds, ongoing);
• Pilot project to treat fly-ash from the A2A waste treatment plant in Corte Olona (Province of Pavia, Northern Italy) (heavy metals, to commence shortly) for the production of lightweight aggregates.

The HPSS technology was recently further improved by introducing new binder systems which are more effective and more compatible with the environment. This will considerably reduce its Carbon Footprint (CFP), that is, the sum of all the "greenhouse gases" from the process, which will make HPSS technology even more sustainable.


© Marco Zanta

RESIDENTIAL BUILDING "A", MURANO

The building for the 36 three-storey housing units has just been completed. It extends over an area of around 4,000 m^2 and is an example of how the past can live with the present in a relationship of mutual exchange.
The refurbishment of the building was carried out with two different philosophies: conservative renovation of the north façade, while for the south façade more modern solutions were adopted to give it a contemporary look. In the first case, the 120 m façade is broken up by the presence of two volumes that protrude outwards. In the second case, the façade was conceived as a sequence of volumes grouped into four separate parts, each one separated by public footpaths.
To waterproof all the external structures of the building (terraces, roofs and passageways) the choice went to MAPELASTIC, a two-component, flexible cementitious membrane that provides a sound, permanent waterproofing solution.
MAPENET 150 alkali-resistant glass fibre mesh was placed over the first layer of MAPELASTIC while it was still wet.
MAPEBAND alkali-resistant rubber tape was used to waterproof the control joints and the joints between the horizontal and vertical surfaces. The internal surfaces of the bathrooms and service areas were waterproofed with MAPEGUM WPS quick-drying, flexible, anti-fracture membrane, on which it is possible to install ceramic and stone.
The ceramic flooring was bonded with KERAFLEX cementitious adhesive with no vertical slip and extended open time, which is also easily workable and ensures perfect bonding to all materials normally used in building.
Tile joints were grouted with KERACOLOR GG pre-blended, high-performance polymer-modified cementitious mortar.
The expansion joints were sealed with MAPESIL LM neutral silicone mould-resistant sealant.

TECHNICAL DATA
Period of the Intervention: 2010 - 2015
Client: Venice City Council
Design: Studio Macola (G. Macola, N. Macola, M. Lazzaro, A. Zanetti, E. Florian)
Works Management: Matteo Negro
Structural Design: L. Rota and G. Di Mento
Works Direction: Flavio Bellin, Paolo Giunchi, Luigi Zeno, Ivano Turlon, Umberto Benedetti
Main Contractor: Clea S.C. Impresa Cooperativa Di Costruzioni Generali
Ceramic Installation Contractor: Firas Srl
Mapei Co-ordinator: Mauro Orlando, Mapei SpA (Italy)

MAPEI PRODUCTS
Keracolor GG, Keraflex, Mapeband, Mapegum WPS, Mapelastic, Mapenet 150, Mapesil LM

REMEDIATION WORK

The remediation project initiated by Venice City Council proposes to reuse the area and its buildings by opening the old industrial site to the local residential needs, within a context whereby the old factories will combine with the typical characteristics of urban Venice, made up of series of variegated buildings which, from structurally simple modular elements, will create a large variety of prospective and volumetric features. The reclamation of the area is currently around 60% complete which has allowed usable land to be created for the Lagare Hotel Venezia, which opened in 2011 (building D), and the residential units in buildings A and L, which are almost completed.
The first 36 council housing units, designed by the Macola design studio of Venice, have been completed. And by the end of this year, after completion of the town-planning, the housing units will be ready to be occupied.
The design for the new residential units is in keeping with the existing houses in the area. Their layout in building A is dictated by the north façade, which has been conserved as a reminder of the industrial building the new units are built against, and must also respect the layout of the openings. A series of volumes arranged in a comb-like pattern form the lay-out of the housing units, alternating between two semi-detached units and three detached units.
The reclamation plan calls for building B, which is currently being designed, to be built inside the shell of the existing industrial building, which has now been gutted. The new building is made up of two blocks, with a covered square that will represent the centre of the new area.

CONCLUSIONS

The remediation of "brownfield" sites represents an essential phase of urban redevelopment programmes in the quest for sustainable development. However, the problem of the cost of clean-up operations risks compromising the remediation and exploitation of contaminated sites due to the extremely high cost of transporting and disposing contaminated soil.
Mapei HPSS technology allows contaminated soils and sediments to be recovered and transformed into a resource that

can be utilised. In so doing, it eliminates the impact that landfill operations have on the environment, the costs involved for handling, transporting and disposing of the contaminated soil and the cost of purchasing new filling material, by transforming contaminated soil into granular material that takes on the "end-of-waste" criteria of recycled aggregates.
Mapei is the only company that can provide the know-how, technology and products required to remediate "brownfield" sites, from the initial operations to clean up the environment, right up to the restoration of the old buildings and the construction of new buildings.
Mapei has always paid particular attention to environmental sustainability. The products from the ECO line, specifically developed to guarantee the minimum emission level of volatile organic compounds (VOC) into "indoor" surroundings, are certified by GEV (Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.), a German association that checks VOC emission levels of flooring products, adhesives and building materials.
These prerogatives make Mapei the ideal partner for designers and contractors committed to pursuing the not always simple, but nonetheless imperative, objective of making the entire construction process increasingly sustainable.

Giorgio Ferrari. Mapei SpA R&D Laboratories

BIBLIOGRAPHY
[1] Ispra, (Italian National Institute for Environmental Protection and Research), "Il consumo di suolo in Italia (The consumption of land in Italy)", 2015 Edition, Report No. 218/2015, Rome.
[2] Legambiente, "Bonifiche dei siti inquinati: chimera o realtà? (Reclamation operations on contaminated sites: fantasy or reality?)", 28th of January 2014, Rome.
[3] Ispra, "Annual report of environmental data, Edition 2014-2015 (Annuario dati ambientali, edizione 2014-2015), Chapter 16.2, Report No. 59/2015, Rome.

LAGARE HOTEL VENEZIA, MURANO

The LaGare Hotel Venice, which is located within the former Conterie works, is an exclusive, 4-star hotel made up of two large buildings, typical of industrial architecture in the lagoon area, which between 2010 and 2013 underwent a redevelopment programme. For the external part of the hotel, the project focused on the renovation and conservative restoration of the existing perimeter walls, paying special attention in order to promote the use of the original materials. Internally, the volumes were divided to suit the needs of the new hotel.
The 119 rooms have been decorated to a high standard based on contemporary design and comfort and are embellished with lighting by Venini. In the public areas there is a permanent exhibition of museum pieces and items and articles designed by Venini. The hotel also has an elegant restaurant and bar overlooking a characteristic Venetian courtyard.
The various types of ceramic flooring were bonded with white KERAFLEX MAXI S1 high-performance, deformable, cementitious adhesive with no vertical slip, extended open time and Low Dust technology for ceramic tiles.
KERACOLOR GG pre-blended, polymer-modified cementitious mortar was also used in this case to grout the joints.

TECHNICAL DATA
Period of the Intervention: 2010 - 2013
Client: LaGare Hotel Venezia Srl
Main Contractor: Setten Genesio SpA
Ceramic Installation Contractor: Europavimenti di Morelli Salvatore & C. Sas
Mapei Co-ordinator: Michele Orlando, Mapei SpA (Italy)

MAPEI PRODUCTS
Keraflex Maxi S1, Keracolor GG

Keraflex® Maxi S1 zerø*

MAXI PERFORMANCES. **ZERO** IMPACT.

Leader in high performance, **zero** impact cementitious adhesive for ceramics.

1 ZERO CLIMATE-CHANGE EFFECT

Keraflex Maxi S1 zerø is the first adhesive with **residual greenhouse gas emissions that have been eliminated** through **certified offsetting**.

2 HIGH PERFORMANCES

S1

No vertical slip, extended open time, can be applied in layers layers up to 15 mm thick, easy to spread, highly deformable.

3 CERTIFIED EC1 R PLUS

Very low emission level of volative organic compounds.

4 LOW DUST

Developed with a technology which considerably reduces dust emission during mixing phase.

Mapei and the CARBON FOOTPRINT project

MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE

KERAFLEX MAXI S1 ZERØ LIFE CYCLE HAS BEEN ASSESSED INSIDE THE **NATIONAL PROGRAM FOR THE CARBON FOOTPRINT ASSESSMENT**, THANKS TO THE CO-FUNDED PROJECT OF ITALIAN MINISTER FOR ENVIRONMENT, LAND AND SEE PROTECTION (MATTM). THE CARBON FOOTPRINT OF KERAFLEX MAXI S1 ZERØ HAS BEEN STUDIED, AND RESULTS HAVE BEEN VALIDATED ACCORDING TO ISO/TS 14067. For more details: http://www.mapei.com/IT-IT/carbon-footprint.asp

* *Keraflex Maxi S1 zerø is only available in grey colour.*

Product info

/mapeispa

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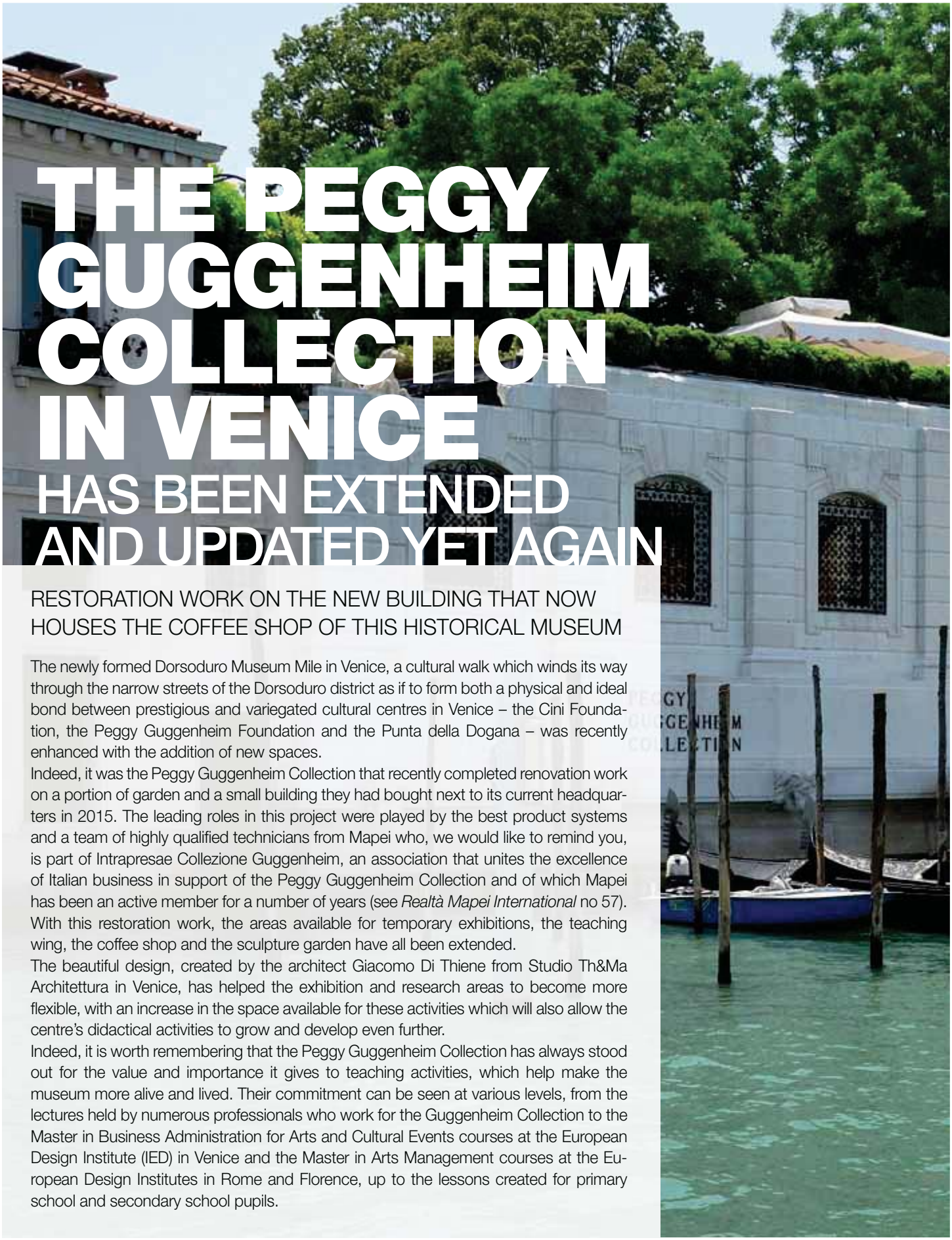
take a closer look at **www.mapei.com**

MAPEI®
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING



THE PEGGY GUGGENHEIM COLLECTION IN VENICE

HAS BEEN EXTENDED AND UPDATED YET AGAIN

RESTORATION WORK ON THE NEW BUILDING THAT NOW HOUSES THE COFFEE SHOP OF THIS HISTORICAL MUSEUM

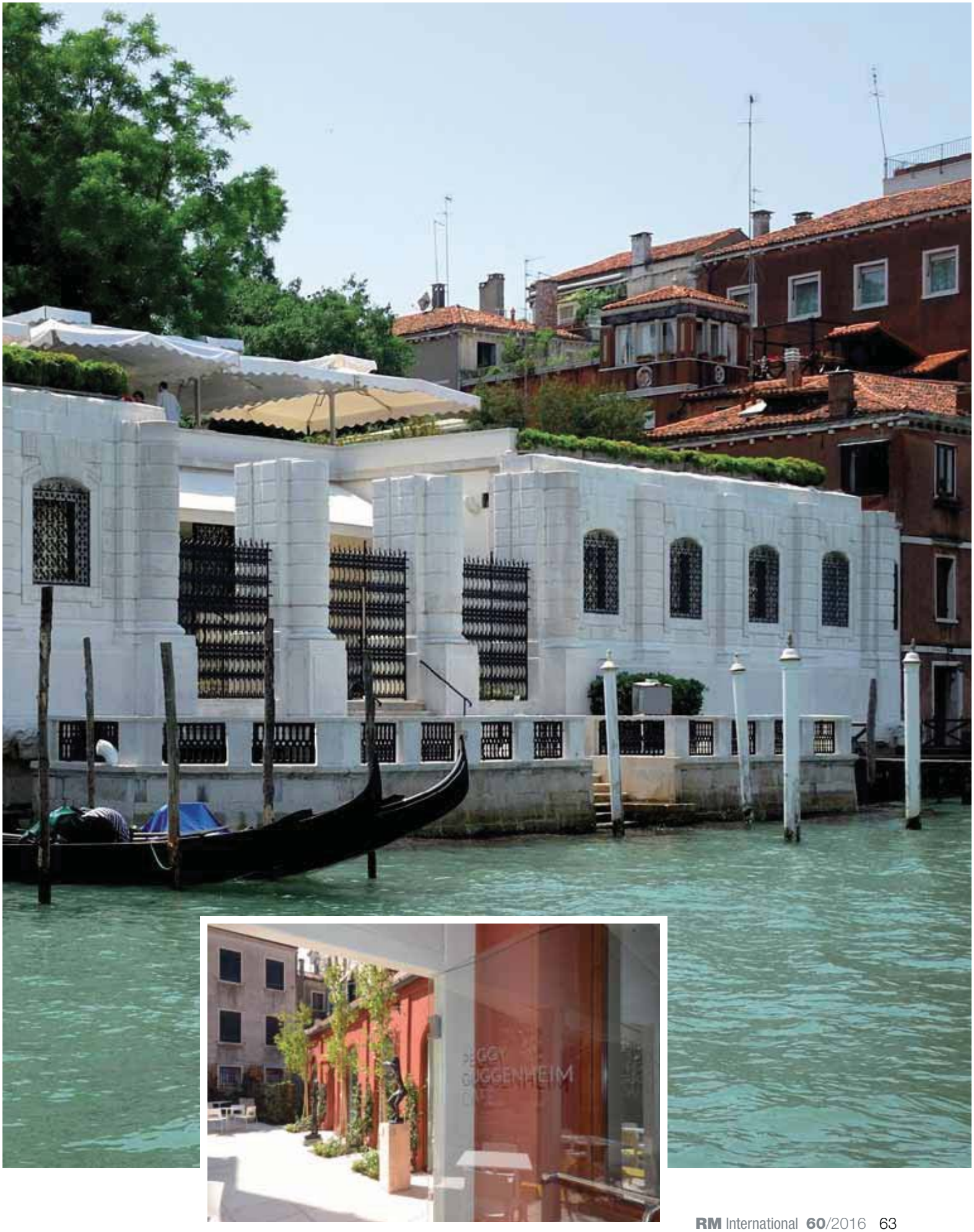
The newly formed Dorsoduro Museum Mile in Venice, a cultural walk which winds its way through the narrow streets of the Dorsoduro district as if to form both a physical and ideal bond between prestigious and variegated cultural centres in Venice – the Cini Foundation, the Peggy Guggenheim Foundation and the Punta della Dogana – was recently enhanced with the addition of new spaces.

Indeed, it was the Peggy Guggenheim Collection that recently completed renovation work on a portion of garden and a small building they had bought next to its current headquarters in 2015. The leading roles in this project were played by the best product systems and a team of highly qualified technicians from Mapei who, we would like to remind you, is part of Intrapresae Collezione Guggenheim, an association that unites the excellence of Italian business in support of the Peggy Guggenheim Collection and of which Mapei has been an active member for a number of years (see *Realtà Mapei International* no 57).

With this restoration work, the areas available for temporary exhibitions, the teaching wing, the coffee shop and the sculpture garden have all been extended.

The beautiful design, created by the architect Giacomo Di Thiene from Studio Th&Ma Architettura in Venice, has helped the exhibition and research areas to become more flexible, with an increase in the space available for these activities which will also allow the centre's didactical activities to grow and develop even further.

Indeed, it is worth remembering that the Peggy Guggenheim Collection has always stood out for the value and importance it gives to teaching activities, which help make the museum more alive and lived. Their commitment can be seen at various levels, from the lectures held by numerous professionals who work for the Guggenheim Collection to the Master in Business Administration for Arts and Cultural Events courses at the European Design Institute (IED) in Venice and the Master in Arts Management courses at the European Design Institutes in Rome and Florence, up to the lessons created for primary school and secondary school pupils.


PEGGY
GUGGENHEIM

LEFT. Masonry walls featured damaged and uneven renders. **BELOW.** The garden next to the new coffee house, after completion of the works. **RIGHT.** In the shop porcelain tiles were installed with KERAFLEX MAXI S1 high-performance deformable cementitious adhesive with no vertical slip.

THE MAPE-ANTIQUE DE-HUMIDIFYING CYCLE

To repair the renders on the building that had been damaged by rising damp and the chemical aggression of soluble salts, **cement-free lime and Eco Pozzolan-based products** from the MAPE-ANTIQUE line were used, which are specifically recommended for consolidating, repairing and renovating masonry walls in buildings, including those of historical and artistic interest.

After removing all the damaged renders and giving the masonry walls a thorough clean, the metallic features on the façade were fastened to the underlying masonry walls with MAPEFIX VE SF styrene-free, hybrid vinyl resin-based chemical anchor.

After saturating the substrate with water, a 5 mm thick layer of MAPE-ANTIQUE RINZAFFO salt-resistant, transpirant lime and Eco-Pozzolan scratch-coat mortar was applied to completely cover the area to be rendered to improve adhesion of the render and even out the absorption of substrates.

Once the scratch-coat layer had started to set, a 20 m thick layer of MAPE-ANTIQUE MC MACCHINA macro-porous, salt-resistant dehumidifying, lime and Eco-Pozzolan based render was applied over the surfaces.

All the features protruding from the façade, as well as all those in direct contact with the new render (parapets, cornices, junction boxes, electricity metres, etc.), were sealed with MAPEFLEX MS45 paintable hybrid sealant and adhesive.

To finish off the façade, potassium silicate-based products from the SILEXCOLOR line were used in order to form a perfect bond with the lime-based render underneath and to

IN THE SPOTLIGHT

MAPE-ANTIQUE MC MACCHINA

It is a pre-blended, cement-free mortar in powder for de-humidifying render made from lime, Eco-Pozzolan, natural sand, additives and micro-fibres with very low emission level of volatile organic compounds (EMICODE EC1 R Plus). It is used for repairs to old masonry damaged by capillary rising damp or concentrated salts, as well as for rebuilding lime-based render deteriorated by atmospheric agents, environmental conditions or by ageing. MAPE-ANTIQUE MC MACCHINA features high mechanical strength, high modulus of elasticity and porosity, as well as resistance to soluble salts, freeze-thaw cycles, the leaching action of rainwater, alkali-aggregate reactions and the formation of cracks. It can contribute up to **4 points** to obtain the **LEED** certification.

Foto Matteo De Fina

complete a layer with good permeability to water vapour.
Once the render was perfectly cured it was coated with SILEXCOLOR BASE COAT transpirant, coloured silicate undercoat with a smooth finish and good filling properties. After 24 hours a thin layer of SILEXCOLOR TONACHINO highly transpirant, thick-layered silicate coating was applied.
The product chosen to consolidate the exposed brick walls was MAPEWALL MURATURA FINE high strength, transpirant, natural hydraulic lime-based masonry mortar with low emission level of VOC (Volatile Organic Compounds).

KERAFLEX MAXI S1 TO BOND CERAMICS

The porcelain floor tiles in the shop, coffee shop and internal and external service areas were bonded with KERAFLEX MAXI S1, a high-performance deformable cementitious adhesive with no vertical slip, extended open time and Low Dust technology for ceramic tiles, particularly recommended for installing large porcelain tiles and natural stone slabs.
The work was carried out to perfection and will allow numerous visitors to be welcomed in a place that has been completely renovated, where you can allow yourself a pause of excellence in surroundings that are unique in the world.
And so the bond between Mapei and the Guggenheim museums has been strengthened. A trans-oceanic relationship which, in 2008, also saw Mapei products used for repair and renovation work on the Solomon R. Guggenheim Museum in New York, a building designed by Frank Lloyd Wright that had been damaged by atmospheric agents and the rigours of time (see *Realtà Mapei International* no. 27).

TECHNICAL DATA
Peggy Guggenheim Collection, Venice (Italy)
Period of the Intervention: 2015–2016
Intervention by Mapei: supplying products for restoring masonry and renders, as well as products for installing ceramic tiles
Client: Solomon R. Guggenheim Foundation – Peggy Guggenheim Collection
Design and Works Direction: Th&Ma Architettura, Giacomo Di Thiene
Contractor: Minto Francesco Srl
Mapei Co-ordinators: Claudio Azzena, Michele Orlando, Mauro Orlando, Davide Bandera, and Cristian Bordignon, Mapei SpA (Italy)

MAPEI PRODUCTS
Restoring masonry and renders: Mapefix VE SF, Mape-Antique MC Macchina, Mapeflex MS 45, Mapewall Muratura Fine
Applying wall coatings: Silexcolor Base Coat, Silexcolor Tonachino
Installing ceramic tiles: Keraflex Maxi S1

For further information on products see the websites www.mapei.com and www.mapei.it

MONTREAL, CANADA,
OLYMPIC GAMES **1976**

MOSCOW, RUSSIA,
OLYMPIC GAMES **1980**

BARCELONA, SPAIN,
OLYMPIC GAMES **1992**

ATLANTA, USA,
OLYMPIC GAMES **1996**

THE 40 OLYMPIC YEARS OF MAPEI

FROM MONTREAL 1976 TO RIO 2016, MAPEI CELEBRATES ITS PRESENCE AT THE OLYMPICS

SYDNEY, AUSTRALIA
OLYMPIC GAMES **2000**

ATHENS, GREECE
OLYMPIC GAMES **2004**

PEKING, RPC
OLYMPIC GAMES **2008**

LONDON, UK
OLYMPIC GAMES **2012**

NILTON SANTOS STADIUM,
RIO DE JANEIRO, BRAZIL,
OLYMPIC GAMES **2016**

Where there is sport, especially at the highest level, there is also Mapei. From cycling to football, from basketball to volleyball and from Alpine skiing to golf, you will often see the Mapei brand emblazoned on an athlete's kit or on the advertising hoardings that add an extra splash of colour to all the most important international sporting events.

A multi-faceted presence that sees the company also playing a leading role where science meets sport: it is the Mapei Sport Research Centre in Olgiate Olona (Northern Italy), an European research centre of excellence that operates in the field of sports, carrying out important scientific research and providing assistance for athletes from all sectors of sport in order to help improve their performance.

The attention Mapei pays to sport is also shown in sponsoring important events, especially in the world of cycling. Besides, concrete examples of Mapei's commitment to sport can be seen in the supply of products for the construction and maintenance of facilities used in the last four decades for the various editions of the Olympic Games and the major European and international sports events.

For the 2012 London Olympic Games (see *Realtà Mapei International* no. 39) and the 2016 Rio Games, through the company Mondo, Mapei supplied adhesives for the athletics tracks, as well as building products for sports arenas and hospitality complexes. For the 2014 Winter Olympics in Sochi (Russian Federation) Mapei supplied solutions for the construction and upgrading of the Olympic Village, the surrounding reception structures and infrastructures in various areas of Russia (see *Realtà Mapei International* no. 39).

Mapei products and systems were also used in the construction of various football stadiums in Brazil used to host the 2014 World Cup (see *Realtà Mapei International* no. 39).

XXXI OLYMPIC GAMES

For the most recent Games too, held in Rio de Janeiro in Brazil from the 5th to the 21st of August 2016, the technology found in Mapei products was decisive in installing the athletics track in the Nílton Santos Olympic Stadium, also called Estádio Olimpico João Havelange.

Zero medals, zero podiums and zero results. Italian athletics just couldn't make it happen at the 2016 Rio Olympics. But there is also an Italy that works with a tradition for endeavour that did win: the athletics track on which Usain Bolt, the multi medal-winning Jamaican sprint champion, and hundreds of other athletes ran and won was designed and manufactured by Mondo, a company founded in 1948 in Alba (Province of Cuneo, Northern Italy), and installed using a Ma-

NILTON SANTOS STADIUM IN RIO DE JANEIRO

The athletics track at Nilton Santos Stadium (also called João Havelange Stadium) in Rio de Janeiro – hosting the athletic races during the 2016 Olympics – was installed using ADESILEX G19 two-component adhesive.

pei product of excellence.
Rio 2016 was the eleventh Olympics with the Mondo and Mapei hallmark and, for both companies, confirmation of the natural path of their constant, uninterrupted commitment since Montreal in 1976.
For the first time in history the athletic events were immersed in blue: the blue of the innovative Mondotrack/WS track installed in Brazil by Mondo using the powerful Mapei adhesive ADESILEX G19. Blue is a particularly trendy colour that produces excellent TV images and has the merit of bringing to mind the Brazilian flag.
A track that proved to be not only fast and safe, but also a winner. Two new world records were set on it: in the 10,000 m women's event by the Ethiopian Almaz Ayana (a new World and Olympic Record of 29:17.45) and in the 400 m men's event by the South African runner Wayde Van Niekerk (a new World and Olympic Record of 43.03).

TECHNICAL DATA

Nilton Santos Stadium, Rio de Janeiro (Brazil)
Year of the Intervention: 2016
Intervention by Mapei: supplying products for installing the rubber athletics track supplied by Mondo (Mondotrack/WS)
Client: Empresa Municipal de Urbanização - Riourbe
Contractor: Construtora Augusto Vello
Works Direction: Antônio Nascimento
Rubber Installation Contractor: Play Pisos
Mapei Co-ordinator: Nathaniel Woodhead, Mapei Brasil Materiais de Construção LTDA

MAPEI PRODUCT
Adesilex G19

IN THE SPOTLIGHT

ADESILEX G19
It is an extremely strong and flexible all-purpose adhesive especially recommended for non-absorbent or moisture-sensitive surfaces. ADESILEX G19 is used for interior and exterior bonding of rubber, PVC, textile, needlepunch, and linoleum flooring, polystyrene and polyurethane panels, fibrous concrete, wood, sheet-metal, and plastic laminates.
ADESILEX G19 is a two-component epoxy-polyurethane adhesive. Mixing the parts carefully forms a uniformly coloured paste that is easily applied with a notched trowel.

The athletics track in the UNIFA (University of the Brazilian Airforce), which was used as a training track for the athletes taking part in the events, was also installed with Mapei ADESILEX G19.

UNIFA (University of the Brazilian Airforce)

33 world records were also set on this track during the Paralympic Games.
One of the strong points of the new Mondo track is, without a doubt, its technology for surface drainage, which provides an even greater grip in raining conditions. It also enhances slip-resistance and traction to the point where spikes on athletes' shoes do not have to penetrate the track surface in order to grip, even in wet conditions.
This boosts the athlete's performance by cutting the time and energy required for spike penetration and retraction. At the same time, the low-penetration spikes lengthen the athlete's stride by making the track surface deflect and recover like a bowstring, literally launching the athlete away from the surface.

A POWERFUL ADHESIVE FOR A FAST TRACK

From a technical point of view Mondotrack/WS – which was also installed using ADESILEX G19 at the UNIFA (University of the Brazilian Air Force) campus as a training track for the athletes taking part in the events – has a surface layer in rubber that guarantees excellent dynamic elasticity and uniformity of dynamic response over the whole track.
Mondotrack/WS also offers optimum support to foot movement, enhancing movement efficency and energy return while minimizing impact forces and vibrations.
For athletics tracks made of synthetic rubber rolls, epoxy-polyurethane adhesives must be used for their capacity to perfectly bond to the substrate, normally made of a layer of bituminous cementitious conglomerate.
For this type of application Mapei developed specific adhesives, such as ADESILEX G19 and ADESILEX G20. These adhesives ensure a perfect bond of the athletic tracks and contribute to the performances of the whole system and the athletes.

TECHNICAL DATA
UNIFA (University of the Brazilian Airforce), Rio de Janeiro (Brazil)
Year of the Intervention 2016
Intervention by Mapei: supplying products for bonding the rubber athletics track supplied by Mondo (Mondotrack/WS)
Client: Brazilian Sport Ministery
Works Direction: Antônio Nascimento
Rubber Installation Contractor: Play Pisos
Mapei Co-ordinator: Nathaniel Woodhead, Mapei Brasil Materiais de Construção LTDA

MAPEI PRODUCT
Adesilex G19

After hardening in approx. 24 hours solely through chemical reaction and without shrinkage, ADESILEX G19 becomes flexible, resistent to moisture, water, heat and atmospheric agents, with high bonding characteristics on almost all materials commonly used in construction.
It is ideal for installing rubber flooring for athletic complexes, even on asphalt bases (e.g. tracks).

CARNEVALI:

"READY TO DO OUR BEST IN THREE COMPETITIONS!"

IN THE 2016-17 SEASON SASSUOLO IS FOCUSING ON THE SERIE A CHAMPIONSHIP, EUROPA LEAGUE AND ITALY CUP

"Come on Sasol!". This is Sassuolo's fourth season in the Italian Serie A Championship. There is a feeling of great enthusiasm at the football club owned by the Mapei Group, partly because finishing sixth in last season's Championship has qualified the team to play in the Europa League. Sassuolo has made a very successful start to its first ever European campaign, thanks to the natural goal-scoring skills of its forward Domenico Berardi, aged 22. Sassuolo is involved in several different competitions. There have been teams in the history of football that have won international trophies without ever winning their own league championship, like for example West Ham United. The example in Italy is Parma, which has never won the Italian league but has an EUFA Super Cup, an EUFA Cup Winners' Cup and two UEFA Cups in its club showcase. So, what if Sassuolo also managed to win an international competition before the League Championship?

ABOVE. Giovanni Carnevali, the Managing and General Director of Sassuolo.

"That would be extremely difficult - so Giovanni Carnevali points out, the Managing and General Director of Sassuolo - but anything is possible. Winning the Europa League is a dream. Nevertheless, the staff and players are ready to give their best to progress as far as possible in this year's Europa League. But the example set by Parma in the 1990s cannot, unfortunately, be compared to the current situation in football, due to financial reasons, television rights, etc. Football has changed since then".

So Mr. Carnevali, Sassuolo's qualification to play in Europe has grabbed plenty of attention. But it is also worth focusing on another achievement: this season the black-and-greens are one of the teams entering the Italy Cup in the round of the last 16. It is the first time this has happened.

"We will enter the Italy Cup in the round of the last 16 without having to play all those early-round matches in the summer, all thanks to finishing sixth in last year's Serie A Championship, which, I would like to say again, was an exceptional achievement. Some teams never play their best in the Italy Cup, but we will be giving it 100%: that is what we have to do in every competition to keep on improving. Winning the Italy Cup is a dream that will not easily come true. But, as I

have already said, anything is possible".

It is generally believed that Sassuolo is a better team this year than the one that finished sixth in the 2015-16 Championship. This seems to be borne out by certain Europa League matches. So how much better is this new Sassuolo team, which is going for the "triple" of the Serie A Championship, Europa League and Italy Cup?
"This summer we sold our defender Vrsaljko to Atletico Madrid and our forward Sansone to Villareal. They went off to play in Spain and Athletic Bilbao is currently the fifth-ranked team in Europe. This means we have sold two important players. We have replaced them with young players, who need to develop, so if Sassuolo is considered to be a better team than last year it is not because of the squad we have, but because of the way the team plays. It is all down to the team's hard work led by our team manager Eusebio di Francesco, who certainly gives us that something extra, and, of course, the support of the Mapei Group. It is hard to say how much we have improved in percentage terms".

FACING PAGE, FROM LEFT. Alessandro Matri and Alfred Duncan in action.
THIS PAGE, BELOW. Sassuolo's team manager Eusebio Di Francesco.

The away defeat against Chievo Verona is the only sour note in Sassuolo's start to this season's Championship.
"During the course of a season there might also be an odd defeat against a well-organised team like Chievo. Sassuolo lost the match at Bentegodi Stadium even though the team played well. There was also a physical reason for this: this is the first season we have had to play every three days due to our commitments in the league Championship and Europa League. We played three times in the space of just eight days: so is only to be expected that there will occasionally be a slight drop in physical fitness or concentration. The defeat against Chievo also happened for other reasons, not least of which the state of the pitch in Verona, which was really terrible".

Alessandro Matri, aged 32, is a great find for this new Sassuolo team. He has already played for teams of the calibre of Juventus, A.C. Milan, Lazio and Cagliari. You have given him the number 10 shirt, usually worn by outstanding players. Did you do that because you think Matri is a real leader and inspiration for the team?
Alessandro asked to wear the number 10 shirt and we were only too glad to oblige. Matri is a classy forward, who already has an important career behind him. His experience up front is important for us. And he still has much more to give".

The winger Matteo Politano, aged 23, has been quite unstoppable during the first few official games of this new season. With the ball at his feet he can beat a man like very few others can and he also has an excellent shot and is a real opportunist. Are you surprised by Politano's goal-scoring exploits or were you expecting it?
"Matteo's great form is no surprise, we knew how good he was. He has always been fast and accurate and he is still young. This means he still has room to improve. Matteo is already doing very well, but he could do even better. As Eusebio di Francesco has already said: the young players must give much more".

Simone Missiroli is always the linchpin in the midfield and going forward. He is 30 years old, so he might be just the right age to play his best for Sassuolo. Do you think he is too old to get in the Italian national team?
"Missiroli, who has been with Sassuolo since January 2012 and was keen to stay with us despite numerous important offers from big clubs in the top division, was on the very of getting into the Italian team under Conte. But when selection time came around he was injured, which ruined everything. He had a great chance because he fit into Conte's playing style and tactics, but now Ventura is in charge and we will have to see. We also have other players whose ambition is to be picked to play for Italy".

Sassuolo has also managed to hold onto Alfred Duncan, aged 23, who is considered to be the midfield dynamo. We know that lots of clubs wanted to buy him.
"Our Ghanaian dynamo is a top-class player in terms of both quality and quantity. The fact that teams, which have been involved in international competitions for many years, were looking to buy him is testament to the fine work carried out by Giovanni Rossi and the rest of our youth team managing staff, who advised me to buy Duncan two years ago".

Francesco Acerbi, aged 28, has gone through some tricky moments in his career. He has overcome them thanks to the help of Sassuolo and was on the verge of being chosen for the Italian national team for Euro 2016. Is it true that Inter Milan wanted him?
"The fact that a central defender of Acerbi's stature has decided to stay with the team, even though he was in great demand from both Italian and foreign clubs, is proof that our club is not interested in getting the best out of its players so that they can then be sold on at the highest possible price. Our main aim is to hold onto our best players to make the team more competitive. You only sell a good player if you are sure you can replace him with someone equally talented and skilful".

Would it be right to say that even though Sassuolo represents a city with just 41,000 inhabitants it has a special "mission"?
"I am proud to say that lots of incredibly gifted players would like or hope to be part of Sassuolo; we are enjoying considerable success. Of course we are delighted to represent an important and hard-working town like Sassuolo, which also provides us with great support. Nevertheless, anybody hoping to play for us or agreeing to join our club do not think about the city's population but have in mind our technical plans, our professional know-how and our room for improvement. Anybody wearing our team shirt knows they are representing the great Mapei Group, getting all the support they need to give their very best".

Are you happy with the Sassuolo youth team set-up?
"We are reorganising it, but it is already producing some excellent young players. For example, Claud Adjapong, aged 18, who developed in the Sassuolo youth teams, made his debut in Serie A during the 2015-2016 League Championship in the match against Juventus in Turin. Adjapong now plays for the Italian national under 19 team. Last season he was also in the starting line-up for the match against A.C. Milan at San Siro stadium in Milan. It is great to see a young player from the youth team perform so confidently on major stages".

SASSUOLO TEAM

GOALKEEPERS

- #1 Alberto POMINI (Italy, 17-3-81)
- #47 Andrea CONSIGLI (Italy, 27-1-87)
- #79 Gianluca PEGOLO (Italy, 25-3-81)

DEFENDERS

- #5 Luca ANTEI (Italy, 19-4-92)
- #13 Federico PELUSO (Italy, 20-1-84)
- #15 Francesco ACERBI (Italy, 10-2-88)
- #20 Pol LIROLA (Spain, 13-8-97)
- #23 Marcello GAZZOLA (Italy, 3-4-85)
- #26 Emanuele TERRANOVA (Italy, 14-4-87)
- #28 Paolo CANNAVARO (Italy, 26-6-81)
- #39 Cristian DELL'ORCO (Italy, 10-2-94)
- #55 Timo LETSCHERT (Holland, 25-5-93)
- #98 Claud ADJAPONG (Italy, 6-5-1998)

MIDFIELDERS

- #4 Francesco MAGNANELLI (Italy, 12-11-84)
- #6 Lorenzo PELLEGRINI (Italy, 19-6-96)
- #7 Simone MISSIROLI (Italy, 23-5-86)
- #8 Davide BIONDINI (Italy, 24-1-83)
- #12 Stefano SENSI (Italy, 5-8-95)
- #22 Luca MAZZITELLI (Italy, 15-11-95)
- #32 Alfred DUNCAN (Ghana; 10-3-93)

FORWARDS

- #9 Pietro IEMMELLO (Italy, 6-3-92)
- #10 Alessandro MATRI (Italy, 19-8-84)
- #11 Gregoire DEFREL (France; 17-6-91)
- #16 Matteo POLITANO (Italy, 3–8–93)
- #25 Domenico BERARDI (Italy, 1-8-94)
- #27 Federico RICCI (Italy, 27-5-94)
- #90 Antonino RAGUSA (Italy, 27-3-90)

SASSUOLO

HAS MADE A GOOD START TO ITS EUROPA LEAGUE CAMPAIGN

The whole of Europe is singing the praises of Sassuolo, the football team owned by the Mapei Group. The club's debut in the Europa League was worthy of applause due to the quality of the football played, the squad of players and the back room staff. One of the team's most important players, who has really caught the eye during these lively European matches, is, of course, the highly experienced defender Paolo Cannavaro, born in 1981. He has been playing for the team (owned by Giorgio Squinzi with Carlo Rossi as its President and Managing Director) since January 2014 and originally comes from Naples. At home Paolo was brought up on "bread and football": his brother Fabio won the 2006 World Cup playing for Italy, which was sponsored by Mapei at the time. Before joining Sassuolo, the younger of the Cannavaro brothers played for Parma and Naples amongst other teams, taking part in a total of eight different editions of the Europa League, which used to be called the "UEFA Cup", and three Champions Leagues. "When I played for Parma and Naples it was only normal to take part in international tournaments - so Paolo says - but it is something special here at Sassuolo and the enthusiasm is incredible: you never forget your first time. For us the Europa League is the icing on the cake after we finished in such a great position in the 2015-2016 Italian Serie A Championship. I hope the dream I share with the rest of the team continues right through to the final in Solna".

No real Sassuolo fan will ever forget the two matches against the Swiss team from Lucerne in summer 2016, when the team made its historical debut in Europe. It was the first round of the qualifying stages and Sassuolo got through superbly despite having to face a team much further ahead in its preparation: the Swiss League Championship begins earlier than in Italy. "In the Europa League

it is important to prepare and manage each match properly - so Cannavaro points out - but physical fitness is also a factor. The need to be ready to make a sprint start in the summer means starting the pre-season training camp much earlier and really training hard. This was a new experience for lots of our young players".

The first leg played along the banks of Lake Lucerne finished 1-1, but then, cheered on by the fans at Mapei Stadium in Reggio Emilia (Central Italy), the team managed by Eusebio Di Francesco beat the Swiss team 3–0 in the return leg. And, of course, Domenico Berardi, the 22-year-old attacker from Calabria (Southern Italy), has written his name in the history books by scoring Sassuolo's first ever goal in an international competition on Thursday, 28th July, 2016, at Swissporarena Stadium. Domenico scored a penalty in the 41st minute of the first half, equalising the Swiss team's opening goal. For reasons connected with the excitement of its debut in Europe, non-optimum physical fitness and the Swiss team's aggressive play, Sassuolo made lots of mistakes in its play during the first half at the Swissporarena.

Marco Schneuwly's goal for Luzern came after Sansone lost possession. Schneuwly then blasted the ball home from outside the box. "We did not play our best in the first half-hour. – so Cannavaro notes. - Then we finally got into the game and in the second half we did well. It is only natural that lots of our young players were tense. That is one of the reasons why I feel I have extra responsibility on my shoulders due my experience playing in European Cups. But I am not the only team leader: Magnanelli, Biondini and Peluso are more or less my age and also have plenty of experience". Luzern then eased off and Sassuolo took control of the match. In the 40th minute Magnanelli delivered a perfect pass to Gazzola, who found himself one-on-one against the goalkeeper Zibung. Hyka fouled Gazzola and the referee Ekberg awarded a penalty that Berardi converted. It is a shame that Sassuolo's second-half domination could not produce a goal. It is worth mentioning that Consigli saved a penalty is the second half of the match against Luzern.

On 4th August, the Mapei-sponsored team played its first "Cup" match in Reggio Emilia, winning against Luzern thanks to two goals by Berardi and a spectacular goal by Defrel. "We approached the match in the right way", said a delighted Di Francesco.

Sassuolo found itself up against one of the legendary teams of European football in the second round of the qualification stages: Sportsko društvo Crvena zvezda (Sports Society Red Star) from Belgrade.

In 1991 Crvena zvezda won the European Cup Champions League and the International Club Championship. Siniša Mihajlovic played in defence for that team. "That Crvena zvezda - so Cannavaro pointed out - was a truly great team. But anybody who thinks the current Crvena zvezda team is a shadow of its former self has got it wrong. Crvena zvezda had qualified for the Champions League before entering the qualifying stages of the Europa League and has several talented players and really enthusiastic fans". There were concerns over crowd trouble at the first leg at Mapei Stadium due to how boisterous the Serbian fans can be, but everything went smoothly. In the end it was Sassuolo that was making all the noise out on the pitch: goals by Berardi, Politano and Defrel meant that Crvena Zvezda were comfortably beaten. For Cannavaro and his teammates the return leg at Belgrade's own Marakana Stadium was easier than expected. The whole of the Sassuolo defence held firm during the initial onslaught by the Serbian red-and-whites, but then another goal by Berardi made it

FROM LEFT. Paolo Cannavaro during the match Sassuolo won 3-0 against Bilbao.
Matteo Politano and Davide Biondini playing, respectively, against Athletic Bilbao and Luzern.

even easier for the team managed by Di Francesco. The goal scored by Katai at least calmed down the Serbian fans. But the 3–0 home win and 1-1 draw away from home meant Sassuolo had qualified for the group stage.

The draw in Switzerland put Sassuolo in the same group as Athletic Bilbao (Spain), the Belgian team Genk, and Rapid Wien (Austria). Once again the newcomers Sassuolo found themselves having to face some legendary teams. More than just an ordinary Spanish football club, Athletic embodies the pride of the Basque people. Its team is made up almost entirely of home-grown players from the Basque country, and sometimes the entire team is made up of local players. Athletic Bilbao reached the final of the 1976-1977 UEFA Cup, eventually losing that match to Juventus, and Rapid Wien lost the final of the 1984-1985 Cup Winners' Cup against the English team Everton.

"Athletic, Genk and Rapid are teams that always give their very best in a competition like the Europa League, much more than you would think", so Cannavaro noted. Cannavaro was already a Sassuolo player back in summer 2014, when the Basque team knocked Napoli out of the qualifying rounds of the Champions League. "I am a proud Neapolitan and even though as a professional footballer I have been doing my absolute best for Sassuolo for the last three years, watching Napoli get knocked out in that match still hurts. It is one of the reasons why I played with even greater determination against Athletic. A football match is 11-against-11, but we were 12 "lions" out on the pitch playing for Sassuolo in the first leg at Mapei Stadium. I played like two lions".

"Sasol" beat Athletic 3-0 at Reggio Emilia. The game was not easy for the first half hour. "The two teams studied each other - so Paolo Cannavaro explained - but we had 3 shots on goal against their 1. One of the problems you face when you play in international cup competitions is that you do not really know anything about the other teams, however famous they might be, as opposed to Italian teams that you know everything about". The deadlock was broken in the 60th minute when the Spanish player Pol Lirola scored for Sassuolo. Goals by Defrel and Politano resulted in Athletic being well beaten but the return match in Bilbao in December will be a different proposition. "In the scintillating atmosphere of San Mamés Stadium – so Cannavaro assures us - they will play with great pride". But Sassuolo has also had to come to terms with disappointment in the Europa League. It lost its second group match 3–1 away in Belgium. Karelis, the powerful young Jamaican player Bailey and Buffel scored the goals that brought Sassuolo back down to earth. Matteo Politano proved he is one of the team's most in-form players, scoring a consolation goal for Di Francesco's boys.

"Despite our first bad result - so Cannavaro went on to say - we are still determined to put on a good show in Europe. Me and the rest of the lads believe anything is possible for Sassuolo: we will do our best. The Europa League is a really tough competition, but nothing is impossible". The Sassuolo players are involved in an exhausting competition: "Taking part in the Europa League often means playing three matches in the space of eight days, travelling long distances to away games and even changing time zones. Sometimes you have to miss training sessions that would be great for your physical fitness and for practising tactics, but we are more than willing to make the sacrifices. Come on lads, let's give it everything: the club, sponsors and fans really deserve it!".

A wonderfully sunny day accompanied the 250,000 people taking part in the climb up Stelvio Pass. This year's mascot for Re Stelvio Mapei was a cute little squirrel.

CYCLING AND RUNNING UP A LEGENDARY CLIMB

For many years now there has been a special bond between Mapei and Bormio, a city in the Valtellina area in Northern Italy. For 10 years in a row (2005-2014) an entire community has welcomed all the sportsmen and women and numerous corporate guests invited to take part in Mapei Day, and the great enthusiasm for sport never seems to fade.

This year the 32nd edition of Re Stelvio Mapei 2016, the classic cycle ride and half-marathon running race up Stelvio Pass that took place on 10th July, was bathed in sunshine.

Due to its 21,097 km of authentic physical exertion and an overall height gain of 1,533 m, the Re Stelvio is a duel against the king of mountain road passes with its 40 legendary switchbacks along the road from Bormio up to Stelvio Pass, the highest mountain road pass in Italy and second only in the whole of Europe to Col de l'Iseran (2770 m) in France.

This is where Fausto Coppi produced one of the most magnificent exploits of his career and also his last great race,

Re Stelvio Mapei 2016

when he caught up with and left behind the Swiss rider Hugo Koblet to win the penultimate stage of the 36th Tour of Italy on 1st June, 1953, also taking the leader's pink jersey off his Swiss rival.
A route immersed in a natural park in an area full of history: primarily that of the First World War with trenches and plenty of military relics, but also the history of cycling with some epic rides during stages of the Tour of Italy.
The race route and entire city of Bormio were garbed in the company's corporate colours and logo specially for the event: Mapei's involvement could be felt in the air over the entire weekend. This year's edition featured a picture of a cute little squirrel on the commemorative jersey as the mascot for Re Stelvio Mapei 2016.
The event was organised by Mapei (the official Name Sponsor) in partnership with Unione Sportiva Bormiese and the Mapei Sport Research Centre. The event was also sponsored by Banca Popolare di Sondrio, Pirovano (Ski University), Shimano, Colnago, Santini, Enervit and Giussani

RE STELVIO MAPEI CYLE RACE and ALDO SASSI BIKE RIDE

The 2016 edition of Re Stelvio Mapei was an extraordinary day with almost 3000 entrants in the four different races (two cycling and two running). In the end 2516 finished the half marathon, amateur walk, traditional Re Stelvio cycling race and the bike ride dedicated to Aldo Sassi, the never to be forgotten Professor - the former head and founder (together Giorgio Squinzi, CEO of the Mapei Group) of the Mapei Sport Research Centre - and one of the most active promoters involved in devising and organising the very first Mapei Day, twelve years ago.
Following in the wake of Attilio "Tito" Romani's great wins in the past, this time it was his grandson, Riccardo, riding for Alta Valtellina Bike club who wrote his name in the role of honour. Riccardo Romani took 1h 5'30" to conquer the Stelvio Pass. His team celebrated a wonderful double when Stefano Da Prada came home second.
It was an extremely successful day for cyclists from the province of Sondrio - Andrea Acquistapace, a very talented cyclist, came fourth just ahead of the top-class Alpine skier Lorenzo Holzknecht - and only Osvaldo Weisehorn managed to break Sondrio's stranglehold on the event by finishing on the lowest step of the podium.
The women's race was won by Christina Rauch ahead of Susan Du Plessis from U.S. Bormiese. Third place went to Tania Coletti from Peli Bike cycling team.
Claudio Andreoletti won the bike ride ahead of Gianfranco Melli (Viesse Tirano) and Luca Spechenhauser (US Bormiese).
The team competition (as many as 239 clubs came to Bormio to take part in the climb up Stelvio Pass) was won by U.S. Bormiese with 402 points, ahead of Alta Valtellina Bike and Team Viesse Tirano.

ITALIAN ATHLETICS FEDERATION HALF MARATHON AND AMATEUR RUNNING RACE

Giuseppe Molteni (Daini Carate) won the Italian Athletics Federation half marathon in 1h 35'19"20, ahead of Matteo Lucchese (Bergamo Stars Atletica) and Marco Pozza (Athletic Club 96). The first woman home was Ivana Iozzia.
The amateur running race was won by Paolo Gelosa, who finished ahead of Mohamed Nasiri and Kamal Lagrouni; the leading female runner, Alessandra Marelli, came 11th overall.
The team event (156 clubs took part in the race) was won by Team Santi Nuova Olonio that finished ahead of Atletica Alto Lario and Avis Oggiono. US Bormiese came 6th overall.

ANGELO ZANOTTI IS THE FIRST BLIND 'KING' TO RIDE UP STELVIO PASS

He was the first blind athlete to take part in the famous Re Stelvio bike race, finishing in the excellent time of 1 hour, 23 minutes and 45 seconds. Angelo Zanotti took on the challenge together with his friend and training partner Claudio Andreoletti, who guided him with the aid of sound signals as he rode up the spectacular route just in front of him. The two cyclists received an emotional welcome from friends and relatives when they reached the summit of Stelvio Pass at a height of 2758 m.

A REALTÀ MAPEI INTERNATIONAL TRANSLATOR WAS ALSO IN THE RACE

Martyn Anderson, a *Realtà Mapei International*'s translator, also took part in the race to fundraise for his project "stelvio2africa". Anderson climbed Stelvio Pass twice - first riding a bike and then running - covering a total of 42.2 km, the equivalent of a marathon. All the money raised was donated to the "shoe4africa" Foundation, which provides aid to East African children.

LEFT. As usual the prize-giving ceremony was held in Bormio's main square.
BELOW. About 50 golfers took part in the 12th Mapei Golf Trophy. Kurt Orler was the winner in the group of leading golfers.

MAPEI GOLF TROPHY

A large group of Mapei friends and partners took part in the 12th Mapei Golf Trophy held on 10th July. This open event took place on the "La Fornace" golf course in Bormio.
Over fifty golfers entered the individual event (18 holes using the Stableford scoring method), divided into 2 categories.
Kurt Orler was the winner from the group of leading players with 37 points, the same score as Lorenzo Tomasi, recently elected President of Bormio Golf Club. Marco Chelli was the winner in the second group with 36 points, exactly the same score as Sergio Del Signore.
Lots of other prizes were awarded: Iole Robustelli (leading lady), Rudolf Thoeni (leading senior) and also Maurizio Tediosi and Marcello Zamboni (1st and 2nd net in Mapei category 1) and Giuseppe Dal Mas and Luca Grisotti (1st and 2nd net in Mapei category 2).

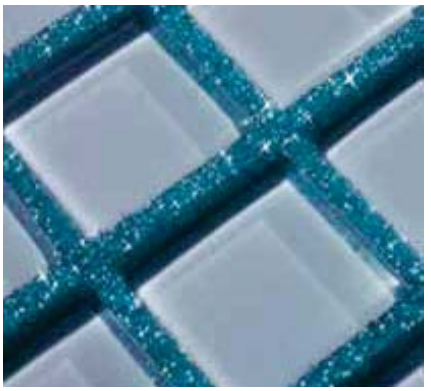
Q&A
QUESTION&ANSWER

GROUTS FOR TILES: WHAT'S THE DIFFERENCE?

Grout lines are generally filled with cementitious material or with resin: how do you choose the right one?

A grout line is the term used in the building industry to indicate the gaps between ceramic tiles (or stone slabs) bonded to walls or floors. Grout lines are generally filled with cementitious material or with resin: how do you choose the right one? Let's look at some questions that are frequently asked about these two families of material.

Is cementitious grout absorbent? Generally speaking yes, cementitious mixes for grout lines are porous. The absorbency can be reduced quite considerably by formulating the dose of each component in the mix correctly (cement, aggregates, additives) and by paying attention to the mixing water added to the mix. You can achieve a certain degree of water repellency by adding special additives, but not complete impermeability. Let's remember, however, that the tile/grout system does not necessarily have to guarantee that a tiled surface is impermeable. Impermeability is guaranteed by waterproofing systems.



What makes cementitious grouts change colour? In a word, water. In reality, there could be several factors that cause discolouring (absorption of the tiles, thickness, surrounding conditions, etc.). However, an excessive amount of water in the mix (maybe added to the grout to make it easier and quicker to work over large areas), or if it is used to clean the tiles too soon, has a damaging effect on the end result: an excessive amount of water separates the components in the grout and makes it weak and porous and gives it a different colour to the one chosen at the start. A substrate that is not completely dry may also transmit moisture into the grout while it is drying and affect its appearance. In such cases, many types of cementitious grout are also affected by the presence of salts on their surface. If there is too much water, as it evaporates, it carries the free lime contained in the cementitious compounds to the surface (a natural product of cement hydration). When the lime comes into contact with the air it forms calcium carbonate.

How wide should grout lines be? Generally speaking, a grout line must not be less than 2 mm wide (see Italian standard UNI EN 11493, 7.10.2). The width of the grout line is established during the design phase (as is the width of the grout lines): the coefficient of expansion of the materials (tiles, substrates, etc.), the shape of the tiled area, the size of the tiles and so forth, are all parameters used during the design phase to calculate their size with reasonable accuracy.

When is it advisable or necessary to use resin? Whenever the floor or finishing material is exposed to aggressive acids. Two-component, epoxy resin-based grout is acid resistant and impermeable. On kitchens worktops, in abattoirs, breweries, dairies or similar areas, it is recommended (but not obligatory) to grout surfaces with epoxy resin-based grout. There are three basic, general rules when using this family of products: 1. Thoroughly mix the two components that make up the product. 2. Clean with water immediately after application. 3. Carry out a preliminary cleaning test if you are not sure how effective the cleaning operation will be.

Marco Albelice. Mapei SpA Technical Services Department.

WORKING TOGETHER FOR A SUSTAINABLE FUTURE

ADRIANA SPAZZOLI IS THE NEW PRESIDENT OF THE SODALITAS FOUNDATION

The Sodalitas Foundation has a new President and her name is Adriana Spazzoli. Unanimously elected on 13th September during a board meeting held at the headquarters of Assolombarda (the Associaton of the Lombardy region entrepreneurial system) in Milan, Adriana Spazzoli takes over from Diana Bracco, who is standing down from the Presidency of the Sodalitas Foundation.
"Innovation, sustainability, focus on people and a powerful presence in the community are the values shared by all the companies belonging to the Sodalitas Foundation", so Adriana Spazzoli, Operational Marketing and Communication Director for the Mapei Group, explained before adding: "Now, more than ever, cutting-edge businesses need to commit to developing a new sustainable and inclusive model of growth". "As the President", so the editor-in-chief of *Realtà Mapei International* concluded, "I am committed to ensuring the Sodalitas Foundation makes a more effective contribution to such a fundamental goal".

"COMBATING SOCIAL EXCLUSION IS THE MOST IMPORTANT CHALLENGE FOR THE EUROPEAN UNION, ITS MEMBER STATES AND ITS CITIZENS"
(MANIFESTO OF ENTERPRISES AGAINST SOCIAL EXCLUSION, 1955)

CROSS-THE-BOARD SUSTAINABILITY

The Sodalitas Foundation is the benchmark organisation in Italy for Sustainability and Corporate Social Responsibility. Sodalitas is an enterprise that can support the dazzling growth in the non-profit sector, ensuring the business world draws on all its considerable resources to serve civil society. Over 100 leading Italian companies now belong to the Sodalitas Foundation, leading the business community and a group of voluntary managers with a common goal: to create a sustainable future. The companies belonging to the Sodalitas Foundation have an overall economic worth of 600 million Euros and employ one million people.
Sodalitas has launched 4 projects for sustainable growth and inclusion, including the "Young People and the Future". In Europe the number of NEETs (not in education, employment or training) is 7 million. The "European Pact for Youth", which the European Commission has also signed, has decided that a partnership between business and education should be the framework strategy for focusing on inclusion and employment among young people. This should be implemented by 2017 through three priority goals:
• setting up 10,000 quality partnerships between business and education;
• providing 100,000 new opportunities in the realms of education, training and internship;
• devising 28 national action plans for enhancing competitiveness and employment in European nations.
The Sodalitas Foundation is Italy's partner in CSR Europe, the European Business Network organised by the European Commission to implement the European Union's agenda in terms of Corporate Social Responsibility throughout the 28 nations forming the Union, a movement involving 10,000 of the most cutting-edge businesses on the European continent.
Sodalitas also promotes the Enterprise 2020 Manifesto, which has been signed by 42 organisations committed to initiating the Agenda for Sustainable Development in the 28 member states of the European Union. This movement involves the 10,000 most advanced companies from the European continent.
The radical nature of this challenge means that the available resources must be focused on goals and concrete projects geared towards sustainability and equality, as was recently indicated by the United Nations in their new Sustainable Development Goals (SDGs). This is the only way to achieve the intelligent, sustainable and inclusive growth Europe needs.

For further information please see the website:
www.sodalitas.it

THE ENTERPRISE 2020 MANIFESTO PRIORITISES THREE FUNDAMENTAL OBJECTIVES TO GIVE EUROPE THE FUTURE IT NEEDS:

- **make Employability and Inclusion a priority** by creating a structural partnership of Business-Schools-Non-profit organisations for work and education ➜ **EUROPE: BEST PLACE TO WORK**
- stimulate companies to engage as committed partners with cities, communities and territories to **create Corporate-City alliances with the ability to develop and implement sustainable production methods, consumption and life styles ➜ SUSTAINABLE AND SMART INNOVATION**
- **place transparency and respect for Human Rights at the heart of corporate strategy and conduct ➜ BEYOND COMPLIANCE**

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