

INTERNATIONAL

[Realtà MAPEI]

ISSUE 44

Mapei at

CERSAIE

BOLOGNA ■ ITALY

23rd-27th September 2013

gallery 25-26



16th-19th October 2013

gallery 25-26

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COVER STORY. A detail of the Aria Pura installation realized by the architect Mario Cucinella. The installation was on show, last April, during Milan's Saloni and Fuorisalone exhibitions. Its joints for tiles were realized with Mapei products.

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**Giorgio
Squinzi**

CEO and President
of Mapei Group



Determination Turns Dreams into Reality

Sassuolo beats Milan Football Team 2-1 and wins the Tim Trophy!

One half of my heart (the red-and-black part) was astounded but the other half (that beats black-and-green) just got excited and cheered. I do not usually focus on any personal or corporate targets I have managed to achieve. Indeed, I have always believed that every successfully attained result is a launching pad for looking to the future in a positive light and striving to do even better. There is a saying often used in the world of sport: “do not rest on your laurels”; always keep the tension high and reserve your determination for attaining new successes, do not spend too much time basking in what you have already achieved. In keeping with these assumptions and taking a closer look at the very latest sporting events that have really captured the whole of Mapei’s enthusiasm, I think, nevertheless, it is worth saying a few words about Sassuolo Football Club and the wonderful adventure that has taken the team to the Italian first division, where it will soon be playing its first matches. After its well-deserved victory in last year’s second division championship, its debut against Associations Football Milan and Juventus in the Tim Trophy - which actually saw the black-and-greens beat the two top Italian clubs over the last few years - has a very special meaning. First of all because it was an extremely nice welcome from the very top flight of football to a newcomer that has already shown it is really keen to do well. And then there were all the magnificent fans who filled the Mapei Stadium - Città del Tricolore in Reggio Emilia for the first time this season, one of the top sports facilities in Italy, which, after many years, will once again be witnessing football at the very highest levels. The “jaunt” that began about 10 years ago in the world of football with Sassuolo F.C. certainly is not over, on the contrary, the best is just about to begin.

I have always been very closely tied to Sassuolo F.C. and the city as a whole, and promotion into the first division and the results that have so far been achieved are a sign of hope for an entire area, which has always striven with great determination to adapt and keep up with the socio-economic changes that have transformed it down the years. Sassuolo and its surrounding territory can claim to be an important driving force in the ceramics manufacturing industry, which is a world with which Mapei has always enjoyed extremely close business ties. A bond whose roots lie back in the past, coinciding with the growth of both the ceramics district and of Mapei itself. The deep socio-

economic transformation that this geographical area underwent from the mid-1950s to the mid-1960s with the explosion of the ceramics industry has seen this territory abandon its rural vocation in favour of industry. And it was during this same period in time that my father, Rodolfo, had the idea of transforming Mapei, at the time mainly specialising in products for installing resilient floors, into a company that manufactured products for installing ceramic tiles. Technological innovation, internationalisation and the ability to meet and anticipate market demands: these are the trump cards played back then that eventually decreed the company’s indisputable worldwide supremacy in terms of Italian ceramic tiles. Based on these very same assumptions and working in close contact with manufacturers, Mapei has become the world’s leading company in manufacturing products for installing ceramics. Transforming in order to grow while remaining faithful to oneself: this, in a nutshell, is what can be learned from the very close analogy between the Sassuolo area and Mapei. From back then until now, the history of Sassuolo and that of Mapei have been very successfully intertwined and Sassuolo F.C. is the perfectly coherent link between the company and the entire community with all its historical background and traditions. Because football is now the sport which, more than any other, instantly triggers off a sense of identity and is the focus of the most powerful emotions and greatest dreams. Dreams which, however, should not be allowed to deform reality and distract us from what we believe in. For this reason I believe that competitiveness on the pitch and good business management can come together in football at the highest level, and we certainly have no intention of committing any follies, aiming instead to apply our corporate philosophies to the world of football. In economics there has recently been talk of “resilience” and “resilient dynamism” to describe a government’s or economy’s ability to rediscover a certain balance after having been subjected to some external shock. My hope is that the “positive shock” that Sassuolo experienced when it was promoted to the first division may also be the ideal spur for this geographical area and this important sector of Italian industry, so that they can rediscover new and fruitful lines of development. In the case of Mapei, talking about “resilience” is rather like going back to its roots and we hope that Sassuolo soon learns how to positively overcome the inevitable shock of its impact with the Serie A. After all, dreams are boundless, indeed, as it is wisely said “the future belongs to those who believe in the beauty of their dreams”.

A

The adventure is just kicking off...



Sassuolo promoted to Serie A Thanks!



Celebrate with us



/officialsassuolocalcio



/sassuolochannel





SASSUOLO FOOTBALL CLUB: Thinking Big but Staying Ourselves



Plans and technical innovations at the presentation of Sassuolo F.C., the team sponsored by Mapei that has just been promoted to Serie A

The Sassuolo Football Club, the Technical Staff and the Mapei Stadium "Città del Tricolore" were officially presented on 8th July at the headquarters of the Confederation of Italian Ceramics Manufacturing (Confindustria Ceramica). The event was attended by lots of journalists, film crews, photographers, officials, executive staff, friends of the team and, above all, every member of the managerial staff - except for the club's owner, Mr Giorgio Squinzi, CEO of Mapei Group, who was away on official business and was represented by his wife, Adriana Spazzoli, Operational Marketing and Communication Director, and also the technical staff, headed by the Manager, Mr Eusebio Di Francesco from Pescara (in the center of Italy), who has been confirmed in his post again this year.

Technical and Organisational Innovations

Carlo Rossi, the President of Sassuolo, was there to host the event, pointing out just how different things were before the 2004-2005 season, when the team was introduced to just a handful of journalists with only a few players and the manager in attendance. «The most optimistic of us would never have believed it - so Rossi said - but here we are having earned the chance to play at the very highest level of Italian football. We did not make many mistakes and also had the great fortune of having Dr Squinzi and Mapei behind us». The Managing Director, Nereo Bonato, then outlined the latest innovations Sassuolo has introduced after being promoted to the top flight. «We are expecting a very tough year - so Bonato pointed

out - and so, in order to keep competitive, we have reorganized the club's set-up and structures, and carried out renovation work on both Ricci Stadium and Sassuolo Stadium, where we will play our first division matches». «The medical-health facility has also been improved - so Bonato went on to say - thanks to input from the Mapei Sport Research Centre». Mr Claudio Pecci, the Director and health Manager of Mapei Sport Research Centre, then outlined the guidelines to be followed by the medical team of which he is in charge: «We have three targets - so Pecci stated - to improve the performance of all the individual players and the team, create a co-ordinated physiotherapy and injury recovery service and, lastly, guarantee the highest possible level of performance based on a rigorous scientific and ethical approach».



The stadium

Pride and Humility

The team Manager, Mr Eusebio Di Francesco emphasised how important it was to keep the team spirit and family ties that had taken Sassuolo into the Italian first division. The club Manager, Giovanni Rossi, then said a few words about the great enthusiasm running right through the club: «Playing in Serie A is something we are all proud of». The Captain, Magnanelli, then spoke on behalf of the team, reassuring everybody that «the most important and decisive factor is that we hold onto the human values that have enabled us to get this far».

A Stadium in the Heart of the Ceramics District

Adriana Spazzoli, who expressed Giorgio Squinzi's best wishes on his behalf, briefly outlined the reasons why the team has decided to change stadium. «We're sorry to leave the stadium in Modena - so Ms. Spazzoli said - but we realise that the stadium in Reggio has all the facilities you require for first division matches. We decided to call the ground the "Mapei Stadium" while keeping "Città del Tricolore" in the name, since it characterises the history of the city of Reggio Emilia, where the Italian tricolour flag originated. In this way we want to express our deepest respect for the history of a stadium that was already there and the desire to maintain close contact with the surrounding area, which is an important manufacturing hub in the world of ceramics, a world with which Mapei has always had very close working relations». Her final thoughts went to the players: «I'm certain that you will give us plenty to shout about, you have determination in bucket loads!».

2013 TIM TROPHY

Enthusiasm reached fever-pitch and this edition of the TIM Trophy inevitably had to finish this way, with Sassuolo playing some great football to beat Football Club Milan and Juventus on its home pitch at the "Mapei Stadium - Città del Tricolore" in Reggio Emilia (in the north of Italy). A prestigious victory after the team managed by Mr Di Francesco put on such a fine display in its matches against two of the favourites to win the forthcoming Italian football championship. As usual the TIM Trophy "officially" marked the beginning of the big clashes between leading teams in Serie A and their first real test as they get ready for the beginning of the new season. This year there were two firsts at this key summer football event: Reggio Emilia became the seventh city to host the TIM Trophy after Trieste, Milan, Ancona, Turin, Pescara and Bari; and for the first time Inter decided not to take part, thereby allowing Sassuolo, newly promoted into the top flight of Italian football, to take its place. The team from Emilia really grabbed this opportunity with both hands: not just because the black-and-greens (wearing sky-blue shirts on this occasion) managed to win the trophy at the very first attempt, but also because they played some excellent football, confirming all the promise they had shown during their victorious romp into the Serie A. «We really believe in the team - so the owner Giorgio Squinzi stated - and being here is already a great achievement; now let's see how the team performs in the Italian championship, let's hope we are proved right by the results on the pitch».

The cup



The winners



THE FIGURES BEHIND A GROWING REALITY

MIST, an acronym thought up by the American analyst Jim O'Neill, President of Goldman Sachs Asset, identifies four countries that are going through a period of strong economic growth: Mexico, Indonesia, South Korea and, the subject of this article, Turkey. Let's sum up the factors behind the success of this country.

**16TH LARGEST
WORLD
ECONOMIC POWER**

**3RD HIGHEST
POPULATION
IN EUROPE:** 76,7
million inhabitants

**3.5% ESTIMATED
GROWTH IN GDP FOR
2013 AND 4% GROWTH
FORECAST FOR 2014**

**40% GROWTH IN THE
ISTANBUL STOCK
EXCHANGE
(ISE) IN 2012**

**10,000 DOLLARS AVERAGE
INCOME IN 2012** (IN 2003 IT
WAS JUST 3,500 DOLLARS)

**50% OF THE COUNTRY'S
POPULATION
CONCENTRATED IN THE AREA
BETWEEN ISTANBUL,
THE AEGEAN COAST AND THE
MEDITERRANEAN COAST**

Europe

Africa

Mapei Makes Its Entrance in Turkey

The multinational building sector company is looking to the East at an area with a high potential for development

A "commercial bridge" between Europe and Asia. That is how Mapei's recent acquisition of the Turkish company Wallmerk Construction can be viewed. One of the most recent steps of the Group's escalating interest in overseas markets, which account for 70% of its total turnover, is a strategic operation in a very active, dynamic market such as the one to be found in Turkey. «We are extremely proud of this operation», said Veronica Squinzi, Internationalisation and Business Development Manager for Mapei, «which is perfectly in line with our strategy based on the principles of being closer to local requirements and on reducing transport costs to a minimum, while constantly maintaining the excellence guaranteed by our Research and Development centres. The acquisition of Wallmerk is a step in this direction: to serve a market that represents an important link between Europe and Asia». And here are some of the figures: Turkey has the third highest population in Europe after Russia and Germany. It is the sixteenth largest economic power in the world and is expected to be one of the top ten global economic powers by 2023. «At the moment», commented Veronica Squinzi, «numerous investments have been forecasted, not only for residential, commercial and industrial buildings, but also for large infrastructure projects. And what is more,

Asia



Middle East

STRATEGIC BECAUSE...

TURKEY IS THE LARGEST PRODUCER AND EXPORTER OF CEMENT IN EUROPE AND THE THIRD LARGEST IN THE WORLD

IT IS THE SECOND MOST IMPORTANT MARKET FOR CERAMICS IN EUROPE

181,7 MILLION M² ESTIMATED CONSUMPTION OF TILES IN 2013

THE CONSTRUCTION SECTOR IS GOING THROUGH A PERIOD OF STRONG GROWTH

56 BILLION EUROS ESTIMATED VALUE OF THE CONSTRUCTION MARKET

21,6 BILLION DOLLARS PROJECTS UNDERTAKEN BY TURKISH CONTRACTORS

ONGOING PROJECTS

A New Airport

The Third Bridge Over the Bosphorus

ISTANBUL

The Largest Mosque in the World

The Tunnel Under the Bosphorus

Turkish contractors operating on international markets are amongst the most active globally. So it was only natural for Mapei to enter into this market: our aim is to become an important player in the Turkish building industry thanks to our technologically-advanced products and our strong, constant commitment to the environment».

Infrastructure Mega Projects

Numerous large projects have been programmed for the Anatolian peninsula from now up to 2023, the year in which the country will celebrate the centenary of the Turkish Republic. Turkey is a country in full economic boom with one of the highest growth indexes in Europe, and its future mega projects include the construction of the third bridge over the Bosphorus Strait, a third airport for Istanbul, the largest mosque in the world and a port that will be amongst the ten largest in the world. And it is precisely regarding the infrastructures programme that a crucial match will be played: in the next few years, the challenge is to create an advanced, integrated transport system, from the construction of a second Bosphorus Canal connecting the Black Sea to the Sea of Marmara, to a motorway from Gebze (near Istanbul) to Izmir on the coast of the Aegean Sea and a super-fast railway net-

TWO IMPORTANT TRADE FAIRS

There were two recent Turkish exhibitions at which the Mapei subsidiary took part with their own stand. In the case of Ankara the appointment was with the 7th edition of Yapidecoor. Mapei's subsidiary company presented its own stand to satisfy the curiosity of visitors who came to see their ranges of products for the building industry. Istanbul was the scene for the 36th edition of Turkeybuild extending over an area of 81,000 m², confirmation of its role as the most important trade fair in Turkey.



ABOVE, FROM THE LEFT. Veronica Squinzi, Internationalisation and Business Development Manager for Mapei, in the centre Alper Ozer, General Manager of Mapei Yapi Kimyasallari and, on the right, Adriana Spazzoli, Operational Marketing & Communication Director for Mapei Group.

BELOW. Part of the Turkish team of staff during the Yapidecoor trade fair.



work (10,000 km of high-speed tracks and 4,000 km of new tracks are scheduled). Infrastructures will account for around a quarter of the value of the entire Turkish construction industry.

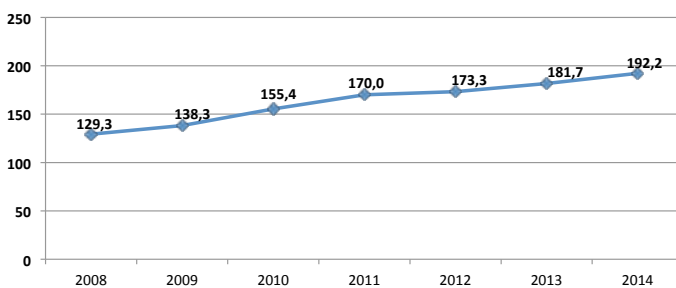
The Construction Market in Turkey and Market Opportunities

Italy is Turkey's fourth most important commercial partner



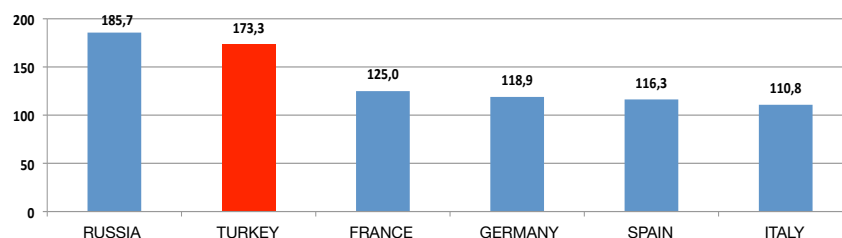
CERAMICS DATA

THE TURKISH CERAMICS MARKET – MILLIONS OF M²



Source: Confindustria Ceramica, December 2012

THE MAIN CERAMICS MARKETS IN EUROPE – MILLIONS OF M²



Source: Confindustria Ceramica, December 2012

after Germany, Russia and China. The Turkish construction market is estimated to be worth 56 billion Euros, and the forecast for 2013-2015 is that growth in the construction sector will outstrip that of the overall economy (the forecast growth in GDP for 2013 is 3.5%). In 2012, a record 365,000 new homes were built.

The region that is attracting the lion's share of the capital goes from Istanbul (where 40% of GDP is concentrated) to the Aegean Sea area and the Mediterranean.

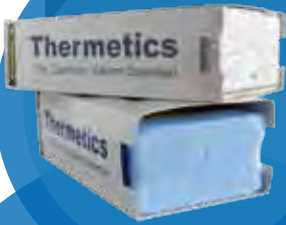
Around 50% of the population is absorbed by this region, and it accounts for an estimated 20 million homes. Cement is a strategic industry, with Turkey being the largest producer and exporter in Europe and the third largest in the world.

The estimated production in 2012 was 64 million tonnes, while consumption was 54 million tonnes. And as for the tiles sector Turkey is one of the largest ceramics markets in Europe, second only to Russia.



FROM THE CATALOGUE

Below, various brochures illustrating the wide range of products available from the Mapei subsidiary, which will soon be increased. Among these, in the middle, the wall finishes range stands out in particular, one of the eco-sustainable ranges characterised by images of animals in danger of extinction.



YES TO "CLADDING"

Thermal insulation has an important role to play in Turkey too. The photo above shows a close up of the energy-saving Etics products distributed by the Mapei subsidiary along with their specific adhesives.



Excellent Synergy

The number of Italian companies that consider Turkey an important reference market is increasing. Two of them are an example for everybody, recent, significant examples of a rapidly developing trend: in 2006 there were around 500 Italian companies present in Turkey, while at the start of 2013 this number had increased to more than one 1,000. If on the one hand Astaldi has been awarded the contract to construct the third bridge over the Bosphorus, Mapei has acquired Wallmerk Construction. The new company is called Mapei Yapı Kimyasalları A.S. and its headquarters are in the Polatlı OSB industrial park in the city of Polatlı, one of the most important industrial hubs around Ankara, strategically positioned to cover the whole of Turkey. It extends over an area of 23,000 m², of which 5,000 are covered, and manufactures chemical products for the building industry under the slogan "constructive systems for a better life". A philosophy that mirrors that of the Parent Company, which

in a short time aims to make this young, promising reality grow by increasing its production capacity and transferring concepts in the field of research and development. The current range of goods include 200 products, such as waterproofing solutions, special mortars, anchoring mortars, tiling adhesives, grouts and internal and external paints (the catalogue and packaging for the various product feature animals in danger of extinction). The core business, however, is made up of materials for thermal cladding systems and their relative finishing products for facades, and these will be marketed under the Wallmerk brand. On the European market this sector is known as Etics (External Thermal Insulation Composite Systems) and is considered strategic for the company, especially due to the massive ongoing urban requalification programme for residential buildings in the larger cities. In 2012 the company, which employs 56 people, had a turnover of more than 10 million Euros, and this figure is set to be doubled in 2013.



INTERVIEW

Nicolò Marchetti

Professor of Archaeology and the History of Middle Eastern Antique Art at the University of Bologna, Italy.

Mapei and Archaeology, a Successful Partnership

The dig mission directed by Nicolò Marchetti in Turkey is ongoing with successes in the face of adversity

«The wonders we are now able to see represent less than five percent of what is buried beneath the surface». This is how Nicolò Marchetti, Professor of Archaeology and the History of Middle Eastern Antique Art at the University of Bologna, in Italy, opened his meeting with Adriana Spazzoli, Mapei Operational Marketing & Communication Director in charge of the magazine *Realtà Mapei*, and with the Mapei Product Managers Davide Bandera (Mapei-Antique range) and Pasquale Zaffaroni (Building Products range). According to Marchetti, only a very small part of the Karkemish site in Turkey has been brought to the light of day, and his aim and that of his team is to work even more intensely - if funds permit - to carry out new, important discoveries.

In the wake of the sites at Tilmen Höyük and Tasli Geçit Höyük which we already know about (see *Realtà Mapei International* edition 28/2009 for an article on the first site), it seems that Karkemish is also destined to become an archaeologi-

cal park.

The Karkemish area has been off limits for a long time since it became one of the bases of the Turkish army in 1920. Only once all the mines had been removed in March 2011 was it handed back to the archaeologists. At the end of 2011, digs by the joint Turkish-Italian mission recommenced, with members from the Universities of Bologna, Gaziantep and Istanbul under my direction. The aim of the new research project is to bring the important monuments of this grand neo-Hittite city from the start of the first millennium to the light of day and initiate a new study of the remains below this imposing town from the previous millennium. And all this with a view to create an archaeological park that will have to be integrated with the nature reserve that will be created in the adjacent Euphrates Valley. The schedule set by the local Turkish authorities is particularly tight, given that the inauguration will be held in October 2014. The province of Islahiye, which is also the home of the Tilmen and Tasli Geçit parks (see article on the previous pages), has had, more accurate road signs installed in parallel with the extraordinary growth in the number of visitors, for now mainly Turkish. At Karkemish, apart from the new digs and the conservation project for the monuments, I am convinced that the development of cultural tourism will strengthen the economy of the surrounding rural communities.

The interest shown for Karkemish is recent, or does it date back to a long time ago? Is it correct to say that it is known as the “Pompey of the Orient”?

The “modern” history of the site that, 5,000 years ago, was a city with probably around 12,000 to 15,000 inhabitants, started in 1911, when a mission from the British Museum started systematic digs in an area that had already been identified in 1876 by the famous English Assyriologist George Smith. The mission was directed by Leonard Woolley with Thomas E. Lawrence, who a few years later entered the history books under the name of Lawrence of Arabia. Numerous famous relics were discovered, including basalt and limestone slabs with carv-



ings of warriors, carriages, animals and kings, and that today are mainly on display in the Museum of Anatolian Civilization in Ankara. What is left of the digs by Woolley and Lawrence is still visible today at the site and is one of the monuments that we have started to restore. The little information we have managed to find about the city is mostly from the Iron Age (between the XII and III centuries BC), a period in which Karkemish had been a very important neo-Hittite state, and the monuments that remain have led to some defining it, a little exaggeratedly, as the "Pompey of the Orient". The archaeological team has set up seven dig sites in the area where the antique city stood and has discovered some extraordinary objects and architecture, and in particular exceptionally well-crafted colossal sculptures and bronzes from the 10th century BC, and even objects for daily use and documents from the British mission. A bronze statuette representing the God of Storms with a tiara adorned with four horns and a small silver sword was found in the cell of the temple to the God, where we also found fragments of other sculptures and hieroglyphic inscriptions. We hope that with the new digs it will be possible to also pass through the Roman and neo-Hittite eras, and then reach the Bronze Age. This overlap of layers promises to reveal important surprises in the reconstruction of the history of a site that is crucial for the entire Eastern Mediterranean. At the moment, on the sites we have open, apart from the numerous remains and fragments of sculptures and Luwian hieroglyphic inscriptions, enormous carved buildings have also been unearthed within the walls of the city, with tombs with rich décor for the urban elite. At a depth of around 3 metres we have reached layers with ashes, burnt remains and arrowheads that document the conquest of Sargon II of Assyria in 717 BC and the pillage of the city. But what makes me particularly enthusiastic was to find a large basalt memorial stone from 975 BC that I found on the first day of the dig on the 1st of October 2011, once we had received the go-ahead from the military authorities. The memorial stone, dedicated to the Great King Urtarhunta by Suhi I "the Lord of the City of Karkemish", had been removed and tossed aside by the military during building work on the base and is covered by a royal inscription

in hieroglyphic Luwian, deciphered by David Hawkins of the British Academy with the help of Hasan Peker of the University of Istanbul, vice-director of the Mission.

Difficulties in carrying the materials and products required for the dig or also because of the current situation in Syria, because the dig is literally on the border. What problems have you had and how do you overcome them?

The legendary Hittite city of Karkemish is a mythical place in oriental archaeology and its history has been interspersed constantly with antique and modern conflicts. And the current conflict is just the latest, and the city finds itself in the front line due to its geographical position on the border between Turkey and Syria. Various types of problem are the order of the day. We just have to remember that, for years, the site was off limits because it had become militarised and because it had been mined. A

BELOW LEFT. A bronze statuette representing the God of Storms with a small silver sword was found in the Karkemish area.

BELOW RIGHT. The first diggings were carried at Karkemish in 1911 by L. Woolley and T. Lawrence, who a few years later entered the history books under the name of Lawrence of Arabia.



part of the site (35 hectares out of a total of 90) is in Syrian territory and, for obvious reasons, is off limits to us. Last year was a particularly difficult one, with Turkish soldiers keeping the area and the nearby border with Syria under tight surveillance. However, even though the ruins have been cleared of anti-tank and anti-man mines, according to international standards there is still a certain risk that cannot be completely eliminated, in that statistically 4 mines out of 1,000 remain undetected: and that is why mine-sweeping is still being carried out while we are digging and why tourists visiting the site are only allowed to enter certain protected areas.

During an interview published in the *New York Times* on the 16th of January, you talked about a project to create a large archaeological “park”, but the work is difficult, long and costly. Who is sponsoring the dig?

Apart from the contribution we receive from the Italian Ministry for Overseas Affairs and the Ministry of Education, Universities and Research, the University of Bologna and from our historical technical partner Mapei, who supplied excellent products for the Karkemish site we have also had support from the Global Heritage Fund (GHF, a



non-profit foundation from the United States that offers support to projects aimed at conservation and the development of tourism). In total, we have a budget of around 100,000 Euro per year.

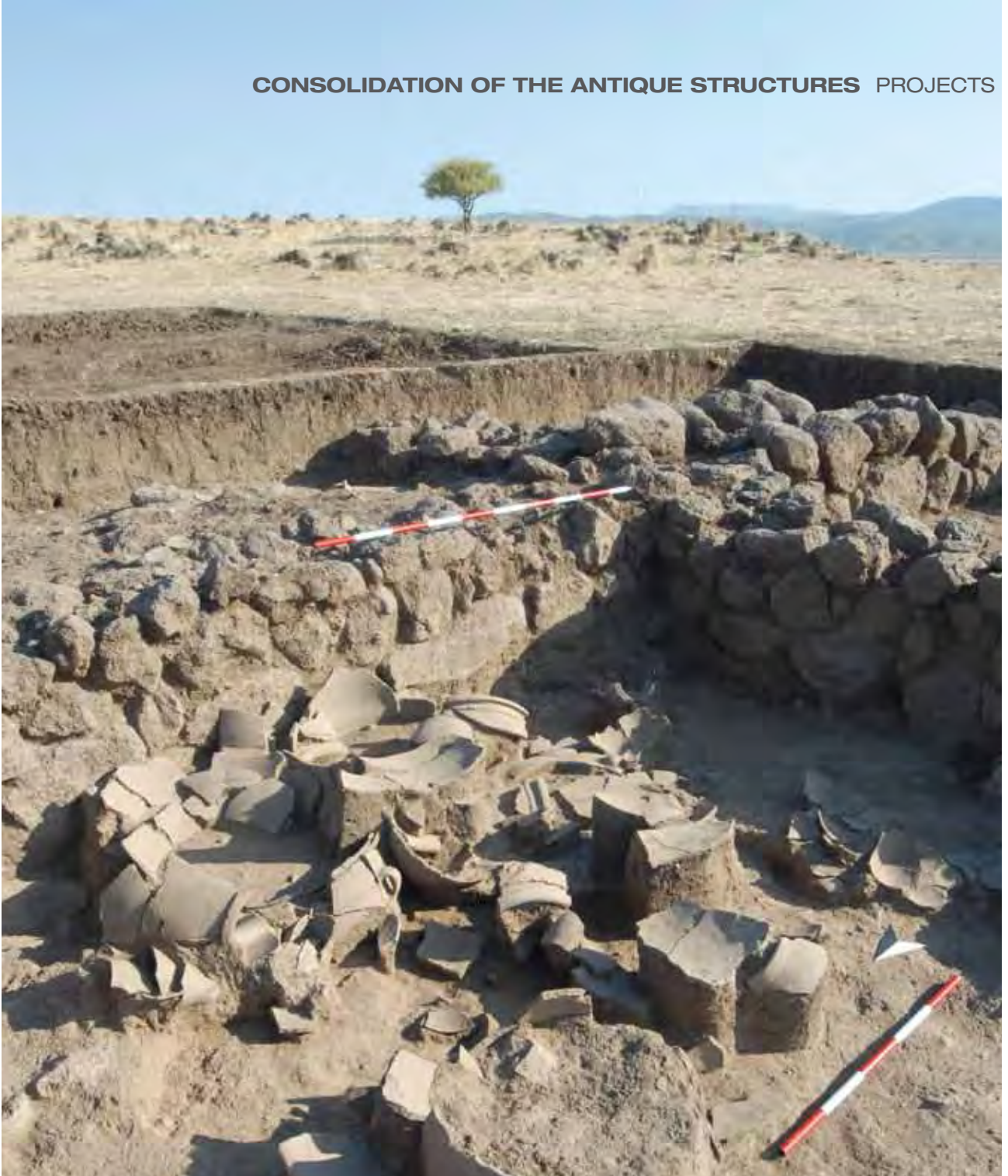
The support given by Mapei Technical Services has been decisive in the choice of products and how they are used? The Mapei products that were recommended and then utilised answered your request to carry out interventions based on full respect of the antique structures?

As I said previously, after the excellent collaboration implemented during the dig in Jericho, Mapei decided once again to get involved in a technical research partnership involving the restoration of Tilmen Höyük and Tasli Geçit. For the work carried out in the past, and again for the work currently being done at Karkemish, we have carried out only minimal interventions that do not have a significant impact on the site, but rather guarantee its state of preservation. As far as the methodological approach is concerned, after cataloguing all the problems encountered in the field, the most efficient, and at the same time least invasive, operational techniques to overcome them were identified, and they can be summed up in three words: disinfection, cleaning and consolidation. The first step is to remove all the vegetation present followed by consolidation, using only materials that are highly compatible with the substrates in question, but always limiting as much as possible the integration of any “external” bodies to the structures and avoiding any intervention that was purely constructive. We have had enormous help from Mapei Technical Services during these interventions, and they always recommended and supplied the most suitable materials for our needs. Products that we also use for periodic maintenance work on the sites, and that in the overall budget of the archaeological missions is a very important item. Amongst the products that were recommended and used, with complete satisfaction by the way, I would like to highlight the Mape-Antique system that we applied in both archaeological parks at Tilmen and Tasli. Its physical and mechanical characteristics make it really similar to the masonry and rendering mortars used in the past and is, therefore, particularly compatible with the original structures.

After Karkemish, have you already made plans for another archaeological adventure?

I think that, because of the sheer size of the digs and importance of the finds, we will be staying on this site for a number of years to come. Of course, I certainly have other projects in mind before I start drawing my pension, but for now we will have to see. *(Professor Marchetti just smiles. Editor's note.)*

IN THESE PAGES. Two basalt memorial stones were found in the Karkemish area.



The Archaeological Site of Tasli Geçit Höyük

Cutting-edge products to consolidate the monuments of an antique city in Southern Turkey



1

ON THE PREVIOUS

PAGE. Iron Age storage jars.

PHOTO 1. Picture of a phase of restoration work in area B.

PHOTO 2. The cobbled street that led from the lower city to the Acropolis.

PHOTO 3. A view of Tasli Geçit Höyük at the end of the summer season when the artificial lake is dried up.

Since 2003, the joint Turkish-Italian mission directed by Professor Nicolò Marchetti, on behalf of the Department of Archaeology from the University of Bologna (Italy) in collaboration with the University of Istanbul and the Museum of Gaziantep, has been carrying out digs in the cities of Tilmen Höyük and Tasli Geçit Höyük in the Turkish region of Gaziantep in south-east Anatolia. These are important archaeological sites to re-construct the contact between Anatolia and Syria during the most antique eras. In the 1960's, the University of Istanbul started off a series of archaeological digs that brought a small portion of this site to the light of day. The more recent discoveries are thanks to a research project in the field promoted by Nicolò Marchetti at Tilmen Höyük: after just five digs, a number of important monuments and relics dating back to 1700 BC have been unearthed, including temples, fortresses and a royal palace. What had originally started as an ambitious excavation project in the area in the province of Gaziantep evolved into a joint Euro-Mediterranean project with the aim of safeguarding and improving the territory, not only from

an archaeological point of view, but also from an environmental point of view. The joint Turkish-Italian archaeological mission directed by Marchetti and the collaboration between the Italian and Turkish universities and a number of Italian companies, including Mapei Group (see *Realtà Mapei International* edition 28/2009 to find out more), led to a large-scale, multi-disciplinary project: the creation of an archaeological and environmental park to improve and manage the site inaugurated in 2007 which now is visited by thousands of tourists every year.

The Excavations and Archaeological Park of Tasli Geçit

In the autumn of 2009 the site of Tasli Geçit Höyük was under threat from an artificial lake: emergency excavation work has to be carried out and, in just two dig campaigns, highly interesting results were achieved. The city of Tasli had been inhabited until 1800 BC and was abandoned when the nearby city of Tilmen Höyük became more important. After the destruction of Tilmen in around 1600 BC, Tasli Geçit took over as the capital city of the

IN THE SPOTLIGHT

MAPE-ANTIQUÉ MC

It is a ready-to-use, cement-free mortar made from a sulphate-resistant hydraulic binder (aerated lime and Eco-Pozzolan), special additives, prorogenic agents and suitably-sized aggregates. When mixed with water, it forms a render with physical and mechanical characteristics similar to mortar used in the past and, as such, is more compatible with any type of original structure. Thanks to its macro-porous structure, MAPE-ANTIQUÉ MC is highly transparent and porous with a much higher capacity to encourage the evaporation of water from masonry compared with traditional cementitious or lime-cement rendering mortar. MAPE-ANTIQUÉ MC can contribute up to **4 points** to obtain the LEED certification.



2



3



region and a fortress and walls were built on and around it, along with a residence and numerous houses. In 1400 BC an earthquake raised the city to the ground. A prosperous agricultural village was established on the site of the city around 700 BC.

In October 2010, in the presence of the Italian ambassador to Turkey Gianpaolo Scarante and all the leading local authorities, the Taşlı Geçit Höyük archaeological park was inaugurated. The team of archaeologists guided by Professor Nicolò Marchetti who, after two years of digs, discovered a town of particular scientific interest dating back to the Middle-Bronze, Late-Bronze and the Early Iron Ages (2000-1800, 1600-1400 and 720-550 BC respectively) extending over an area of more than 3.5 hectares. Thanks to the constant dedication and work of restorers, geo-physicists, architects and typographers from other Italian universities (Bologna, Tuscia, Genoa and Rome Sapienza) and Turkish universities (Ankara and Adana), the imposing remains of this archaic city saw the light of day once again, such as the fortifications made up of walls and fortresses and an acropolis, as well as domestic buildings and some that may have even been sacred. The project extends over a highly important site of natural beauty and involves the use of new, experimental techniques to safeguard the site from erosion, thanks also to the important support of specialised Italian companies (Abet Laminati for the signage and Maccaferri for the containment cages) as well as Mapei, who never fails to miss out on such an occasion. All the work on this site was carried out with the highest respect for the antique structures, with small-scale interventions being preferred so as not to damage the image of the site while guaranteeing its state of preservation over the years.

After the preliminary phase in which the most common problems of the antique remains were documented and registered, the most efficient, long-lasting interventions required were identified using low-invasive technical solutions, such as disinfestations work and cleaning up of the vegetation followed by consolidation work. The consolidation work

was carried out using materials suitable for each particular type of substrate, avoid having to carry out any type of construction work.

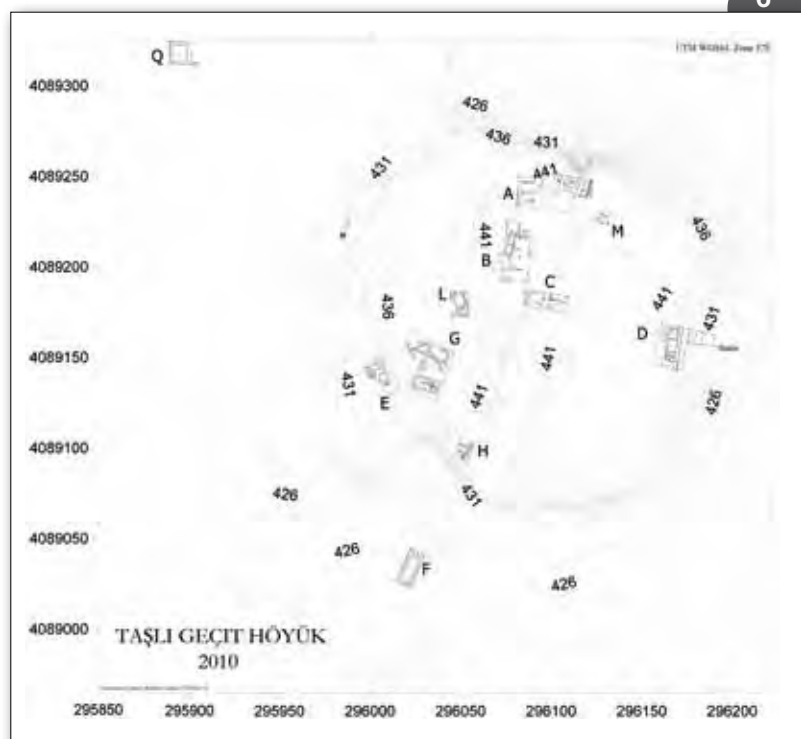
Modern Solutions for Antique Problems

The remains discovered had a series of problems due to the harmful action of atmospheric agents which made them particularly fragile and at risk of rapidly deteriorating even more. The interventions carried out by the team of archaeologists included cleaning the surface by hand using brushes and sponges, a disinfesting treatment using a bio-acid and then consolidation using ethyl silicate. This treatment is recommended for all silica-based absorbent materials (sandstone, tuff, peperino, etc.) and is applied on crumbly surfaces to stop them deteriorating even further (especially on rough brickwork and antique render). The restoration project of the structure included grouting irregularities and fixing detached fragments or those in danger of becoming detached in place. A composite product with

PHOTO 4. A courtyard and two small ovens were discovered during the dig.

PHOTO 5. A phase of the restoration work on the ovens dating back to 1500 BC consolidated using PRIMER 3296 resin diluted 1:2 with water.

PHOTO 6. A topographic view of Taşlı and the monuments discovered on the site dating back to the I and II millennium BC.





7

PHOTO 7. The guided visit during the inauguration of the site.

PHOTO 8. An aerial view of the site of the dig.

an epoxy resin base was used, and where required, stainless steel dolly-rods were also inserted to provide even more reinforcement in the connections. The most antique levels reached are those dating back to the Middle Bronze Age (around 1900-1800 BC), identified in almost all the dig areas with the letters A, B, D, E, G, L and M (see photo 6).

Some portions of the walls in the storage areas situated in Area G were consolidated using the “tacking” technique for the more hazardous elements. To anchor and grout the sections that had become detached, ADESILEX PG2 thixotropic adhesive was used. It is a two-component epoxy resin-based product with selected, fine-grained aggregates and special additives. ADESILEX PG2 has extended workability which makes it particularly suitable at temperatures above 20°C, a characteristic which was particularly important for operations carried out in this area.

Two bread ovens dating back to 1500 BC in Area D were badly cracked following a fire caused by the earthquake that destroyed the city. The ovens needed to be consolidated, and PRIMER 3296 consolidating resin diluted at a rate of 1:2 with water was used. PRIMER 3296 is a primer made up of micro-particles of acrylic polymers with the capacity to penetrate deep down into the construction materials it is applied on, including those with low porosity. This property makes it an ideal primer for consolidating weak, crumbly substrates, such as old render and masonry work made from solid bricks or tuff.

To consolidate the edges of the floors from the same period located in Area B, a layer of MAPE-ANTIQUE RINZAFFO “salt-resistant” mortar was initially applied, a product specially tested for renovating old stone, tuff and brickwork buildings. After this operation, a layer of light-coloured MAPE-ANTIQUE MC de-humidifying mortar was applied on the area concerned.



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Technical Data

Archaeological site of Tilmen Höyük, Islahiye Valley in the province of Gaziantep (Turkey)

Dig Campaign: 2009-2010

Period of Intervention: 2009-2010

Intervention by Mapei: supplying products for the restoration and consolidation of the antique structures on the site.

Mission Director: Nicolò Marchetti (Alma Mater Studiorum - University of Bologna, Department of Archaeology [now called DiSCi])

Design of Restoration Interventions: Stefano Francesco Musso, Maria Benedetta Spadolini (University of Genoa - Faculty of Architecture) and Chiara Davite (Archiéo srl)

Executive Coordinator of Restoration Work: Luciano Cuccui

Archaeological Park Design: Elena Rosa (University of Genoa - Faculty of Architecture)

Mapei Co-ordinators: Davide Bandera and Pasquale Zaffaroni, Mapei Spa.

Mapei Products

Consolidation of the structures: Adesilex PG2, Mape-Antique Rinzafo, Mape-Antique MC, Primer 3296.

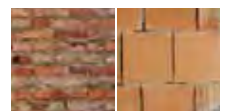
For further information see the websites www.mapei.com

An eco-sustainable and certified product for wall restoration with proven satisfaction



Linea Mape-Antique **Makes the difference between being and well-being**

For eco-sustainable consolidating, dehumidifying, restoring and plastering, Mapei makes available a complete range of ideal products for the well-being of existing buildings and of new construction. Mape-Antique for better working and living.



Antique&Modern



Mapei: Let's take a deeper look together at: www.mapei.it

/mapeispa



Mapei France Makes It a Hat-Trick

Their third facility in Lyon-Saint-Vulbas is inaugurated

And it's a hat-trick for Mapei France, a subsidiary of Gruppo Mapei which recently opened its third production facility in the Lyon area, and for the precision in the heart of the Plain de l'Ain industrial park in Lyon-Saint-Vulbas. It has now become the Group's only European subsidiary with three different production facilities of their own. A great result for Mapei France, founded in 1984 and ever since in constant growth, both for number of employees and annual turnover (see graph further on). This represents a powerful signal from Mapei, who decided to invest in spite of the slump in the building industry which in France too is going through a not particularly rosy period: in 2012 the number of new sites opened fell by 16%, while the number of building permits issued dropped by 7% and the number of unsold apartments has reached 100,000 units (source: Les Echos, April 2013). The Lyon-Saint-Vulbas facility goes to join those in Toulouse-Saint-Alban (head office, in the south-west of France) and in Montgru-Saint-Hilaire (to the north-west of Paris). On the new technical hub of the site of Toulouse-Saint-Alban, we can find the Strategic Marketing Division, the Technical Services

Department and Quality Control (in a laboratory that has been completely renewed), as well as areas dedicated to training and one of Gruppo Mapei's ten Research & Development laboratories, which has recently been extended. The facility produces 80 different powdered products and paste adhesives for installing ceramic, resilient, textile, wooden floor and wall coverings. Since January this year, Toulouse-Saint-Alban has been using a production process for the latest generation of wall paste adhesives equipped with a temperature control function. In Montgru-Saint-Hilaire, on the other hand, there are production lines for powdered adhesives and admixtures, an admixtures laboratory and training facilities. This facility produces more than 90 products and all the 5 kg bags (Alupack and plastic bags). The new addition in Lyon-Saint-Vulbas (see the article on the following pages), which produces powdered products, will specialise in the production of building products with high-grade granulometry. These 3 facilities cover the entire country, with more than 200,000 tonnes of products shipped out every year. And in France...Mapei is there too.



TOULOUSE-SAINTE-ALBAN

MAPEI FRANCE IN NUMBERS

FOUNDED IN **1984**

95,4 MILLION EUROS
GROSS TURNOVER IN 2012

3 PRODUCTION FACILITIES

1 R&D LABORATORY

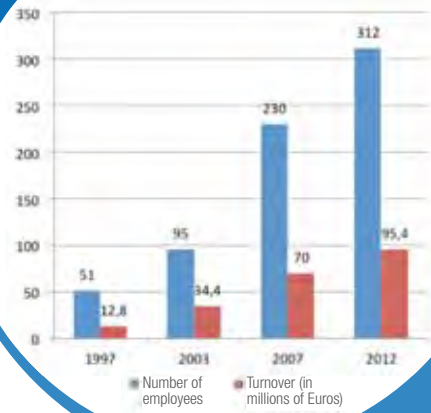
MORE THAN 300 EMPLOYEES,
OF WHICH
70 TECHNICAL SALES ENGINEERS

Toulouse-Saint-Alban

- Operational since **1989**
- **Powdered** products and **paste adhesives**
- Maximum production capacity **130,000 tonnes/year**
- Total surface area **42,000 m²**
- Research & Development laboratory



CONSTANT GROWTH



MONTGRU-SAINT-HILAIRE



LYON-SAINT-VULBAS

Montgru-Saint-Hilaire

- Operational since **1994**
- **Powdered** products and admixtures
- Maximum production capacity **120,000 tonnes/year**
- Total surface area **25,000 m²**
- Additives laboratory



Lyon-Saint-Vulbas

- Operational since **2nd semester 2012**
- **Powdered** products
- Maximum production capacity **150,000 tonnes/year**
- Total surface area **50,000 m²**
- Quality Control laboratory





New-Generation Plant Equipment and a Close Eye on Quality at Lyon-Saint-Vulbas



MIXER



BAGGING UNITS

OPENING PHOTO. An aerial view of the new Mapei facility in Lyon-Saint-Vulbas.

ABOVE. The mixer with a fully opening discharge gate which has a capacity of 5,5 tonnes, and the four in-line bagging units.

Equipped with an innovative production plant for powdered products, the facility, built in 2012 and operational since 2nd semester of the same year, has a floor space of 1,200 m² and is one of the most modern in the Gruppo Mapei stable. This is what Yannick Lagarde, Industrial Director Mapei France, had to say: «We opened this new facility in the Lyon area so we could be closer to our clients and also be within an optimum range of the eastern part of France and reduce transport times. This area is in a strategic position in the centre of the country, and is well served by roads and infrastructures. The facility specialises in the production of products with a large particle size for the building industry. Thus, we will launch in September a new filling machine for plastic bags of the building range. Thanks to the use of new-generation machinery and equipment, we have improved productivity. The gravity plant reduces the cleaning operations that need to be carried out when we change products and the four bagging plants have a capacity of 45 tonnes per hour. In this way, we are less dependent on our other production sites in France and also more reactive towards our clients!». And who could doubt him if we just consider how much the French subsidiary has grown since being founded almost 30 years ago, and how many certifications it has obtained over the years (see the box on the page). And all this while having the highest regard for the environment: Mapei France is a founding member of the France Building Council, a representative member for France of the international organisation World Green Building Council (World GBC), a network of associations present in more than 90 countries around the world whose aim is to promote a sustainable building industry.



CLIENT SATISFACTION AND CONSTANT IMPROVEMENT

Quality products, a rapid delivery service and permanent technical assistance: these are the characteristics most appreciated by Mapei clients. But quality control, safety in the workplace and respect for the environment are also playing an increasingly important role, commitments that have been acknowledged by the important certifications awarded. Certified ISO 9001 since 1998, Mapei France has also obtained an extension to the certification for the new facility in Lyon-Saint-Vulbas. A recognition to be added to the long list of certifications already obtained by the French subsidiary: ISO 14001 certification in 2005, BS OHSAS 18001 in 2011 and, in the same year, a Certificate of Excellence awarded by Certiquality for their voluntary commitment to quality, respect for the environment and health and safety for their employees. Patricia Lagarde, Head of Quality for Mapei France, commented: «The quality of our products and service has always been at the centre of our concern for client satisfaction. ISO 9001 certification for our facilities in France is inscribed in this policy. We are committed to supply our clients with products that are always identical, wherever they are produced. It was vitally important, therefore, that the procedures already adopted in the facilities in Toulouse-Saint-Alban and Montgru-Saint-Hilaire were also applied in Lyon-Saint-Vulbas».

A NEW PACKAGING AREA FOR PRODUCTS DEDICATED TO THE DIY MARKET

Within the facility in Lyon-Saint-Vulbas, Mapei France has just opened a packaging area for products dedicated to the DIY market (see photo right). An investment that is just part of the French subsidiary's global development strategy for this particular sales channel which foresees a series of special display stands for sales outlets and products wrapped in smaller packaging. From now on, all the orders for this type of demand will be covered by the Lyon-Saint-Vulbas site.



QUALITY CONTROL LABORATORY



WAREHOUSE

MAPEI IN LYON-SAINT-VULBAS: SOME FIGURES

12,000 M² OF COVERED FLOOR SPACE WITHIN AN AREA OF 50,000 M² OF LAND

MORE THAN 1,000 TONS OF STORAGE SPACE IN SILOS

MAXIMUM PRODUCTION CAPACITY: **45 TONS/HOUR**

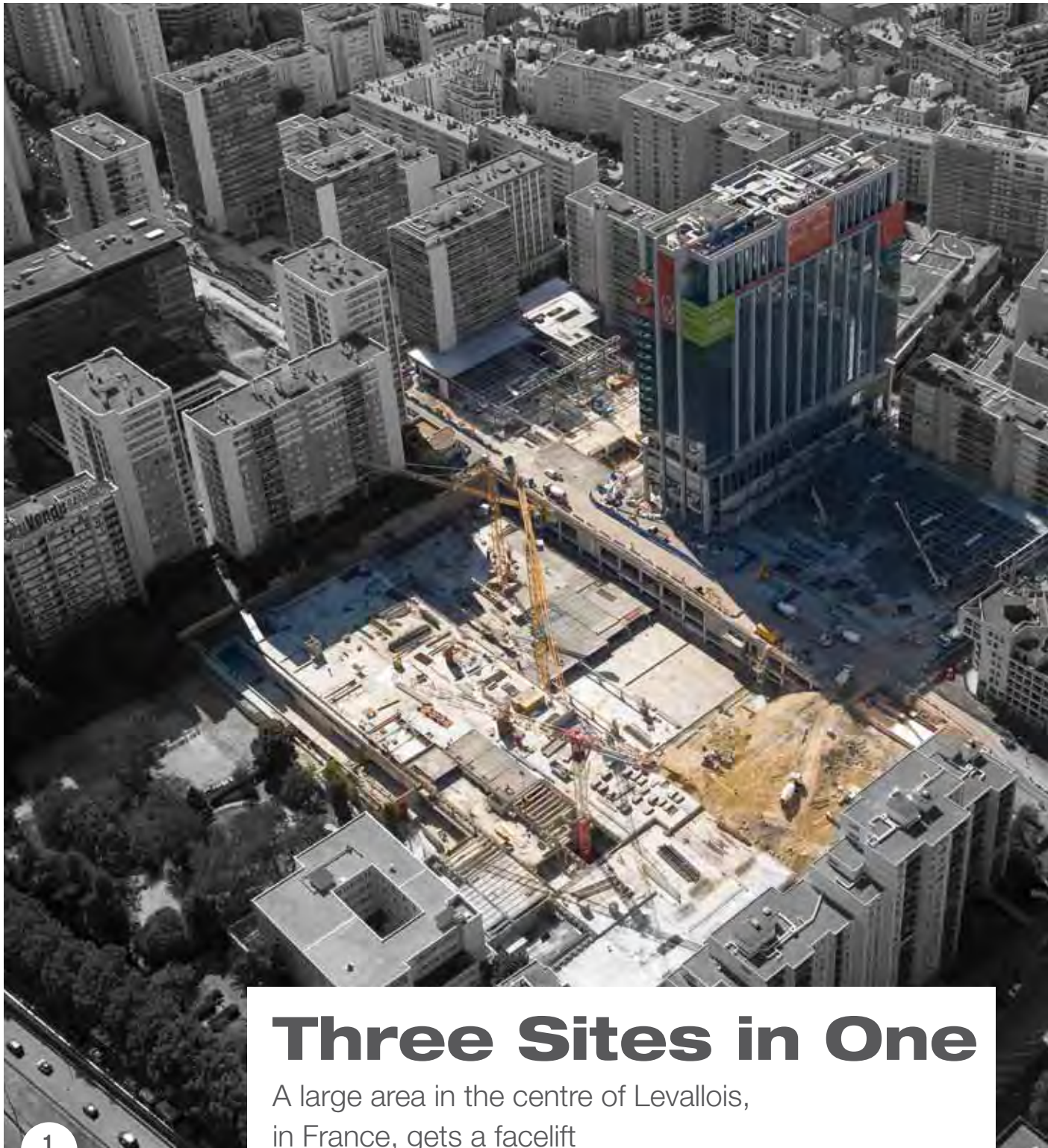
1 GRAVITY PLANT

1 MIXER WITH FULLY OPENING DISCHARGE GATE: **5,5 TONS** CAPACITY

4 BAGGING UNITS

1 PALLETISER: 3,500 BAGS/HOUR

40 NEW JOBS CREATED



Three Sites in One

A large area in the centre of Levallois, in France, gets a facelift

PHOTO 1. An aerial view of the site.

PHOTO 2. The Courcellor II Tower while work was being carried out: the structure of the building was completely rebuilt.

PHOTO 3. The building once work had been completed.

In Levallois, to the north-west of Paris, a large urban area of around 100,000 m² has had a facelift. A large building (the Courcellor II Tower) has been restructured and a new shopping centre and underground car-park have been built. Three complex sites in one, a technical feat successfully completed thanks to Mapei products. In this area, known as SoOuest, green parks and modern buildings live in perfect harmony.

A 24-Storey Facelift

The Courcellor II Tower, 24 floors including 3 below ground level, is a building typical of the 60's and 70's. Because there was asbestos in the load-bearing structure, it had to be completely restructured: the structure of the building was rebuilt in concrete and the top four floors were demolished and rebuilt, just like the floors from the third floor below ground level up to the fifth floor, all rebuilt with



IN THE SPOTLIGHT

ULTRAPLAN MAXI

It is an ultra-fast drying self-levelling compound for leveling and smoothing differences in thicknesses from 3 to 30 mm on new or existing substrates, preparing them to receive all kinds of flooring. ULTRAPLAN MAXI is for interior use only and it is especially suitable for areas subject to wheeled chairs. It can contribute up to **2 points** to obtain the **LEED** certification.



reinforced cement. The central body of the building was also involved, with the lift shaft and stair well rebuilt to comply with current legislation. To repair the deteriorated concrete, the compensated-shrinkage thixotropic mortars PLANITOP 400 F, PLANITOP 450 and MAPEGROUT T60F were applied on the piles, beams and stairs. These products comply with CE EN 1504-3 standards and are marketed in France by Mapei France.





The corresponding products on the Italian market are PLANITOP 400 and MAPE-GROUT T60. The light cracks in the concrete were then filled by injecting EPOJET epoxy resin, while the larger cracks were filled with EPORIP epoxy adhesive. In some areas where steel and concrete elements needed to be sealed, MAPEFILL F fluid expansive anchoring mortar compliant with CE EN 1504-6 standards was used (its corresponding product on the Italian market is MAPEFILL). To make the internal and external walls flat and guarantee a perfectly smooth surface, the levelling mortars NIVOPLAN and NIVOPATE in powder and paste form were applied (the latter product is produced and distributed in France by Mapei France). The floor slab was then levelled off with MAPECEM PRONTO rapid-drying and setting mortar, applied over a layer of slurry made from PLANICRETE LATEX and P4S ULTRAPLAN MAXI (both produced and sold in France by Mapei France). The substrate had previously been treated with PRIMER G synthetic resin-based primer.



INTERVIEW

A SUCCESSFUL PARTNERSHIP

Courcellor is a splendid project. How did you choose the right partners for such a large site?

Benoit Laurent, GCC Works Director: «I had already used Mapei products with great success on different sites and so, for SoOuest, I immediately thought of you».

Michel de Freitas, GCC Site Manager: «I had used Mapei products on my previous site: to already have contacts and know the products and working systems is a great advantage and allows you to save time».

Antonio Marcal, GCC: «Every time Mapei and Triomat guarantee a service that meets all needs from a technical and logistics point of view».

You have had to face a number of challenges on this site!

Michel de Freitas: «It was a technically complex site.

Also, its urban context was one of the main stumbling blocks, because supplying and sourcing material to the centre of a city is always complicated. We managed three different sites at the same time, each one with its own characteristics and problems. It was quite a challenge in terms of organisation and ability, but also regarding health and safety and risk prevention. We can all remember the first time we had to apply MAPEFILL at more than 100 metres

above the ground!».

Benoit Laurent: «Mapei was the only company that offered us a complete range of innovative products that complied with all the technical requirements.

PLANITOP 400 F, for example, is the only NF-certified repair mortar (*a French standard that certifies the quality of products, Editor's note*) that sets extremely rapidly, a fundamental characteristic for site productivity, and above all that generates a lot less dust compared with other products, and this is very important for a project right in the centre of a city or in confined spaces, such as underground car-parks».



6



7

SoOuest: the New “Urban Chic” Shopping Centre

Next to the Courcellor II Tower, today there is the new SoOuest shopping centre, one of the largest to the west of Paris (53,000 m²). There are 102 boutiques and a Leclerc hypermarket covering an area of 15,300 m². In the access area for the fork-lifts, the flooring was made using ULTRATOP STANDARD self-levelling, ultra rapid-hardening mortar (available on the French market). It was chosen for its high resistance to abrasion, which makes it particularly suitable for the intense traffic encountered in industrial and commercial areas. Some of the structures under the esca-

PHOTOS 4-5. The SoOuest shopping centre while work was underway and once it had been completed.

PHOTOS 6-7. The car-park under the shopping centre: 1,750 parking spaces on three floors.

How important was the daily support of Mapei’s Technical Services on site?

Benoit Laurent: «Firstly, we try to find a partner we can trust to give us the support we need, especially on such a large site as this. Mapei’s day to day assistance, both commercial and technical, is a guarantee of quality!».

Nader Zouaoui, Triomat (Mapei distributor): «I have been working with Mapei for 6 years and I immediately appreciated the quality of their products, but also the availability and dynamism of the Technical Services department. And so Mapei has become a partner».

lators also had to be strengthened, and the choice went to Mapei’s carbon fibre-based systems (FRP). Light and resistant to corrosion and tensile forces, these systems are an efficient substitute for traditional metal reinforcement. The intervention started by applying MAPEWRAP PRIMER 1 two-component epoxy primer followed by MAPEWRAP 11 epoxy grout, thanks to which the porosity of the concrete substrate was evened out any imperfections in the surface were smoothed over. MAPEWRAP C UNI A X300 mono-directional carbon fibre fabric was then overlaid and the various layers were bonded using MAPEWRAP 31 adhesive. To withstand the supplementary flexural stresses, CARBOPLATE pultruded carbon fibre sheets were also applied.

Underground Car-Park

A three-storey underground car-park was built under the shopping centre. To cover the lift well and waterproof the structure IDROSILEX PRONTO cementitious mortar was chosen, while LAMPOSILEX ultra rapid-setting and hardening hydraulic binder was used to instantaneously block infiltrations of water which are often found in walls below ground level. Lastly, to guarantee the flatness and create a perfect finish, the compensated-shrinkage thixotropic mortars PLANITOP 400 F and PLANITOP 450 were applied.

We would like to thank Benoit Laurent, Antonio Marcal and Michel de Freitas from the company GCC and Nader Zouaoui from the company Triomat for their kind collaboration in writing this article.

This article first appeared in Mapei&Vous edition No. 37, the periodical edited by Mapei France, a subsidiary company of Mapei Group, whom we kindly thank.

Technical Data

Courcellor II project, Levallois-Perret (France)

Period of Intervention: September 2011-April 2012

Intervention by Mapei: supply of products to repair and smoothing concrete, reinforce structures, make seals, waterproofing, block water infiltrations and level off substrates.

Clients: Semalrep (Levallois, France) and Nexity (Paris)

Works Management: SNC Lavalin SAS, (Paris)

Architects and General Works

Management: Calq Architecture (Paris), Epstein and Glaiman (Levallois, France) and Recevki Architecture (Levallois)

Executing Company: GCC, (Paris)

Mapei Distributor: Triomat (Villeneuve le Roi, France)

Mapei Co-ordinators: Benoit Le Coz and Cédric Le Page, Mapei France

Photos: Stéphane Levy and JM. Giraudeau for GCC

Mapei Products

Filling cracks: Epojet, Eporip

Repairing concrete: Planitop 400 F*, Planitop 450*, Mapegrout T60 F*

Sealing: Mapefill F*

Preparing substrates: Nivopate F*, Nivopate G*, Nivoplan F*, Nivoplan G*, Mapecem Pronto, Planicrete Latex*, Primer G, Ultraplan Maxi

Waterproofing: Idrosilex Pronto, Lamposilex

Structural reinforcement: Carboplate, Mapewrap

Flooring: Ultratop standard

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



Charles de Gaulle Airport

Textile floor coverings and reconstituted stone for the new departure hall at Paris

A hall “made in France”. This is the new S4 departure hall at the Paris Charles de Gaulle Airport that opened its doors last July after four years of intense work and an investment of 580 million Euros.

The hall is in Terminal 2E and is reserved for long-haul flights and long-range aircraft belonging to Air France and its partners in the Sky Team alliance.

The Parisian airports society ADP (Aéroports de Paris) wanted to create an area to the highest of international standards. Shopping, culture, fine dining and design: the new terminal offers “the best of Paris”. And from the end of 2013, there is also a museum exhibiting works of art on loan from the grand museums of Paris.

Everything has been organised for the well-being of passengers: natural light, a warm ambience, comfortable seats and a view of the aircraft. Thanks to the use of precious materials and natural elements such as trees,

walls covered with plants and walls of water designed by Taro Suzuki, the hall is an invitation to breathe an air of calmness and serenity.

Particularly special care was reserved for the air-conditioning systems, and to prevent energy losses they cool the air at passenger height. More than 16,000 m² of heated flooring have been installed, making the S4 hall the largest area with heated flooring in the whole of France.

A Terminal With High Environmental Quality

In line with the policy of sustainable development promoted by the ADP Group, the entire area has been constructed in compliance with the French protocol HQE (Haute Qualité Environnementale) that certifies the quality of the environment in buildings.

To meet the requirements of the technical specifications, the main contractor France

A FEW FIGURES

PARIS CHARLES DE GAULLE AIRPORT

61 million passengers in one year (2011)

2nd largest airport in Europe

7th busiest airport in the world for number of passengers

1st hub in Europe

TERMINAL S4

7,8 million passengers per year

100,000 m² over four levels

AND ALSO
25,000 m² of boarding areas

6,000 m² of shops, bars and restaurants

16 departure gates

4,000 seating places



» *Our technical specifications required products that respect the environment and the health of those who use them. Mapei was the only company able to supply a complete eco-sustainable system, and this was a determining factor in choosing our partner for this project”.*

Joaquim Coelho, Works Director for France Sols for the S4 Terminal project.



OPENING PHOTO. The terminal once work had been completed. The long-haul flights for Air France and partners of the Sky Team alliance depart from here.

ABOVE. Self-laying textile tiles were installed on the floors in the waiting hall using ULTRABOND ECO FIX.

BELOW. A view from above of the new terminal at Paris Charles de Gaulle Airport.

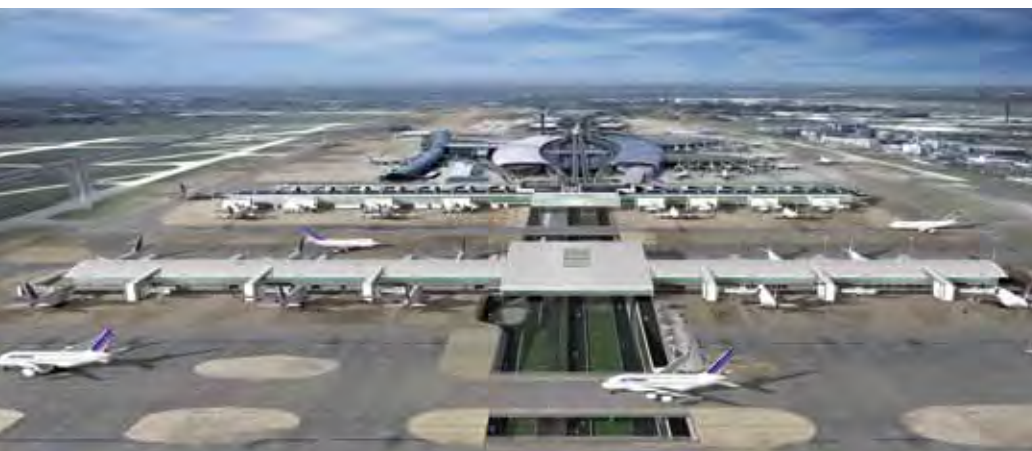
Sols chose eco-compatible products, opting for Mapei systems to prepare the substrates and bond the floor coverings: solvent-free products with very low emission of VOC (Volatile Organic Compounds) certified EC1 Plus by the German institute GEV.

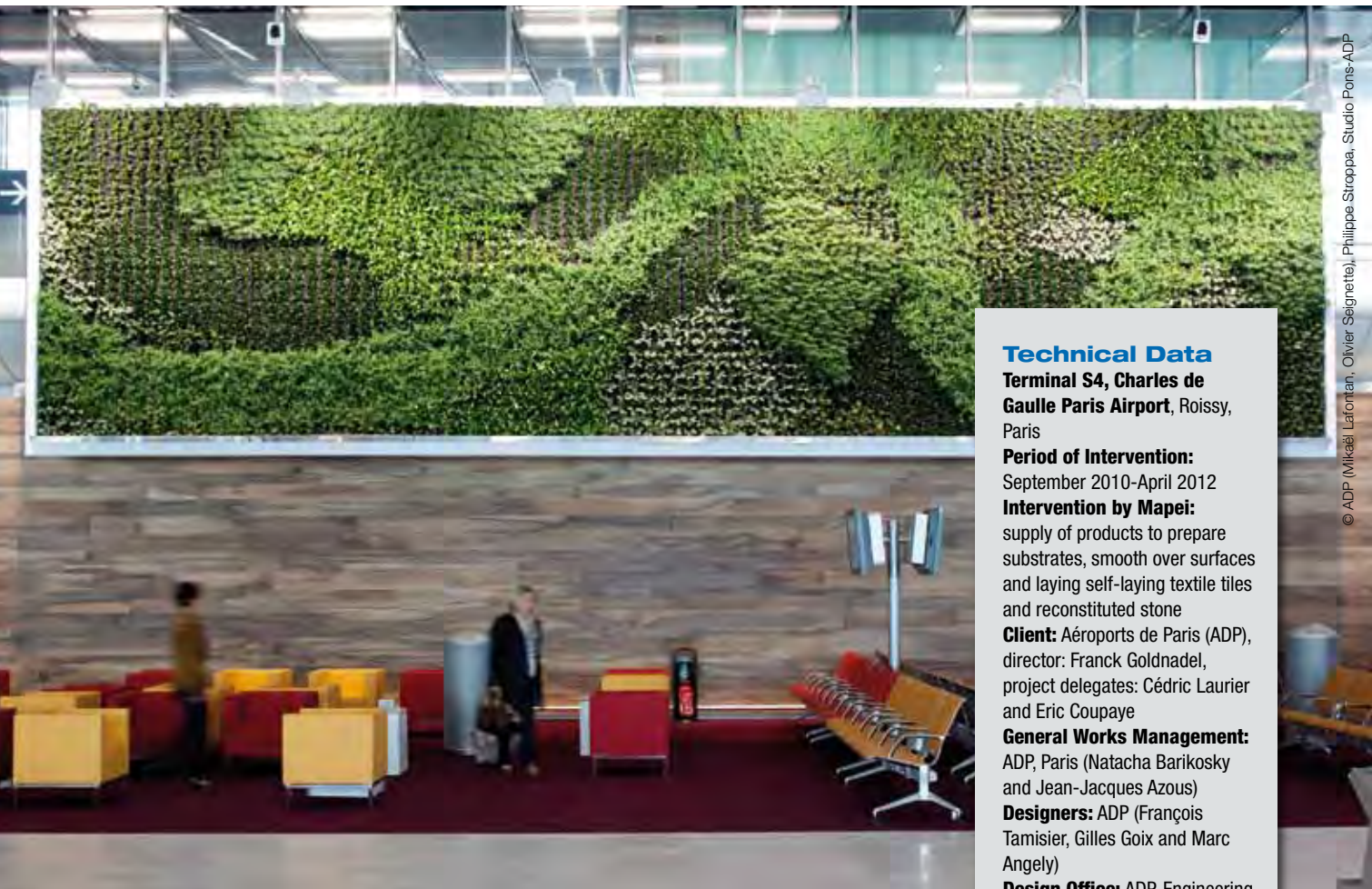
What is more, MAPECEM PRONTO, ULTRAPLAN MAXI and GRANIRAPID, which were all used on this site, comply with the requirements of the French Building Centre CSTB

(Centre Scientifique et Technique du Bâtiment). These products, in fact, are approved by the Centre and may be used in areas classified as P4/P4S, that is, environments with intense traffic such as stations and, as in this case, airports.

IN THE SPOTLIGHT ULTRABOND ECO FIX

It is a solvent free adhesive based on acrylic resins in water dispersion. It is used to laying self-laying textile tiles with all types of backing and venetian carpets on all normal substrates as long as they are moisture-stable and on existing floors of every type. When dry, the ULTRABOND ECO FIX film remains permanently tacky, even after repeated removal and successive relaying of the floor tiles. It can contribute up to **4 points** to obtain the **LEED** certification.





© ADP (Mikael Latorian, Olivier Ségnette), Philippe Stroppa, Studio Pons-ADP

Textile Floor Coverings

PRIMER G, a rapid-drying, synthetic resin-based primer in water dispersion certified EC1, was applied on the fluid cement-based, self-levelling floor slab (at level 1 of the terminal), the concrete (at level 2) and on the MAPECEM PRONTO.

To even out any differences in level between the floor slab and marble flooring installed around it, a 30 mm thick layer of ULTRAPLAN MAXI self-levelling smoothing compound was applied by pump.

Bordeaux self-laying, permanent-tack tiles measuring 50x50 cm were then laid. The adhesive used was ULTRABOND ECO FIX with very low emission of volatile organic compounds, particularly suitable for laying textile floor coverings. Thanks to its permanent tack, it is perfect for fixing tiles in position and stop them moving.

Reconstituted Stone for the Bathrooms

The first job in the bathrooms was to make a new rapid-setting and hardening screed using MAPECEM PRONTO.

ABOVE. The walls covered with plants are a reminder of the gardens of Paris and the Seine.

This ready-mixed, ready-to-use mortar allows flooring to be laid after just three hours and meets all the requirements for areas with intense traffic. 60x60 cm slabs of resin-based marble agglomerate were then bonded in place with GRANIRAPID cementitious adhesive. The joints were grouted with ULTRACOLOR PLUS high performance, rapid-drying and setting grouting mortar for joints from 2 to 20 mm wide. Both GRANIRAPID and ULTRACOLOR PLUS are certified EC1 R Plus which attests their very low emission of volatile organic compounds. Area S4, completed to perfection, is now ready to accompany passengers right up to take-off.

This article first appeared in edition No. 36 of Mapei&Vous, a magazine published by our subsidiary Mapei France. Our thanks go to Aéroport de Paris and the main contractor France Sols for their kind help.

Technical Data

Terminal S4, Charles de Gaulle Paris Airport, Roissy, Paris

Period of Intervention: September 2010-April 2012

Intervention by Mapei: supply of products to prepare substrates, smooth over surfaces and laying self-laying textile tiles and reconstituted stone

Client: Aéroports de Paris (ADP), director: Franck Goldnadel, project delegates: Cédric Laurier and Eric Coupaye

General Works Management: ADP, Paris (Natacha Barikosky and Jean-Jacques Azous)

Designers: ADP (François Tamisier, Gilles Goix and Marc Angely)

Design Office: ADP, Engineering and Architectural Management

Control Office: APAVE, Paris (buildings and infrastructures), VERITAS, Paris (underground) and BEHI, Paris (environmental quality)

Main Contractor: France Sols (Spie Batignolles Group, Paris), works directors: Emmanuel Borie and Joaquim Coelho

Laid Materials: non-permanent self-laying textile tiles (Tecsom) and reconstituted stone (Quarella)

Mapei Co-ordinator: Michel Melao, Mapei France

Mapei products

Smoothing and preparation of the substrates: Mapecem Pronto, Primer G, Ultraplan Maxi

Laying self-laying textile tiles: Ultrabond Eco Fix

Laying reconstituted stone: Granirapid, Ultracolor Plus

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



Granirapid

Two-component high performance fast-setting and hydrating cementitious adhesive for ceramic tiles and stone material.

- Particularly suitable for bonding stone material with fast drying times
- Particularly suitable for rapid re-tiling jobs or flooring that has to be ready for use within very short times (supermarkets, hospital, swimming pools, etc.)
- Suitable for bonding floorings subject to heavy traffic

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TO THE SIDE. A few photos of the inside of the hotel that has undergone major renovation.
BELOW. The large glass windows in the reception area during works.

Hotel Capoul

The renovation of a symbol of Toulouse

Ten months of work for twenty local companies and a team of more than 150 workers: renovation of the Grand Hotel Capoul in Toulouse was a complex project that had to be carried out to a very tight schedule.

And today the hotel, which has been renamed the Novotel Toulouse Centre Wilson, welcomes its clients in the heart of the city in an ambience which is a magnificent union of the beauty of this historic building and modern design.

A result of the perfect synergy between Hotel Manager Jérôme Gilquain, its owner Francis Farines and the architect Christophe Aubailly.

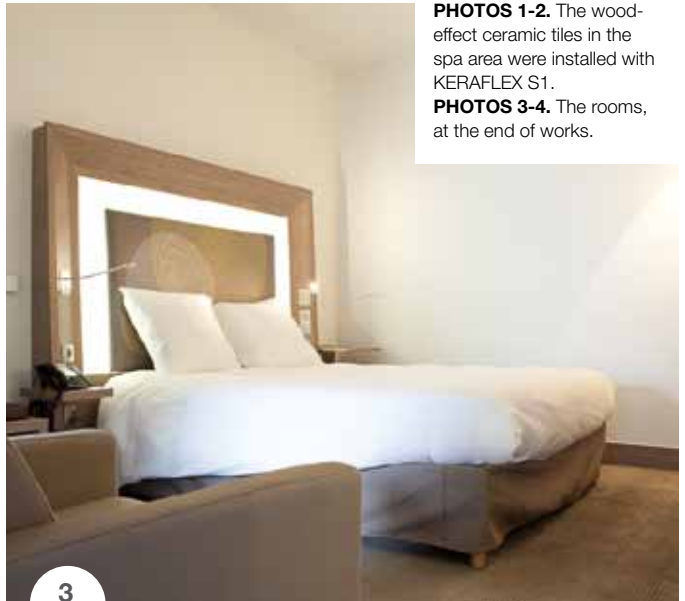
A Hotel Rich with History

Opened in 1930 by the family of the famous tenor Victor Capoul, the hotel was originally a resting place to which its visitors arrived with assiduity. Since then, along with the hotel restaurant bearing the same name, it has been a symbol of the city. When it changed ownership in 2008, it was in need of major renovation work and the building itself needed to be brought up to standard. The request of the manager Jérôme Gilquain was to carry out a major overhaul that combined design and comfort with respect for the character of the original building; quite a challenge for the architect and interior designer Christophe Aubailly, who dedicated almost a whole year on this meticulous, absorbing project, con-





1



3

PHOTOS 1-2. The wood-effect ceramic tiles in the spa area were installed with KERAFLEX S1.

PHOTOS 3-4. The rooms, at the end of works.



2



4

vinced that the Hotel Capoul represented a “treasure trove to be respected and appreciated”. The architect worked with the auspice and support of the French body Monuments de France, especially when working on the internal courtyard and the magnificent iron structure similar in style to the Eiffel Tower which overlooks it. The large Plexiglas windows over the main entrance were replaced with double-glass windows. The structure of the hotel itself was radically modified: the intermediate levels between the various floors were eliminated. This modification, which allowed the internal spaces to be optimised and improved circulation within the hotel, required the number of rooms to be reduced from 142 to 133. The new layout of the spaces, however, also meant that new structures could be created: the mezzanine floor, surrounded by wrought iron balustrades, is now a wellbeing centre with a spa featuring a Hammam steam room, as well as a sauna

and a gymnasium. The ambience of the internal areas has a contemporary, comfortable feel: design furniture and lighting, white leather sofas and armchairs and the use of warm, noble materials such as wood.

Waterproofing and Laying Ceramic Tiles

Thanks to the vast range of solutions in their portfolio and the commitment of their technical and commercial teams, Mapei was chosen by the company that carried out the preparation and waterproofing operations on the substrates and laying ceramic tiles in the spa and bathrooms.

There were a number of technical problems to overcome as work progressed, such as the laying tiling on wooden substrates, protection for the facing walls covered with slabs of gypsum and waterproofing under the ceramic tiles.

The substrates were prepared with PLANO

IN THE SPOTLIGHT ADESILEX P9

It is suitable for interior and exterior bonding of ceramic tiles and mosaics, on floors, walls, ceilings and for spot bonding of insulating materials. ADESILEX P9 is slip resistant with extended open time and highly thixotropic. It hardens without shrinkage. It can contribute up to **4 points** to obtain the **LEED** certification.





5



6

© SAS Grand Hôtel Capoul

PHOTO 5. A photo of the spa, the trump card for the renovated hotel.

PHOTO 6. The wall tiles in the bathrooms were bonded with ADESILEX P9 while the floor tiles were bonded with KERAFLEX.

3 smoothing compound (available on the French market) in combination with PRIMER G on the concrete base layer, and with FIBERPLAN self-levelling smoothing compound in combination with MAPEPRIM SP two-component primer on the floorboards in the rooms. The facing walls with slabs of gypsum were waterproofed with MAPEGUM WPS liquid flexible membrane prior to their installation. Thanks to its excellent resistance to slip, ADESILEX P9 adhesive was chosen to bond the 30x60 cm slabs to the wall. The 32.5x32.5 cm floor tiles were installed with KERAFLEX MAXI S1 adhesive, chosen for its excellent adherence and deformability properties. These properties also convinced the installation company to use the same

adhesive to install the floor tiles with wood effect (22.5x90 cm vitrified porcelain tiles) on the heated floor in the spa. This relaxation area was waterproofed using MAPELASTIC SMART SYSTEME SEL (available on the French market) before laying ceramic tiles. A word from the manager of the hotel Jérôme Gilquain: «There were a number of constraints on this site. We had to wait a long time for the work permits to be granted because the building is under the protection of the Bâtiments de France which looks after our architectural heritage. To reduce the length of time the hotel was closed to a minimum, we had to schedule a particularly intense work programme: ten months for a complete overhaul really is quick! Our Works Director did an excellent job in coordinating all the work squads, and at times there were 150 people on site, even during the Christmas festivities. And what is more, the fact that the hotel is in the centre of the city made getting materials to the site even more difficult».

Work, however, was completed on schedule, to the full of satisfaction of all those concerned. Today's Hotel Capoul has a new look, modern and comfortable, yet with full respect for the old traditions.

Technical data

Novotel Toulouse Centre Wilson, Toulouse, France

Year of Construction: 1903

Period of Intervention: April 2011-January 2012

Intervention by Mapei: supply of products to prepare substrates, for waterproofing work and laying floor and wall ceramic tiles

Client: SAS Grand Hôtel Capoul (Toulouse)

Designer: Atelier d'Architecture Christophe Aubailly (Toulouse)

Works Director: SDTR (Patrick Meyer) (Toulouse)

Laying Company: Yordanov Carrelage (M. Yordanov) (Toulouse)

Mapei Distributor: CCL (Saint-Orens)

Mapei Co-ordinator: Gaétan Dujardin, Mapei France

Mapei Products

Preparation of the substrates:

Mapeprim SP, Fiberplan, Plano 3*

Waterproofing: Mapegum WPS,

Mapelastastic Smart Systeme Sel*

Laying ceramic tiles: Adesilex

P9, Keraflex S1

*Produced and distributed on the French market by Mapei France

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

This article first appeared in edition No. 36 Mapei&Vous, the magazine published by our subsidiary Mapei France. Our thanks go to the manager of the hotel Jérôme Gilquain and the renovation company Yordanov for their kind help.

Less dust for everyone.

**- 90%
DUST**

Keraflex Maxi S1



From the Mapei Laboratory experience innovative technology: “LOW DUST” -90% dust during mixing, application and use compared with traditional Mapei cementitious adhesives.

- Especially suitable for laying large-format tiles
- Highly deformable
- No vertical slip
- Extended open time
- LOW DUST technology

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Mapei Coloured Grouts and Protective Paints

The geometry of colour, an itinerary in four stages

During Milan's week-long exhibition of furniture and furnishing design, such an important element as colour, one of the defining themes in the most recent trends in the furnishing sector, could certainly not be overlooked: from mustard yellow to the ever-present red, from petrol-green to blue. And the stars of the chromatic "paint palette" proposed by Mapei were the shades used for their joints for tiles, terracotta, stone, glass and metallic mosaics. This wide range of products was presented to the vast public at last April's Saloni and Fuorisalone exhibitions in four prestigious thematic events. And they were then presented to an even vaster audience thanks to the on-going advertising campaign and directly on-line: from the presentation of colour charts on the web to our "followers" on Facebook, to the new display stands and brochures that can now be found in our sales outlets. The colours of the tile joints products are also illustrated on "swatches" so you can

place them next to your tiles and pinpoint the right shade. The aim of the message is to explain that, amongst other things, Mapei's internal and external grouting tile joints are solvent-free, have very low emission of volatile organic compounds (VOC) and are certified according to the most severe international standards. With Keracolor in particular there is an on-line "grout calculator" available at www.mapei.com/IT-EN/, a tool that, in just a few simple clicks, helps you calculate the amount of material required to grout your tile joints. But let's take a detailed look at the technical characteristics of our tile joints, and the choice available to help you personalise any project, both internal and external. These tile joints, that may be applied in the most essential of bathrooms and kitchens or on surfaces composed of ultra-slim, large-sized tiles, have proven to be:

- easy to clean
- mould-resistant



© Saverio Lombardi Vallauri

1



ABOVE. A close-up of the Marazzi ceramic covering grouted with turquoise and black KERAPOXY by Mapei. Futuristic tiles and high-tech grouts were the stars of the show last April in the Aria Pura installation, one of the projects on show at the University of Milan as part of the Hybrid Architecture & Design exhibition organised by the magazine *Interni*.

ON THE RIGHT FROM THE TOP. The architect Mario Cucinella and Hyun Scok Kim, authors of the 5 metre-high monolithic structure to the side, seen on the right.

- strong and hard-wearing
 - eco-sustainable according to the most severe international standards
 - available in a wide range of colours
- Now let's take a closer look at the four events held in Milan.

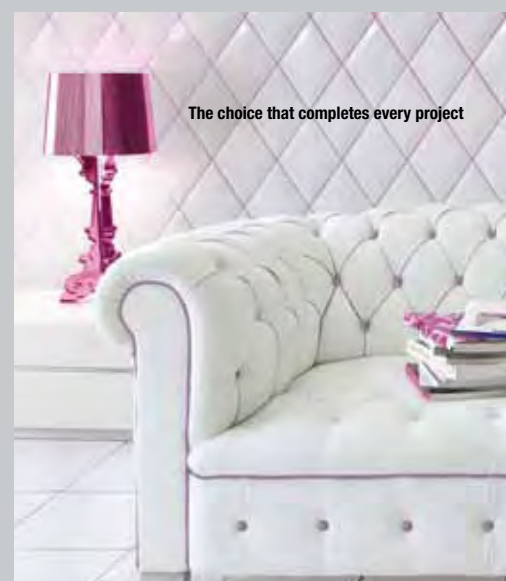
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With the magazine *Interni* at the University of Milan

Such a star in all that is "green" as Mario Cucinella certainly needs no presentation; he was asked to participate at the Fuorisalone event for the Hybrid Architecture & Design exhibition organised by the magazine *Interni*. Mysterious and minimalist, his installation Aria Pura (Pure Air) in the Courtyard of Honour of the University of Milan is a monolithic cube covered with black SistemN hexagonal grès tiles produced by Marazzi using an innovative LEED-certified and Ecolabel manufacturing process. The choice of adhesive to install the

PRESS CAMPAIGN

As further confirmation of the determining role that coloured tile joints play in characterising the texture of a wall or floor, a Chesterfield sofa was chosen by Mapei to symbolise the 2012-2013 press campaign (in the photo to the right). A light-hearted and "ceramic" way of reinterpreting an historical piece of furniture typical of the Italian middle-class, with an international touch. And French in particular, as testified by the classic lozenges that decorate the surface of the padded backs typical of bygone years, yet which remain eternally fashionable.



The choice that completes every project

tiles went to white KERALASTIC T, a high-performance solution with good workability and extended pot-life, while the tile joints were grouted with KERAPOXY in the colours turquoise and black. This range is rich in tonalities and may be used for both internal and external applications, and because they are resistant to intense traffic and offer considerable chemical resistance to dirt, oil and acids, they are suitable for both residential and industrial environments.

2 In the Exhibition Showroom

An area of more than 200 m² over two levels offering ample space to develop ideas and create projects. This is how we would summarise the Mapei showroom located at the Milano-Rho exhibition centre: decorated with panels and samples of documents to allow you to take a deeper look into the theme of eco-sustainability and study the most suitable solutions for the various areas of use: design, residential, commercial and service constructions and large site projects.

IN THE PHOTOS BELOW. Images of the permanent Mapei showroom at the Milano Rho exhibition centre held an area of 200 m². The setting designed for the Salone del Mobile exhibition included, among others, a display of swatches for the new wall finishes and the stratigraphic layout of products for floors and walls.



3 On Show at the Saloni Exhibition

Ceramics Earth Culture was Mapei's second initiative on show that was centred on the design. The exhibition, organised by Made Eventi for Made 4 Ceramics, held an area of 700 m² and presented a series of ceramic carpets by Giulio Ceppi inspired by the cultures of the 5 continents. Fortunato D'Amico, on the other hand, had the task of selecting which works of artists such as Manuel Felisi, Leonardo Mosso and Peter Bottazzi should be placed alongside the decorated surfaces. Mapei products were on show at the exhibition in display cabinets and as random samples. Amongst the products present were the adhesives KERAPLEX MAXI S1, ULTRALITE S1 QUICK and ULTRAMASTIC III. The solution that captured the interest of the visitors more than any other, however, was the coloured grout KERAPOXY DESIGN that, apart from its translucent effect, stands out for its luminosity, durability and good workability. Ideal for bringing out the best in the most precious of tiles and mosaics, it is available in 15 different colours, and when mixed with MAPEGLITTER gold and silver sparkly metallic fragments, this grout creates spectacular effects that are highly appreciated by designers and end users alike.

4 In the Multi-Media Studio

The architect Andrea Castrignano is well-known by the general public for his show "Changing home, changing life" which is aired on Italy's La5 television channel. A demo-home was constructed in his studio, and





Mapei contributed by supplying the materials used to install (ULTRALITE S2) and grout (ULTRACOLOR PLUS) the marble wall coverings, and to install the mosaic with ADESILEX P10 that was then grouted with KERACOLOR FF polymer-modified cementitious mortar, a water-repellent product characterised by its DropEffect technology (a synergic action that makes surfaces water-repellent and reduces their tendency to absorb water and other liquids). The flooring on the other hand, created using large-sized tiles, was installed using grey KERALASTIC T adhesive (particularly recommended for this increasingly popular type of application in the market sector for slim, maxi-sized tiles) and grouted with ULTRACOLOR PLUS, available in 26 colours

(apart from the aforementioned DropEffect technology, this product is characterised by the use of BioBlock technology, thanks to which tile joints are also resistant to the formation of mould). Mapei also supplied the MAPETHERM SYSTEM cladding panels, which allow considerable energy savings to be made and help reduce running costs. But Mapei products were also the star of the show on the programme presented by Castagnano which aired in July on Italy's La5 television channel. During these programmes, the products particularly on show were TOPCEM binder for rapid-drying, controlled-shrinkage screeds, LIGNOBOND adhesive and its relative varnish for wooden floors and several products from the WALL FINISHES range.



TOP OF THE PAGE. A moment from the inauguration of the exhibition: from the left, Adriana Spazzoli, Operational Marketing & Communication Director for Mapei Group; Giovanni De Ponti, General Manager of the Italian Federation FederlegnoArredo; Giorgio Squinzi, CEO Mapei SpA, and Roberto Snaidero, Chairman of FederlegnoArredo.

CENTRE OF THE PAGE. Showing the ceramic carpets inspired by various cultures, were the subject of the exhibition Ceramics Earth Culture on show at the Milano Rho exhibition centre.

ABOVE. A close-up of a display stand showing the range of colours available with Mapei grouts.

ON THE LEFT. The architect Andrea Castagnano in his demo-home, to which Mapei contributed by supplying numerous products to install floor and wall coverings and the thermal cladding system (it is also present in the bath in the picture to the left).



Universal Milan

Expo at the starting blocks ready to re-launch the nation's economy. What will be the theme? The World Food

A worldwide event generating thousands of new jobs and attracting 20 million people in Milan. «Expo 2015 (*dedicated to World Food, Editor's note*) will provide a unique opportunity to demonstrate the nation's unity of intents and also to showcase the things at which we excel, making our products, skills and quality the envy of the entire world», so Giorgio Squinzi, President of Confindustria, the Confederation of Italian Manufacturing and Service Companies, and CEO of the Mapei Group, stated at the assembly of Italian industrialists held at the Rome Music Auditorium in May. «It could be the first major post-recession event, boosting growth and re-launching the nation's economy». Indeed it is estimated that, during the six months while the world fair

is being held, the economic repercussions for Italy and the city of Milan will be equivalent to an income of €9.5 billion. An opportunity that companies working in many different sectors are preparing to grasp, including Mapei, which helped construct the "Lilac" underground railway line linking up to the event.

Schedule of Works

At the moment the grounds hosting the Expo are a building site covering 1,000,000 m² of land between the Motorway to the Lakes and Milan-Turin highway, Sacco Hospital and Cascina Triulzia, just round the corner from the Milan-Rho Trade Fair. A huge area, which, when the works are in full swing, will accommodate about 1,000 people, including workmen, labourers and carpenters, not to mention engineers, architects and designers. The schedule for the building work has already been stipulated. Works on the perimeter roads will be completed during the summer and those on the electricity power station will finish in August-September. In December the first locations for the 130 countries taking

ATTENTION TO THE ENVIRONMENT

The Expo is designed to blend into the environment:

- ▶ it will conform to **LEED** (Leadership in Energy and Environmental Design)
- ▶ it will use **80% recycled materials**
- ▶ it will accommodate over **10,000 different types of vegetation** and bushes

- ▶ it will reinforce **infrastructural links** to the site, mainly through trains and underground railway lines, encouraging visitors to use electric cars and take advantage of bike/car-sharing opportunities
- ▶ it will make intelligent use of energy, **recycling waste** and **recovering rainwater**





A WALKWAY WILL CONNECT THE EXPO TO THE RHO-PERO TRADE FAIR.

BELOW. In addition to the theme areas and spaces designated for events and services, the fish-shaped site will also accommodate so-called clusters. Nine exhibition areas bringing together in the same architectural project countries working on the same theme connected with food or some individual product.



part will be available, while the final digs and excavation work on the decuman (the site's main axis) will be completed in 2014 by which time any obstacles on the site will also have been removed. During the first three months of 2015 construction work will be completed on the "exhibition platform" where the pavilions will be located; the construction of the two walkways between the Expo site and Rho-Pero and the Expo site and Cascina Merlata will also be completed, as will the installation work for the various theme areas and the construction of the Italian pavilion that will represent Italy.

Italian Pavilion

The design of the Italian Pavilion was commissioned to the Italian firms Nemesi&Partners Srl from Rome, Proger Spa from Pescara and BMS Progetti Srl from Milan. The winning architects beat off competition from 68 international rivals, envisaging the area as a community united around a square, where a nursery-market garden will be constructed. A sort of "forest-building" consisting of a four-storey building (encompassing 12,000 m² of space that can be walked on), which will be converted into an innovation and technology building after the Expo, plus four pavilions, built along the Cardo (an axis of about

INTEREST IN TECHNOLOGY

Innovation will be a key aspect of Milan Expo 2015:

- ▶ digital walls, enhanced reality goggles, e-health services and personalised pathways allowing visitors to interact in an original and entertaining way

- ▶ the entire area will turn into a **Smart City**: an intelligent digital neighbourhood serving the local community even after the exhibition



THE ITALIAN PAVILION.

It will consist of a main building and four pavilions, built along the Cardo.

400 meters), which intersects the exhibition spaces of other countries. On the outside the structure will look like a parallelepiped, while on the inside it will be possible to admire a skylight covered with photovoltaic sensors, walkways, offices, meeting rooms, an auditorium, a restaurant and a 25-metre-tall terrace-garden that will loom over the entire Expo.

PHOTO ON THE OPPOSITE PAGE. At the moment the building site is an area of one million square meters. Work will be completed during the early months of 2015.



The “Lilac” Line Forges Ahead

The new underground railway line is just a part of the expansion project for Milan’s large infrastructure network ahead of the upcoming Expo 2015

M5

BIGNAMI

Ponale

Bicocca

Ca' Granda

Istria

Marche

Zara

2007

2013

Milan's M5 underground railway line is a prestigious "work in progress", and is forging ahead in order to be complete and ready for Expo 2015. This part of the project, with Mapei as always right there in the front line, is divided into two lots: the stretch from Bignami to Garibaldi (at the time of going to press running as far as Zara) and the stretch from Garibaldi to the San Siro Stadium (currently at the executive stage). When it eventually operates at full regime, the M5 alone will lead to a reduction of 5 million private car journeys per year.

Underground Works

After already taking part in work on the M1 red line, the M2 green line and the M3 yellow line, it is now the lilac line's turn to benefit from the collaboration of Mapei. The new line will have 19 stations along a 12.6 km stretch. It will be a light railway line, that is, completely automated with no conductor or fixed operators, with just a few floating operators.

Cutting-edge Solutions

The tunnels have been constructed using two different techniques. Part of it has been excavated using a 9.4 metre diameter Lovat Tbm (Tunnel Boring Machine), and then lined with prefabricated blocks. The other part has been excavated using traditional techniques and the lining (primary support) includes the installation of hundreds of metal ribs and a layer of shotcrete, followed by an inverted arch finishing layer and protective lining. Numerous Mapei products have been used on

this important site. To condition the soil during the mechanical excavation work, POLY-FOAMER FP foaming agent and the polymer MAPEDRILL M3 were used. To repair the prefabricated concrete stones forming the ceiling of the tunnel, MAPEGROUT T60 and MAPEGROUT LM2K were used after protecting the steel reinforcing bars with MAPEFER 1K, while to smoothing the concrete, the choice went to MONOFINISH mortar.

Mobile Works

Over the last few years, the technology of concrete has reached such innovative quality and performance levels that dedicated mix-designs can now be formulated to not only help solve the problems of complying with UNI-EN standards, but also and above all as a support to specific design requirements regarding the execution of complex constructions, such as viaducts, bridges, tunnels and large buildings. And all this with one aim: to extend the service life of reinforced cement constructions. The jewel in the crown of the technical assistance provided by Mapei, which goes much further than simply supplying products, is their fleet of mobile laboratories. The dedicated technical support, with their well-equipped vans, is able to carry out a multitude of wet tests directly on site, including sampling, various test methods to measure consistency, the preparation of samples, evaluating air and water content and density. And all this according to the most recent specific UNI-EN standards. This safe, reliable technical consultancy service is available to manufacturers of concrete to enable



IN THE SPOTLIGHT MAPEPLAN TU S

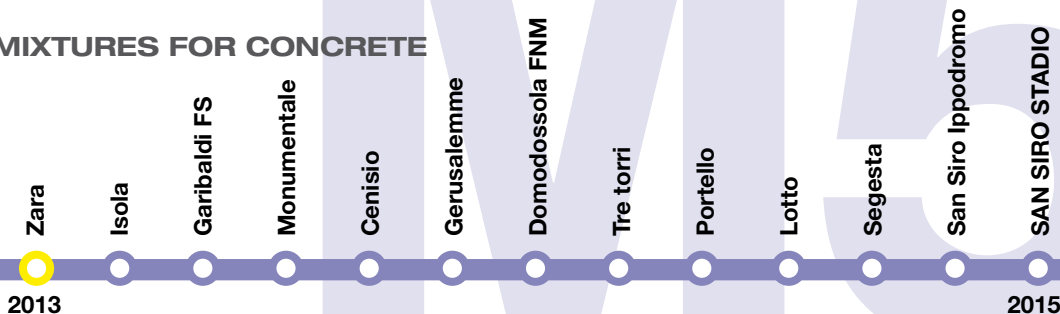
It belongs to the range of synthetic PVC-P waterproofing membranes that, thanks to the use of exclusive "multi-extrusion coating" technology, offer high performance characteristics and durability. It is used particularly in drill and blast tunnel, open cut tunnel and underground structure. This and numerous other high-tech products are marketed by Mapei as part of our UTT category, which stands for "Underground Technology Team". For further information see the website www.utt-mapei.com

FACING PAGE. The purple logo of the Milan underground M5 line outside the entrance of a station along Viale Fulvio Testi.

ON THIS PAGE. Two phases of the construction of the tunnels (photos courtesy of M5 S.p.A.).



M5



them to mix cementitious conglomerates that provide an efficient response in terms of final use, transport and application times and the logistics for mounting formwork and handling all the steelwork required. The Mapei team has provided support for their clients during every single phase of the execution of this project, from the design of the concrete mixes, to the qualification of materials on site, right up to quality control of the concrete mixes once they have been applied. A highly professional service, with technicians experienced in managing sites of this dimension.

The Admixtures

To mix the concrete, two families of high concentration, polymer-based super-plasticising admixtures have been used, depending on specific design requirements and/or the raw materials available: DYNAMON SX (SX 32 and SX 34) and DYNAMON SR (SR1 and SR 912/914). They are all based on DPP (Designed Performance Polymer) technology, a new chemical process which, through total monomer design (know-how exclusive to Mapei), allows the characteristics of the admix to be modulated according to the specific performance requirements of the concrete employed. Because of its high workability, concrete made with this type of admixture is easy to apply while fresh and offers high mechanical performance when hardened. The products from the Dynamon family are also part of the Real (Robustness Enhancing Admixture

Line) category of admixtures for concrete: lower water/cement ratio, higher mechanical strength, extended maintenance of workability, easily pumped with no segregation or bleeding.

UTT Line

Large underground works, and tunnels in particular, offer specific challenges due to their considerable complexity during both the design phase and the executive phase. This type of work is often carried out in extreme conditions and requires the skill of specialised technicians who, thanks to their vast experience, have the ability to handle unforeseen problems and guarantee that work progress quickly and according to specification. Technicians that have the backing of a range of high-tech products produced and marketed by Mapei under the UTT category, which stands for "Underground Technology Team". MAPEPLAN TU S is also part of this family, a range of synthetic PVC-P waterproofing membranes that, thanks to the use of exclusive "multi-extrusion coating" technology, offer high performance characteristics and durability. One of the fundamental characteristics of this product, which has been used here to waterproof the tunnels and stations, is its excellent workability and weldability. Hot welding in particular causes the molecular chains to melt and fuse together to form a bond that is resistant to the pressure of water and mechanical stresses.

ON THIS PAGE. Now work on the stretch between Bignami and Zara has been completed, headway is being made on M5 line from Zara to the San Siro Stadium. Work should be completed in time for Expo 2015.

Technical data

M5 Underground Railway Line, Milan

Period of Construction: ongoing since 2007 (work scheduled to be completed in 2015)

Period of Intervention: ongoing since 2007

Intervention by Mapei: supply of admixtures for concrete, waterproofing products from the UTT division and on-site technical assistance with our fleet of mobile laboratories

Client: Milan City Hall

Concession: M5

Milan City Council Director: Francesco Tarricone

Works Manager: Stefano Perotti (Ingegneria SPM, Milan)

Safety Coordinator (Design phase and Executive phase): Gabriella Ablondi (Ingegneria SPM, Milan)

Consortium Contractors: Astaldi SpA (Consortium Lead), Alstom Ferroviaria SpA, AnsaldoBreda SpA, Ansaldo Trasporti Sistemi Ferroviari SpA and Azienda Trasporti Milanesi SpA

Mapei Co-ordinators: Gianluca Bianchin, Alessandro Boscano, Pietro Lattarulo and Massimo Seregini, Mapei SpA

Mapei products

Admixtures for concrete:

Dynamon SX 32, Dynamon SX 34, Dynamon SR1, Dynamon SR914, Dynamon SR912

Ground conditioning: Mapedrill M3, Polyfoamer FP

Restoration and smoothing of concrete:

Mapegrout T60, Mapegrout LM2K, Mapefer 1K, Monofinish

Waterproofing:

Mapeplan TU S

For further information see the websites www.mapei.com and www.utt-mapei.com



Dynamon System

Nanostructure technology at the service of concrete

The **Dynamon System** line includes several ranges of specific products for applications with precast concrete, ready mix concrete and large engineering projects.

- **Super-plasticisers for precast concrete industry**

For concrete with rapid development of mechanical strength.

- **Super-plasticisers for cement-mixing industries**

For concrete with excellent maintenance of workability.

- **R.E.A.L.**

Robustness Enhancing Admixture Line

For pumped concrete with no segregation or bleeding.

- **Super-plasticisers for floors**

For concrete with good workability and controlled times for float finishing.

- **Multi-purpose super-plasticisers**

For concrete with good workability.



The 38th Annual FEP Congress

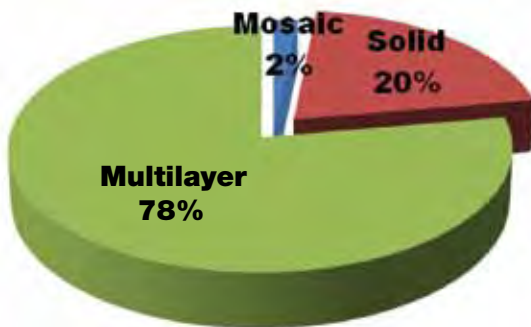
The European Federation of the Parquet Industry presents the market figures of the European wooden flooring industry in Brussels

The setting couldn't have been more attractive: the historic Solvay Library overlooking Leopold Park in the Belgian capital of Brussels, just a short walk from the European Parliament. On the 6th and 7th of June, manufacturers and distributors of wood and products for installing wooden flooring gathered here for the 38th Annual FEP Congress, the European Federation of the Parquet Industry that unites the main players from the wooden flooring industry. Mapei was represented by Angelo Giangiulio, Product Manager for the company's Wood Range, and by Francesco Doria, head of Mapei Market Research. Amongst the speakers presenting the market figures for 2012 were the President of FEP Lars Gunnar Andersen and the General Secretary Endre Varga. The meeting was also the occasion for the presentation of the "FEP Award", a recognition created last year to award a person, organisation, institution or authority that has made a significant contribution to the progress of the European parquet industry. This year's trophy winner, along with a grant for 5,000 Euro, was Bernhard Lysser, Managing Director of the Swiss Parquet Federation, ISP.

Consumption Falls and Investments are Being Diversified

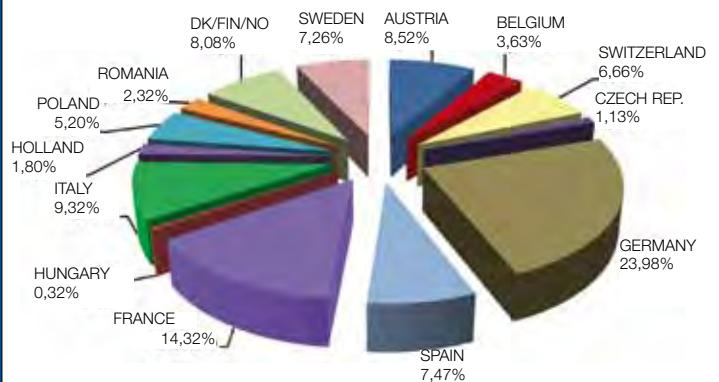
FEP has estimated that, in 2012, the European parquet market suffered a fall in consumption of 5.88%, for a total of 87,509,000 m², compared to 2011. The exceptions were Austria, Germany and Belgium by several percentage points. As far as production is concerned, the trend already witnessed in the previous years, namely the strategic choices made by several producing companies to relocate their production in European countries outside the FEP territory, was once again confirmed. While the total production in FEP territory went down by 4.7% to a volume of 68,266,133 m², the total production in Europe (FEP countries + EU countries outside FEP) is estimated to reach over 75 million m². Increases were recorded in Poland and Belgium, while all other countries were at the best stabilizing. This demonstrates how the wooden flooring market, after a long period of growth (except for 2002) that peaked in 2007, a record year for the European residential construction industry, had to come to terms with the recession and the crisis in the building sector.

2012 PRODUCTION PER PARQUET TYPE PERCENTAGES



Source: FEP

2012 TOTAL CONSUMPTION IN THE FEP AREA BY COUNTRY



Source: FEP

The 2012 total parquet production per type remains similar to the picture already presented in 2010 and 2011, whereby multilayer comes in first with 78% being followed by solid (including lamparquet) with 20% and mosaic at 2% of the total cake.

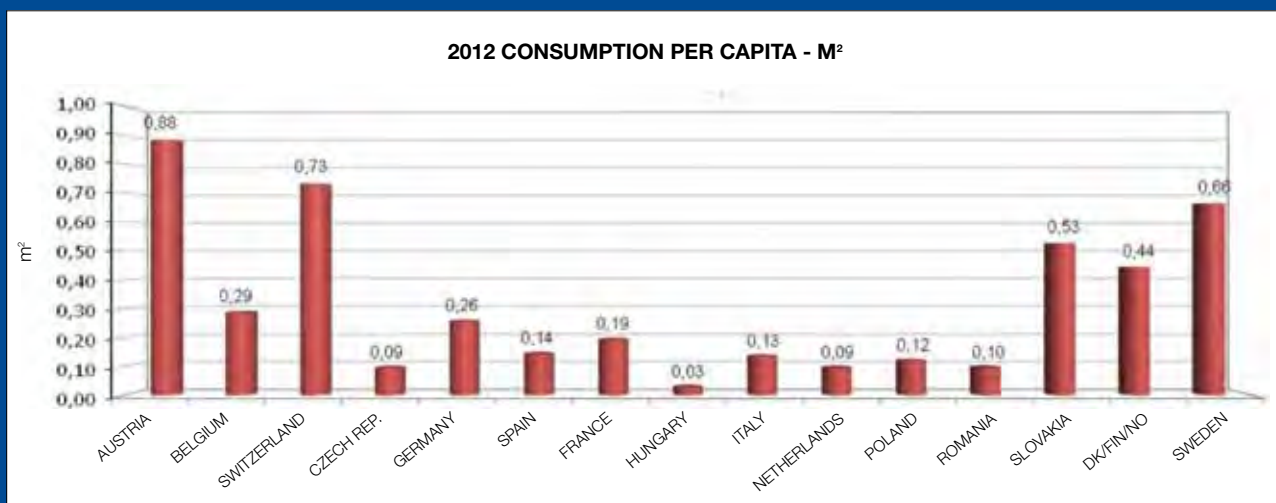
Four countries account for 56% of total European consumption. Germany is leading the pack with about 24% of the total cake (an increase of more than 2% compared to 2010). France, Italy and Austria have similar consumption rates, ranging from 8.52 and 14.32 million m².



ABOVE. Participants at the 2013 European Parquet Congress.

Outlook for 2014

It is hardly possible to give a prognosis on developments in the European Parquet Industry in the coming year. The latest market indicators tend to point indeed in the direction of challenging times that still lay ahead. Much will depend on the state of affairs in the construction business, the degree of flexibility of access to housing loans (especially for young people), the evolution on the employment market and related consumer confidence. This is demonstrated by the widening economic & financial gap between Northern & Southern regions of the EU. FEP, hence, does not expect that existing and important differences between



The graph highlights per capita consumption of parquet by country. Wood flooring are especially appreciated in Northern countries, first of all Austria, Switzerland and Sweden countries. The consumption is still limited in East European countries. In the total FEP area, the consumption per inhabitant lost one point at 0.22 m² in 2012.



TOP. A scene from the gala dinner held before the convention. The setting was the Solvay Library with lavish wood furniture, mosaics and large windows.

ABOVE. Bernhard Lysser receives the "FEP Award" from Lars Gunnar Andersen, FEP President and Endre Varga, Secretary General.

member countries adhering to our federation will simply vanish in the short term. This would be wishful thinking. Nevertheless, since the start of the crisis in early 2008 the European Parquet Industry has proven to be resilient and able to cope with myriad adversities. It even succeeded to safeguard its market share amongst competing flooring solutions. Real wood quality flooring remains very much in vogue and the never ceasing innovative focus both in the technical field and design make the growing variety of parquet products always better and increasingly attractive for the end consumer.

THE THEME WAS ALSO DISCUSSED DURING THE MAPEI CONVENTION

A wooden flooring market strongly influenced by the trend of the building sector. This was the overall picture at both a national and global level illustrated during the "Qualified & Certified Parquet Installer" convention held on the 24th of May in the Mapei Auditorium. The figures were presented by Giorgio Squinzi, Mapei Group's CEO, and Francesco Doria, Mapei Market Research Manager. In Italy, the real value of the construction market is today considerably lower than at the beginning of its long period of growth which started in the mid 1990's. The parquet market has also changed as a result, going from a peak consumption of 13.4 million m² in 2007 to 8.2 million m² in 2012, a fall of around 40%. Giorgio Squinzi then underlined how, at a global level, the trend of the building sector has been quite varied in different geographical areas. The NAFTA area (United States, Canada and Mexico) ended 2012 with a plus sign in the construction sector, while the rate of growth for the most important economies in South America slowed down. The Middle East has been favoured by the high price of petrol, and this has guaranteed the availability of resources to invest in building programmes in the main countries of the region. Africa has also been characterised by a net recovery in the construction sector, which in 2011 had suffered due to socio-political unrest and the war in Libya. But the real driving force behind the global economy and construction industry are the Far East and Oceania, lead by the Chinese and Indian markets. And in Europe? Some countries in northern Europe have avoided the period of recession, and in certain cases have even seen an increase in investments in the construction sector. Unlike the economies in southern Europe and certain eastern European countries which have gone through a period of severe crisis, with a dramatic drop in the building sector. Mapei is ready to meet the challenge. Thanks to their direct presence in 5 continents with 68 subsidiaries, the Group is a successful player in the evolution of the global construction market, expanding its business in all the main emerging markets, from Asia to South America and from East Europe to Latin America.



Ultrabond Eco P992 1K



The one component polyurethane adhesive which improves quality of work, safeguards health and protects the environment.

Discover the world of Mapei: www.mapei.com

- Ideal for all kinds of wood
- Excellent bonding to all kinds of substrates
- Solvent-free
- Low environmental impact: certified as EC1 Plus by GEV Institut* (extremely low emission level of volatile organic compounds)
- Without any hazard warning requirements



/mapeispa





IN THESE PAGES. In the showroom of Milan MAX&Co. boutique in Milan new wooden floors were laid and finished with Mapei products such as ULTRABOND ECO S945 1K, SILWOOD, ULTRACOAT HIGH TRAFFIC and ULTRACOAT PREMIUM BASE.



MAX&Co. Showroom

A new look for the brand's showroom in the centre of Milan

An all-Italian, international brand recognised as the forerunner in pret-à-porter, the Max Mara Group is Italy's leading clothing company, founded in 1951 with the intention of offering top-of-the-range ladies' clothing made using unrivalled industrial manufacturing processes. A leading position that the Group has consolidated over the years thanks to its rigorous style, obtaining public recognition that is clearly demonstrated through its 2,300

boutiques located in various countries.

The first boutique to carry the Max Mara name was opened in Reggio Emilia (Central Italy) in 1964, the first of a network of boutiques that can now found in the most important cities in Italy and around the world.

One of the brand's outlets has been lately completely renovated, and included the laying of wooden flooring using products from the Mapei range. The boutique is in Milan in Corso Vittorio Emanuele II, just a few steps from the Duomo square and the Vittorio Emanuele Arcade (see *Realtà Mapei International* n. 41 for a detailed report of the renovation works in this arcade).

A Rapid, High-quality Laying Wooden Floors

The client and the designer wanted to laying industrial oak flooring in a herringbone pattern on all three floors of the boutique, for a total surface area of 500 m². Another firm request of the client was to laying and finish off the flooring as quickly as possible so that they could open the boutique during the winter. To meet the requirements of the client, the company contracted to laying the flooring contacted Mapei Technical Services Department, who recommended the most appropriate adhe-





Technical Data

MAX&Co. Showroom, Milan (Italy)

Period of Construction: 2009-2010

Year of Intervention: 2012

Intervention by Mapei: supplying products to laying and finish wooden floorings

Client: Maxima

Works Direction: Giuseppe Randazzo

Building Site Direction Kibea Parquet, Sassuolo (MO)

Laying Company: Matteo Magri, Kibea Parquet

Laid Materials: oak wooden floors

Mapei Distributor: Munarini Srl

Mapei Co-ordinators: Alessandro Bonacini, Carlo Rossi and Carlo Alberto Rossi, Mapei SpA (Italy)

Mapei Products

Laying Wooden Floors: Ultrabond ECO S945 1K

Finishing Wooden Floors: Silwood, Ultracoat High Traffic, Ultracoat Premium Base.

For further information see the website www.mapei.com

IN THE SPOTLIGHT

ULTRABOND ECO S945 1K

One-component, isocyanate and solvent-free, sililated polymer adhesive. It is suitable for bonding pre-finished and solid wooden floors, certified as a product with a very low emission level of volatile organic compounds (EMICODE EC1 R Plus). ULTRABOND ECO S945 1K is easy to apply with excellent ridge holding. The product is a ready-to-use product, therefore no catalyst is required, and no mixing is needed; it is suitable for use even by installers who are allergic to epoxy and epoxy-polyurethane products. It can contribute up to **5 points** to obtain the **LEED** (Leadership in Energy and Environmental Design) certification.

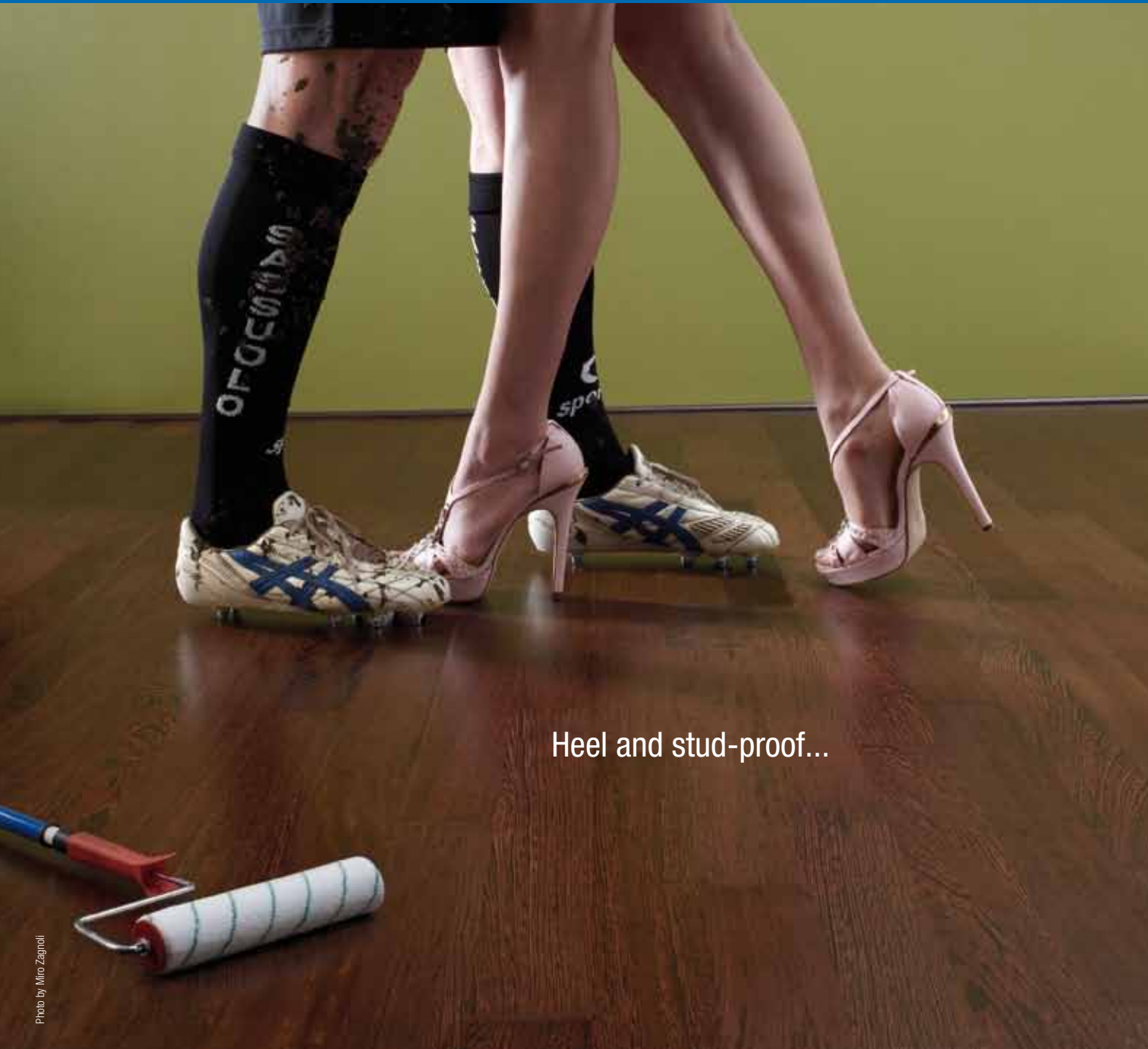


sives and finishing products. The first step was to clean, sand and then dust off the substrate. The solid wood flooring was then bonded in place (14 mm thick industrial wooden flooring), and the choice of the client in this case was oak. To laying the flooring, Mapei recommended using ULTRABOND ECO S945 1K one-component, isocyanate and solvent-free, sililated polymer-based adhesive for bonding pre-finished, multi-layered wooden floors, with very low emission level of VOC, Volatile Organic Compounds (EMICODE EC1-R Plus Certified).

Three days after laying the wooden floor was

sanded, after which it was then possible to apply ULTRACOAT PREMIUM BASE two-component water-based, NMP-free, undercoat with high insulating capacity, very low emission level of VOC. The next step was to varnish the floor with ULTRACOAT HIGH TRAFFIC, two-component, NMP-free, 100% polyurethane water-based varnish with high resistance to wear and abrasion and very low emission level of VOC for wooden floors. It is suitable for floors subject to extremely high pedestrian use.

SILWOOD acrylic sealant in its oak shade was used to seal perimeter joints.



Heel and stud-proof...

Photo by Miro Zagorli

New Ultracoat line. System for the protection of wood

Mapei's Ultracoat line is the perfect choice to protect any kind of wood flooring, even the high traffic ones!
WATER-BASED PROTECTION PRODUCTS FOR WOOD FLOORING



/mapeispa

Discover the world of Mapei: www.mapei.com



ADHESIVES • SEALANTS • CHEMICAL PRODUCTS FOR BUILDING



Mersch School Campus

Installation of wooden floors in Luxembourg



ON THIS PAGE. The new Mersch school campus in Luxembourg.
IN THE FOLLOWING PAGE. Some of the phases of making the screed and installing the wooden floors with LIGNOBOND.





The Mersch school campus, in central Luxembourg, is one of the first projects executed thanks to a partnership between public bodies and private enterprise.

Two buildings connected by a large glass entrance house hold the Neie High School and the Technical Institute for Educational and Social Studies. Over an area of more than 6 hectares, the 1,600 students have facilities such as a music hall, sports and technical facilities, an amphitheatre and a canteen. It is all housed in a construction with low energy consumption which integrates harmoniously into the surrounding landscape.

The architectural style of the two institutes is the same, but the materials and colours differ so that they have their own individual look. Opposite the institutes is a square with lovely gardens and vegetation where the students and teaching staff can relax.

Construction work on the campus started in 2009, and after two years Mapei Benelux, the local subsidiary of the Group, was contacted to supply the company's products to install around 14,000 m² of wooden floors. LIGNOBOND two-component epoxy-polyurethane adhesive was recommended to install the flooring, which more than satisfied the requirements of the client.

The substrate's surface was prepared by sandblasting the concrete to remove any detached areas and any areas becoming detached and then a cementitious screed

is made using TOPCEM, a special hydraulic binder for normal setting screeds. Because there were less than 4 cm available to create the screed (only 1 cm in the thinnest part), a bonded screed was made on the substrate by initially applying a bonding slurry made from PLANICRETE (synthetic-rubber latex), water and TOPCEM. After four days ECO PRIM PU 1K primer was applied, which is used to consolidate and waterproof cementitious screeds.

The wooden floors were then able to be installed with LIGNOBOND.

Technical Data

School campus, Mersch (Luxembourg)

Period of Construction: 2009-2010

Year of the Intervention: 2011

Intervention by Mapei: supplying products for the preparation of the substrate and the installation of wooden floors

Client: Grand Duchy of Luxembourg

Designer: ARCO Architecture Company

Contractor: AM-GTK

Works Director: W. De Toffol INCA Ingénieurs Conseils Associés S.à.r.l.

Laying Company: La Parqueterie de Steinfeld

Mapei Distributor: Vetedy

Mapei Co-ordinators: Ivan Mariotti, Gilbert Geerinckx, Willy Vijgen, Frédéric Bertaggia and Thierry Decoster, Mapei Benelux

Mapei Products

Preparing the substrates: Topcem,

Planicrete, Eco Prim Pu 1k

Laying wooden floorings:

Lignobond

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

IN THE SPOTLIGHT LIGNOBOND

It is a two-component solvent-free epoxy-polyurethane adhesive for laying all types and shapes of wooden floors. LIGNOBOND is used for bonding wooden floors on cementitious screeds, anhydrite screeds, screeds made using MAPECEM, TOPCEM and similar products, old wooden, ceramic, marble, terrazzo floors and metal sheets. It is also suitable for heated substrates. Once hardened, approximately 24 hours after application at normal temperatures, LIGNOBOND forms a tough film with high bond strength on any type of substrate.

It can contribute up to **3 points** to obtain the **LEED** certification.





Vinavil, a New Method for Measuring the Strength of a Wood-Wood Bond

Measuring the strength of a wood-wood bond is currently carried out using empirical comparison methods which are not particularly reliable. Vinavil, in collaboration with the IVALSA, Trees and Timber Italian Institute, of CNR, National Research Council of Italy, has developed a new, semi-automatic method which allows this bond to be measured more accurately, thus accelerating the standardisation process. In this edition, we have published the paper on the subject presented by Fabio Chiozza at the World Adhesives & Sealant Conference (WAC) held in Paris in September 2012.

When two pieces of wood are bonded together, you must establish beforehand what requirements and performance levels the adhesive used must achieve. Today, PVA water-dispersed adhesives are widely used in the sector of wood for non-structural applications: kitchens, furniture, flooring, wooden doors and windows. What is more, the sector involved in the transformation of wood has stimulated the development of new bonding technology to meet a host of requirements, such as a reduction in emissions in domestic environments, varying performance requirements of the materials used and new market trends. Vinavil has developed a new method to measure the strength of a wood to wood bond and, therefore, the production of an adhesive suitable for this type of application. Research concentrated in particular on the objective characterisation of wood failure percentage, the subject of the research presented in this article.

Characterisation of Wood Failure Percentage

Let's take the example of two pieces of exotic wood that are bonded together to form a joint that will then be turned to shape on a lathe (Fig. 1). In this case, a PVAc based adhesive must be used with a high wood failure percentage, where "wood failure" indicates the entity of the failure of the wood fibres at the wood/adhesive interface (WFP, Wood Failure Percentage). What does this mean? When the wood is turned on the lathe, the bonded joint



FIG. 1. Using a lathe to turn a pepper mill formed by bonding two types of wood.

between the two pieces of wood is subjected to enormous mechanical stress: the weakest part of the wood/adhesive/wood sandwich must not be the adhesive, but rather the wood itself. The bond must be made in such a way that the joint being stressed fails by fracturing mainly in the wood, which will appear rough and fibrous. The wood failure percentage in a bonded joint is highlighted when the joint being stressed is destroyed, and being able to determine this fibrous portion allows the strength of a bond to be measured accurately; the higher the amount of fibres (or failure percentage), the better the quality of the bond. The two surfaces are analysed after failure of the original joint (Fig. 2), allowing the failure percentage to be measured.

Methods Currently Used

In Europe and America, there are no suitable standards to objectively characterise wood failure percentage. This creates a problem for experts from the sector who have to rely on empirical evaluations carried out by manufacturers from the wood supply chain. For example, until just a few years ago, one of the methods used to measure wood failure percentage consisted in observing the failure of the wood after bonding two ends of a broomstick together. The first premise when choosing an adhesive for each species of wood, therefore, is to develop a method that allows the failure of the surface of the wood to be measured objectively and repeatedly once the bonded joint has been destroyed. At the moment, the methods commonly used by manufacturers of wood adhesives to determine the wood failure percentage are covered by ISO 6238 and EN 205. There are limits to these procedures, however, in that the methods applied are not specific, the results are subjective and estimation of the wood failure percentage is not very precise (the minimum value detectable is 10%). We must also consider that the failure



FIG. 2. A new test sample and a broken test sample after applying a compressive shear load with a dynamometer.

of wood is highly influenced by the type of wood itself and, even with wood of the same species, its qualitative and mechanical characteristics, such as its density and the presence of porous rings or deviations in the fibres. The ideal method, therefore, should be able to calculate the final bond strength of a joint, whatever the mechanical characteristics of the wood used.

The Vinavil - Ivalsa Colorimetric Method

The Vinavil R&D laboratory, in collaboration with the CNR-IVALSA Institute of Florence (Italy), has developed a semi-automatic method to evaluate the wood failure percentage of a joint bonded using vinyl dispersion adhesive. This method, called the colorimetric method, is based on the use of wooden test samples as specified by ISO 6238, and the introduction of a system to colour the surface formed after the joint has failed. Along with traditional systems used to characterise a wooden joint, they have combined the use of image capturing software (ImageJ, which may be downloaded from the internet web) which allows the surface to be scanned and images to be created. The colorimetric method consists in treating the surface with a special colorant that highlights the adhesive still present on the surface of the failed joint and spotlights the wooden fibres deriving from the failure in the wood. Three species of wood have been tested so far, beech, maple and pine, together with nine different types of polyvinyl acetate adhesive and three colorants (Sudan IV, To-



FIG. 3. Colorants used to colour the surface of wooden test samples.



FIG. 4. Application of the new method on a test sample of beech with iodine as a colorant: an image is created by the software to calculate the wood failure percentage.

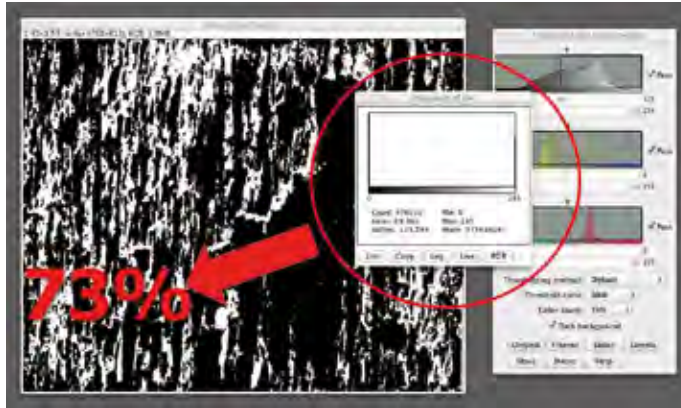


FIG. 5. Results from the image created: the wood failure percentage is calculated by counting the black and white pixels forming the image.

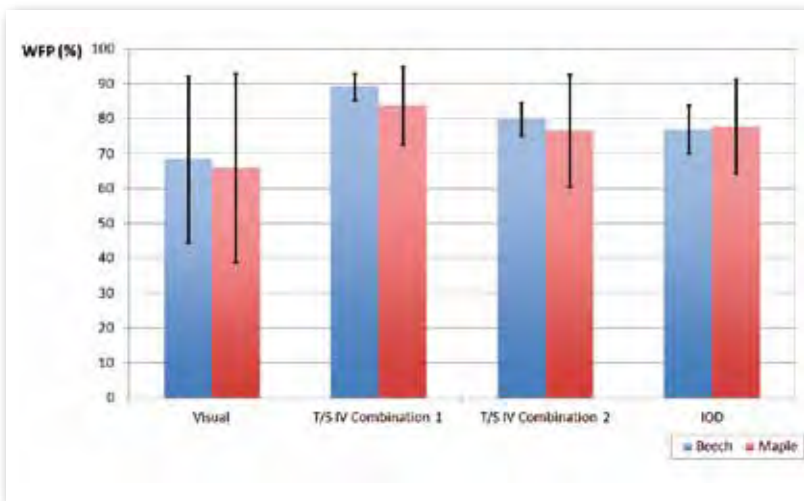


FIG. 6. Statistical calculation of the variability of the measurements on two species of wood and three different colorants. It is important to note how the colorimetric method allows data with considerably less dispersion may be obtained and it is more accurate.

luidine blue and Iodine, Fig 3). A solution of the colorants is applied by brush so that they cover the entire surface and they are then dried using standardised methods. It was by choosing a one-component colorant that it was possible to highlight one of the two variables (wood or adhesive) with certainty. Iodine meets these requirements because it interacts with the polyvinyl alcohol in the adhesive and highlights its dislocation distribution into the wooden surface; it is also non-toxic and so may be handled in complete safety. The surface of wood initially obtained after failure of the joint is “coloured” and then dried under standardised conditions. An image is then obtained and created using ImageJ software, that transforms the original surface into images in black and white. This software allows the percentage of black and white pixels present in the images to be calculated automatically

and, from these values, the wood failure percentage.

Fig. 4 illustrates the procedure carried out on a sample of beech using iodine as a colorant. The first image is of the broken specimen, followed by a photo of the same sample treated with iodine: the dark areas are due to the reaction between the iodine and adhesive. The third image represents the final result of the system: the white pixels correspond to areas of adhesive, while the black pixels show the surface of the wood where there are no traces of adhesive. The method is semi-automatic in that, while it is running, the intervention of an analyst is still required to fine-tune certain parameters of the colorimetric system in order to obtain the most accurate image possible.

Fig. 5 illustrates the final result once the image has been created. The system counts the number of black and white pixels and calculates the corresponding wood failure percentage (WFP). In the column on the right, the colorimetric set parameters are shown. The graph shown in Fig. 6 allows the statistical results obtained for two species of wood (beech and maple) and three different colorants to be compared using the visual method. This illustrates how the colorimetric method allows data with considerably less dispersion may be obtained.

CONCLUSIONS

The research carried out by Vinavil in collaboration with the CNR-IVALSA Institute of Florence allowed the following to be highlighted:

- it is possible to semi-automatically calculate wood failure percentage by colouring the surfaces of wooden test samples after causing a bonded joint to fail through the application of a dynamometric load and obtaining images of the surface;
- compared with traditional methods, this procedure allows the inherent subjective nature of the measurements to be reduced, highlights failures or fibres that are not visible to the naked eye and increases the repeatability of results;
- the best colorimetric system consists in the use of iodine, which thus simplifies the methodology of the system and makes it easier to obtain suitable results, even for the most critical types of wood;
- this new method offers a solid base for the development of a new standard at an international level.

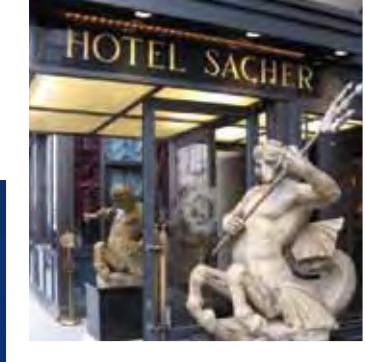
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Hotel Sacher in Vienna

The world-famous hotel has had a “Sacher-style” facelift

Famous all over the world, above all for its famous coffee bar on the ground floor where the equally famous Sacher cake has been served for more than a century, the Hotel Sacher was founded in 1876 by Eduard Sacher, the son of Franz, the creator of the famous cake. When Eduard Sacher died in 1892, running of the hotel was taken over by his widow Anna who turned it into the luxury hotel as we know it, famous all over Europe for its class, elegant rooms and, obviously, its culinary delights.

The hotel passed over to the Gürtler family in 1934, and they managed to maintain the glory of the Sacher Hotel which today is still a meeting place and stopover for



aristocrats, politicians, businessmen and VIPs from the world of show-business, as well as being a famous and historical tourist spot. Located right in the heart of the city, the hotel is near to the Cathedral of St. Stephen and the Vienna Opera House, and just a short distance from the Hofburg Imperial Palace, and has 152 rooms, two Presidential Suites, a health centre on the top floor, two restaurants and three coffee bars, including the famous coffee bar on the ground floor.

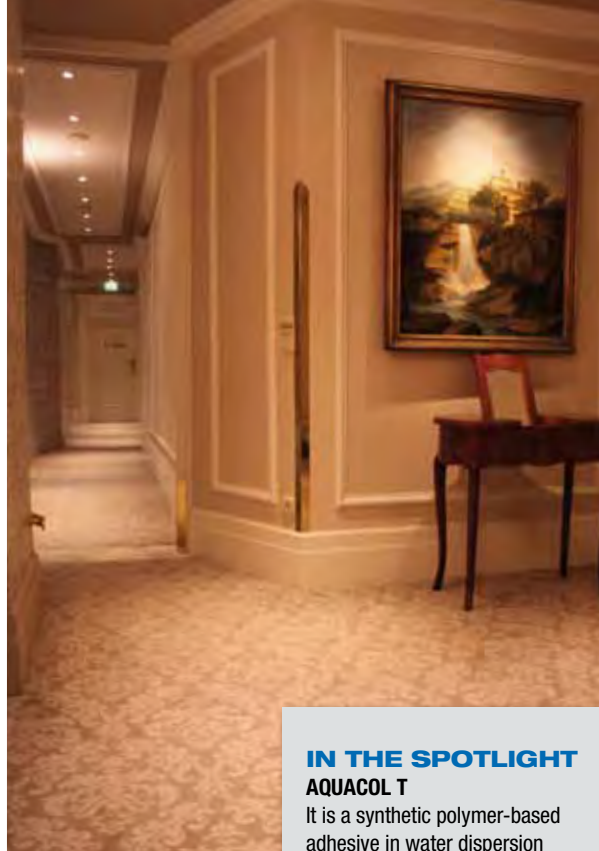
Renovating a Historical Hotel

One wing of the hotel was completely renovated between 2011 and 2012. The designers managed to combine classic interiors, typical of the Hotel Sacher, with a wish to create a modern, welcoming structure using cutting-edge materials and products, and all according to the tight schedule.

The Mapei Technical Services Department recommended a series of products to prepare the substrates and install the textile floor coverings. The technicians recommended completely demolishing the existing floorings in the rooms and corridors and making a new screed using TOPCEM PRONTO ready-to-use, normal-setting controlled-shrinkage mortar for quick-drying (4 days) screeds. The screed was then treated with PRIMER G synthetic resin primer in water dispersion diluted 1:2 with water. This product promotes good adhesion and has the capacity to even out the absorption of substrates before smoothing the substrates or before bonding flooring. PRIMER MF two-component epoxy primer was then ap-

IN THIS PAGE.

AQUACOL T adhesive in water dispersion was used in the rooms and corridors.



IN THE SPOTLIGHT AQUACOL T

It is a synthetic polymer-based adhesive in water dispersion with very low emission of volatile organic compounds (VOC) for textile floor and wall coverings and linoleum floorings. It is applied in a single coat. AQUACOL T is not inflammable and does not contain toxic substances and has a very low emission level of volatile organic compounds (EMICODE EC1). It can contribute up to **3 points** to obtain the **LEED** certification.



plied on part of the surface. This primer also has consolidating and waterproofing properties and is able to contain excess residual humidity content in screeds and concrete floorings. Then, to make the surface perfectly flat, the substrates were levelled over with ULTRAPLAN and ULTRAPLAN MAXI self-levelling, ultra quick-hardening smoothing compounds which prepare the substrates to receive all kinds of floor coverings just 24 hours after application. This characteristic allowed work to be completed within the very tight schedule. To lay around 2,500 m² of textile floors in the rooms and corridors, AQUACOL T adhesive in water dispersion with very low emission of Volatile Organic Compounds (VOC) was used.

Technical Data

Hotel Sacher, Vienna (Austria)

Year of Construction: 1876

Period of Intervention: 2011-2012

Intervention by Mapei: supplying products for the preparation of the substrates and the installation of the textile floors in the rooms and corridors

Designer: Pierre-Yves Rochon

Client Hotel Sacher

Laying Company: Fa. Aigner Raumaustattung

Laid Materials: textile floors

Mapei Co-ordinators: Reinhold Stinzi and Georg Klein, Mapei GmbH (Austria)

Mapei Products

Preparation of the substrates:

Primer G, Primer MF, Topcem Pronto

Levelling substrates: Ultraplan, Ultraplan Maxi

Laying textile floors: Aquacol T

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





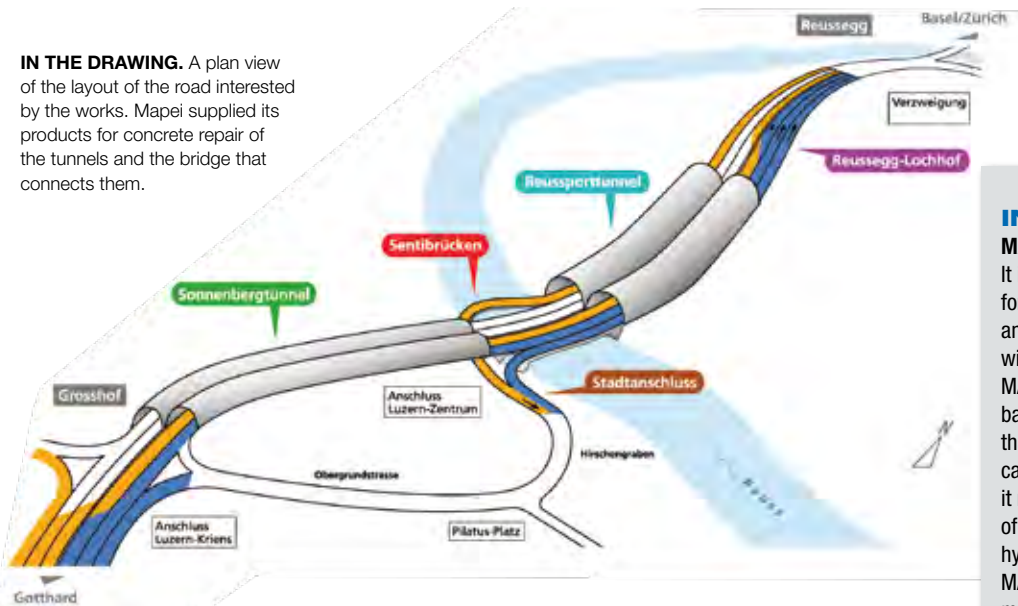
CityRing Project in Lucerne

Renewal of a critical stretch of motorway for road traffic in Switzerland



ABOVE. The surfaces of the tunnels after applying MAPEGROUT 430 mortar mixed with PLANICRETE.
BELOW. MAPEGROUT GUNITE 300 AF mortar was applied inside the tunnels.

IN THE DRAWING. A plan view of the layout of the road interested by the works. Mapei supplied its products for concrete repair of the tunnels and the bridge that connects them.



With an average of 85,000 vehicles every day, the A2 motorway near Lucerne is one of the busiest roads in the whole of Switzerland. After more than 30 years of intense use, the local motorways authority decided to modernise this stretch of the motorway from both a construction and safety point of view, as part of an overall modernisation programme called CityRing, which when complete will cost more than 400 million Swiss Francs (about 326 million Euros). A complete renewal intervention of the motorway near Lucerne started at the end of 2010, and is scheduled to be completed in the middle of 2013. In order to prevent the amount of traffic increasing in the urban areas, work has been carried out mainly at night and it has taken around a year to complete each carriageway.

Interventions in the Tunnels

The main interventions were the renewal of the Sonnenbergtunnel and the Reussport-tunnel. In the two tunnels, 1.5 km and 665 m long respectively, repair and reconstruction of

the concrete was carried out, the road was resurfaced, safety booths and a new ventilation system were installed and a new drainage system was built. The Mapei Technical Services Department assisted the contractor for the entirety of the work, recommending the most suitable products for each single phase of the work, while respecting the tight schedule imposed by the client. The surfaces of the tunnels were repaired using MAPEGROUT GUNITE 300 AF mortar with accelerated setting for dry mix shotcrete. To repair the deteriorated sections of the concrete structure, MAPEGROUT THIXOTROPIC fibre-reinforced mortar was used, mixed with MAPECURE SRA curing admixture to improve its air curing cycle and further reduce hygrometric shrinkage. Before applying the mortar, the exposed steel reinforcement rods were treated with MAPEFER anti-corrosion mortar. The surfaces were repaired using MAPEGROUT 430 fine-grained, fibre-reinforced, thixotropic mortar mixed with 30% of PLANICRETE latex. Reconstruction work was completed by

IN THE SPOTLIGHT MAPECOAT I 24

It is a two-component epoxy paint for protecting floors, reservoirs and concrete pipes in contact with aggressive chemical agents. MAPECOAT I 24 is epoxy-resin based paint with special pigments that provide excellent covering capability. After drying completely, it resists the aggressive action of acids, alkalis, salts, oils, hydrocarbons and solvents. MAPECOAT I 24 resists frost, maintaining the appearance of the surface treated. MAPECOAT I 24 complies with principles defined by EN 1504-9 and EN 1504-2 standards. It can contribute up to 2 points to obtain the LEED certification.



BELOW LEFT. Anchoring metal elements with PLANITOP FIX. **BELOW RIGHT.** Reconstruction of the surface patches on the carriageway of the bridge connecting the two tunnels with MAPEGROUT SV and MAPEGROUT SV T.





ABOVE. The walls inside the tunnels after applying MAPEFINISH two-component mortar.

smoothing the surfaces with MAPEFINISH two-component mortar. To renovate the tunnels, PLANITOP FIX cementitious mortar (produced and distributed on the Swiss market by Mapei Suisse SA) was also used, as well as MAPEFILL high-flow grout to anchor the metal parts to the concrete structure and ADE-SILEX PG4, two-component epoxy adhesive for waterproofing joints and bonding curbs on asphalt. In both the Sonnenbergtunnel and Reussporttunnel, jet fans were installed to

help extract fumes in the event of a fire. The surfaces of the ventilation ducts were treated with ECO PRIM GRIP primer and ULTRAPLAN MAXI levelling compound. The drainage system in the Sonnenbergtunnel was also in need of repair, and TRIBLOCK FINISH was recommended. This three-component thixotropic mortar has the capacity to protect and smooth out concrete surfaces subject to damp (channels, drainage manifolds and pipe-work) where good chemical resistance and high resistance to abrasion is required. LAMPOSILEX ultra-fast setting and curing hydraulic binder was used to stopping water leaks. While MAPECOAT I 24 epoxy resin coating was used to finish off the surfaces, an ideal protective and anti-acid coating product for concrete surfaces. The surface of some of the concrete elements in the Sentirbrücke (the bridge that connects the two tunnels) was deteriorated in certain areas. Work started by removing the deteriorated portions using high pressure water jets. The areas where the concrete had been removed were then repaired with MAPEGROUT THIXOTROPIC. MAPEGROUT THIXOTROPIC was also used to repair certain areas of the concrete of the carriageway on the bridge. Another solution proposed to repair and reconstruct the surface patches of the north and south-bound carriageways was to remove the deteriorated parts with high pressure water jets, saturate the substrate with water and apply MAPEGROUT SV and MAPEGROUT SV T controlled-shrinkage, thixotropic mortars, suitable for repairing concrete and fixing inspection shafts, manholes and highway dressing materials. MAPECURE E30 film-forming curing compound in water emulsion was used to protect fresh mortars due to short hardening time (traffic after 2 hours).

Technical Data

CityRing, Lucerne (Switzerland)
Period of Construction: 70's
Period of Intervention: 2011-2012
Intervention by Mapei: supplying products to repair the concrete, anchor metal elements, protect the concrete and to form an anti-acid coating in the tunnels and on the bridge
Client: ASTRA (Bundesamt für Strassen, Zofingen)
Works Direction: Inge City Luzern (Lobardi AG; Aegerter & AG)
Contractor: Arge CityRing Luzern
Mapei Distributor: Mobau Partner
Mapei Co-ordinators: Bernhard Bieri, Mapei Suisse SA (Switzerland)

Mapei Products

Concrete repair: Adesilex PG4, Eco Prim Grip, Lamposilex, Mapecoat I 24, Mapecure E30*, Mapecure SRA, Mapefill, Mapefinish, Mapegrout Gunite 300 AF, Mapegrout SV, Mapegrout SV T, Mapegrout Thixotropic, Planicrete, Planitop Fix*, Triblock Finish, Ultraplan Maxi.
 *These products are manufactured and distributed on the Swiss market by Mapei Suisse SA.

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



Eco Prim Grip

Multi-purpose, ready-to-use acrylic resin and inert silica based bonding promoter and primer, with extremely low emission level of volatile organic compounds (VOC).

Discover the world of Mapei: www.mapei.com

- Ready for use, quick and easy to apply by roller or flat brush
- Multi-purpose product: excellent bonding promoter for render applied on concrete and masonry substrates and for smoothing and levelling compounds and adhesives for ceramics applied on old internal ceramic and stone floors
- Completely harmless for floor layers: certified EMICODE EC1 by GEV, practically zero emission of volatile organic compounds



Our environmental commitment
More than 150 Mapei products help project designers and contractors building innovative projects, which are LEED (Leadership in Energy and Environmental Design) certified by the U.S. Green Building Council



/mapeispa



ADHESIVES • SEALANTS • CHEMICAL PRODUCTS FOR BUILDING



THE EXPERT'S OPINION

More than 20 years with Mapelastic: the Identikit of a Success

A product that has always been innovative and up to date, ideal for all waterproofing works from large site work to small restoration works

Even though MAPELASTIC is a high-performance product used for large site work, it is still well known to the general public. In fact, it has proved its efficiency in damp environments such as terraces, balconies and bathrooms, and from the 1990's until today it has had a strong following during its televised publicity campaigns, such as the one that went on air in 2006 during the show "Striscia la Notizia", a popular Italian satirical news programme featuring comical characters such as the big red "Gabibbo" and the "Veline" dancing showgirls. Various publicity campaigns in the Italian press have also been very successful, particularly the one two years later featuring a baby watering a dog on a terrace.

Waterproofing Works

From 1992 until today, MAPELASTIC has

waterproofed more than 300 million m² of surfaces all around the world. And in just a few words, this is what MAPELASTIC represents for the building industry. This two-component cementitious offering perfect waterproofing and protection against infiltration of water for terraces, balconies, bathrooms, bridges, viaducts, dams, underground structures, storage tanks, basins, swimming pools and external coatings. MAPELASTIC is used every day by thousands of professionals all around the world to the total satisfaction of end users. A long story that owes its success to its simple application and the undisputable reliability of the system. Without overlooking the safety of the product for those who apply it and for end users alike.

On Terraces and Balconies

Thanks to its high synthetic resins con-



on tv
2006

Several shots from the MAPELASTIC publicity campaign aired during "Striscia la Notizia" on Canale 5 in 2006, presented by the stars "Gabibbo" and the "Veline" dancers.

tent, MAPELASTIC guarantees protection that maintains its flexibility and impermeability to water. It has a plastic consistency which makes it easy to apply both manually and by spray, so helping reduce the time required to carry out work, and its finish is so good that it does not require any further treatment. When the two components of MAPELASTIC are mixed together, they form a free-flowing mix which is easy to apply in layers up to 2 mm thick, including on vertical surfaces. MAPELASTIC also forms a barrier against aggressive agents and has the capacity to protect

in the press

Some of the pages from the publicity campaign for MAPELASTIC which have appeared in newspapers from 1992 until today.

2009

Mapelastic
The waterproofer

The best-selling certified waterproofing system for over 18 years

- Developed for protecting major civil engineering projects
- Especially suitable for balconies, terraces, swimming pools, bathrooms, etc.
- Easy to apply
- Suitable for use over existing ceramic tiles
- Protective, long lasting and versatile

More than 160 million m² essentially waterproofed!

NEW!
Max. application
16 kg = 4 m²
Mixing bucket

NEW!
Max. application
32 kg = 8 m²
Mixing bucket

MAPEI

2010

Swimming pools for record-winning materials

Mapelastic

The certified waterproofing system most sold in the world.

Non-chlorinated flexible cementitious mortar for **protecting and waterproofing** concrete surfaces, balconies, terraces, bathrooms and swimming pools.

For 75 years we've been helping to build large and small dreams.

Discover the world of Mapel: www.mapel.com

MAPEI

2011

A splash of fun, without a sea of trouble.

Mapelastic AquaDefense

The easiest and fastest waterproofing system for interiors and exteriors.

The quick drying, ready-to-use, flexible liquid membrane, ideal for **practical and quick waterproofing** operations. It may be applied by roller, brush and trowel. Surfaces treated with the product can be back in use after just 1 day after applying.

Mapel. Our experience provides your solutions.

Let's take a deeper look together at: www.mapel.it

MAPEI

concrete structures from the aggressive action of CO₂ (carbonation) for more than 50 years, from sodium chloride, which is found in seawater for example, and from calcium chloride-based de-icing salts, often the cause of serious damage to structures made from even the highest quality materials. It is also resistant to UV rays and maintains its flexibility even at very low temperatures (-20 °C). The specific nature of MAPELASTIC is particularly well expressed when it is used to waterproof terraces and balconies, and protection can be obtained by applying just a thin layer (2 mm thick) without removing existing flooring, offering unquestionable advantages in terms of intervention times and the amount of demolished material that needs to be disposed of in landfill sites. What is more, new wall and floor coverings may be overlaid directly on the waterproofing membrane, which means that both the structure and the screed are protected and, over the years, efflorescence will not form between tiles. Its excellent adhesion, appropriate flexibility which remains stable over the years and its high impermeability make surfaces treated with MAPELASTIC much more durable. MAPELASTIC is also a system that includes products for a variety of uses, such as protection for large concrete structures and for underground applications. All the products in the MAPELASTIC family are described in detail on our website www.mapei.it.

Mapelastic

The most popular elastic cementitious waterproofing product for more than 20 years

Even though this product is suitable for large site work, MAPELASTIC is also well known by the general public for its performance in damp environments such as terraces, balconies and bathrooms.



Long-lasting waterproofing is guaranteed by MAPELASTIC which, thanks to its toughness and flexibility, ensures excellent performance even at very low temperatures (-20°C).



The formulation of MAPELASTIC is completely safe for users.



new publicity campaign

2013



TO THE LEFT AND ABOVE. A few images from the video showing how to apply MAPELASTIC on a terrace. The complete Mapei video is available for viewing on YouTube and can be reached directly by clicking on the QR patch alongside.





Around the World with Mapelastic

More than 300 million m² waterproofed, from Kuala Lumpur to Budapest

This well-known cementitious mortar has been used for more than twenty years to waterproof concrete structures, balconies, terraces, bathrooms and swimming pools. The following pages contain a highlight of some of the most important jobs amongst the thousands that have been carried out from 1992 up to today.



1998

Hotel Croce di Malta

• Jesolo Pineta • Italy

The terraces and the swimming pools protected with MAPELASTIC before installing ceramic tiles with ADESILEX P4 (Realtà Mapei edition No. 55).



1992

Gare Du Midi • Brussels • Belgium

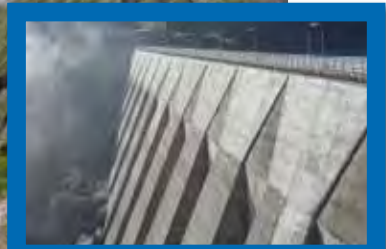
Waterproofing the substrates and installation of recomposed marble on the station platforms with GRANIRAPID (Realtà Mapei edition No. 27).



1996

Sabbioni Dam • Formazza Valley • Italy

Repair work and waterproofing of the concrete dam. Repair work was carried out using MAPEGROUT MS.



1997

Petronas Twin Towers

• Kuala Lumpur
• Malaysia

Bathrooms in the skyscrapers waterproofed prior to installation of mosaic using KERABOND+ISOLASTIC (Realtà Mapei International edition No. 37).



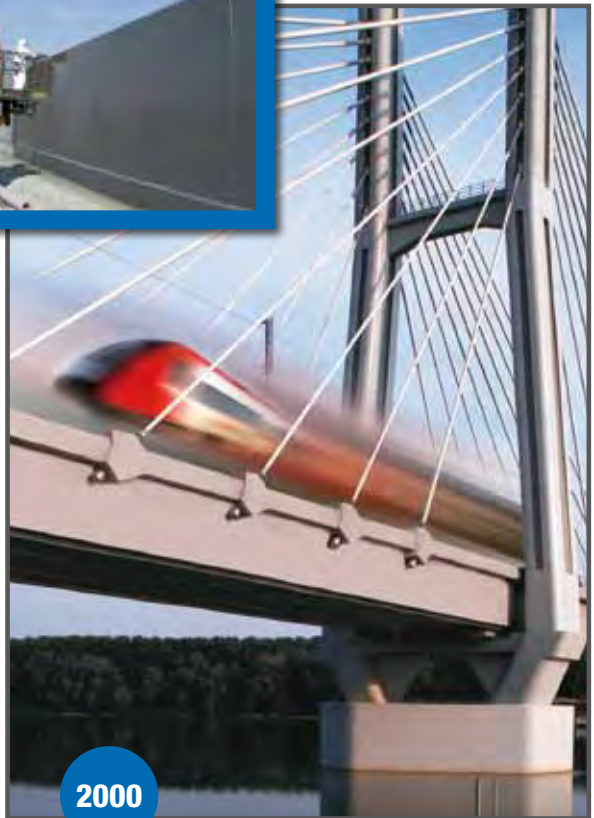
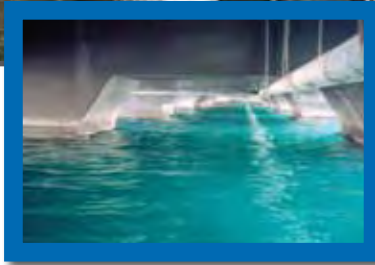
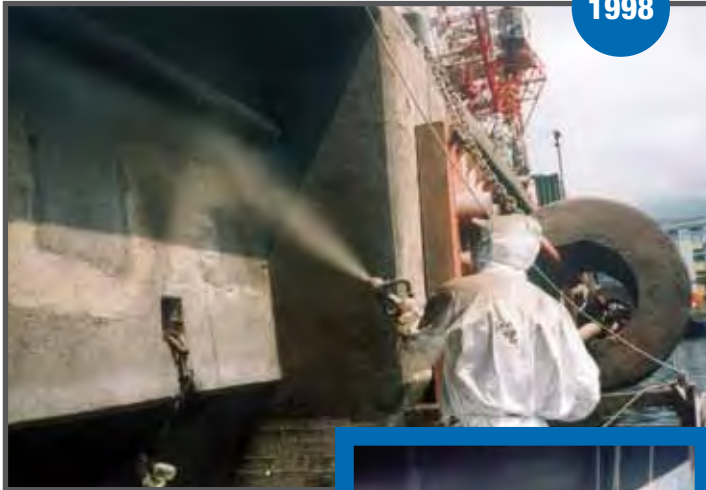
Fincantieri Shipyard

• Sestri Ponente • Italy

Concrete jetty: structure repaired with MAPEGROUT MS and waterproofed (Realtà Mapei edition No. 41).



1998

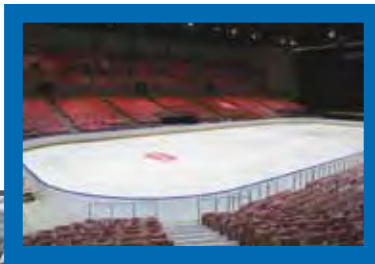


2000

High-Speed Rail Network

• Milan-Turin stretch • Italy

Construction and waterproofing of the concrete manholes in various viaducts. MAPEBAND TPE and ADESILEX PG4 were used to waterproof structural joints (Realtà Mapei edition No. 100).



2003

Budapest Arena

• Budapest • Hungary

All the bathrooms in this sports complex were waterproofed with Mapei products before installing ceramic floor and wall coverings with ADESILEX P9 (Realtà Mapei edition No. 65).



2004

Aqua Dome

• Längenfeld • Austria

Pools made watertight for many years thanks to Mapei. After the waterproofing work, ceramic tiles were installed in the pools and bathrooms with ADESILEX P9 (Realtà Mapei International edition No. 19).

Siusi Apartment Complex

• Milan • Italy

Waterproofing for the balconies and new flooring; porcelain tiles installed with ADESILEX P4 (Realtà Mapei edition No. 34).



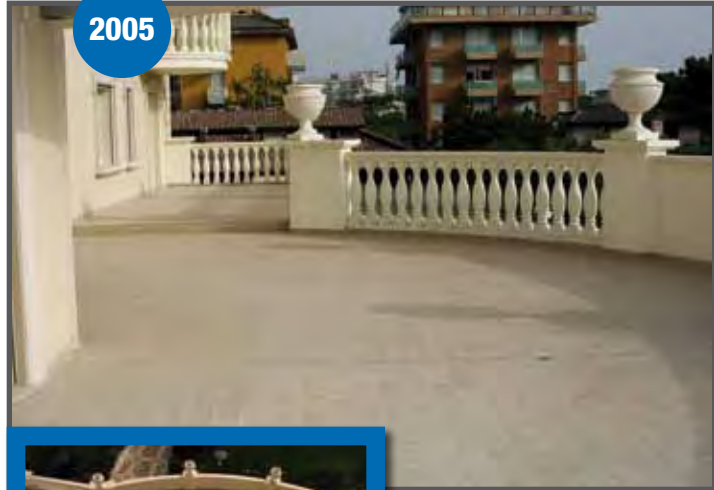
2004



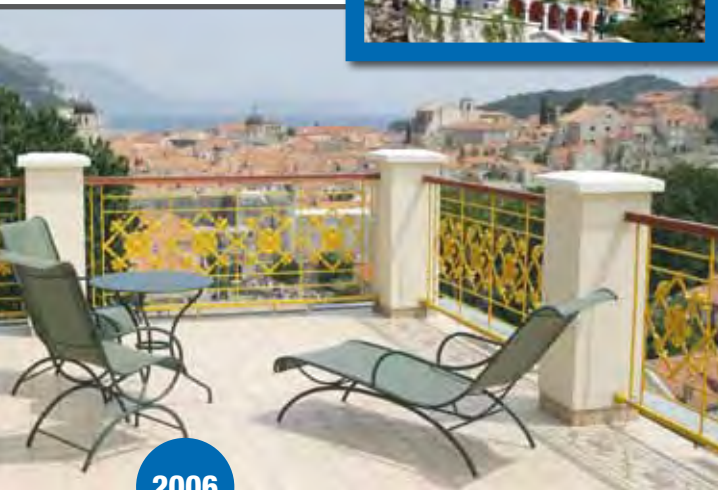
Hotel Palace

• Milano Marittima • Italy

Terraces and balconies rebuilt and waterproofed before installing porcelain tiles with KERAFLEX MAXI (Realtà Mapei edition No. 79).



2005



2006

Hotel Hilton

• Dubrovnik • Croatia

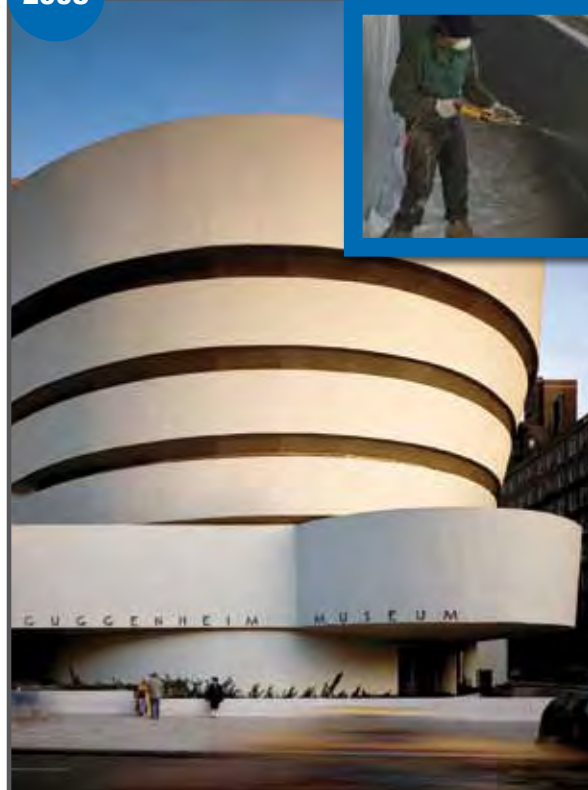
Terraces and swimming pools like new again thanks to a special waterproofing treatment. Ceramic tiles were then installed with KERAFLEX MAXI.

Guggenheim Museum

• New York • USA

An icon of modern architecture brought back to its original splendour thanks to MAPELASTIC. After the waterproofing treatment, the external concrete surfaces were protected with an elastomeric finish (Realtà Mapei International edition No. 27).

2008



Ferrari World

• Dubai • United Arab Emirates
Waterproofing and tiling for the swimming pools,
with porcelain tiles and mosaic installed using
KERABOND T and KERAFLEX MAXI (Realtà Mapei
International edition No. 35).

2009



2010

Marina Bay Sands Resort

• Singapore
Waterproofing and tiling for the bathrooms with porcelain
tiles installed using KERABOND and KERAFLEX.
(Realtà Mapei International edition No. 33).



2011

Mugello Circuit

• Florence • Italy
Repair work and waterproofing for the
concrete spectator stands: joints sealed
with MAPEFLEX PU 40.



2011

Malpensa 2000 Bridge

• Italy
Concrete viaduct repaired and waterproofed before
applying a protective finishing coat of ELASTOCOLOR
PAINT (Realtà Mapei International edition No. 38)





**Renewable
energy**

**Environmental
certifications**

Sustainability Scenes

In the three articles contained in this service:

- Alan Best explains the state of the art of environmental certification schemes
- Fiorella Rodio tells us about the Mapei approach
- We round up by focusing on the LEED calculator

I have worked in the field of environmental consultancy for many years and I think that I have developed a fair picture of the current sustainability scene. That is I have a fair picture of a somewhat baffling maze. There is an increasing demand by key government and corporate clients for products with verifiable green credentials. This demand is now a key market driver. How then is the industry responding to this demand? I will attempt to offer an aerial view of this hypothetical maze and perhaps point out the more obvious dead ends and some of the most promising of the paths forward.

Reduced atmospheric and environmental emissions



Recycling

Market Claims

It's easy for a company to boast about the characteristics of sustainability of its products; it's much more difficult to support these claims with transparent, credible measures. There is a plethora of "green-washing" claims that abound in some current promotional materials. By this I mean statements that have no basis in environmental science. A recent good example I came across is this phrase: "our carpet tiles are 100% ecological". What does this mean? Is this a product with zero negative environmental impacts? Let me list some of the things that

this claim should cover in order to meet the key sustainability agenda:

- The product shouldn't contain materials extracted from mines and oil wells or hazardous chemical substances
- It should manufacture using only renewable energy sources such as solar power or wind
- It should be 100% recyclable and designed and engineered so that post consumer waste is minimised and diverted from landfill to be continuously re-used to make new carpet tiles
- It shouldn't have no impact on climate change, the water used in manufacture should come from a completely closed loop recycled source and the manufacturing process should create zero emissions into the air or land

I believe the market is years away from seeing such a product. However it is important to note that significant strides are being made to reduce some, if not all, of these most important environmental impacts by a number of manufacturers. Phrases such as "100% ecological" offer no useful information and serve only to confuse and already cynical market. These phrases demonstrate only a poor grasp of the huge topic of sustainability by the marketing people. And there is certainly no lack of creative images in the promotion of sustainability. Forests, waterfalls and wildlife abound. The problem is with the words and language and measures and the lack of clarity in the message. This is not in my view a commercially sustainable marketing strategy.

Recycled or Recyclable?

Another potentially misleading path in the maze is the rush to claim "Recycled content". For many years now the key to claiming green credentials has been to include some recycled material in your product. Upon closer examination our product claiming to be "100% ecological" was in fact simply describing its impressive recycled content and potential for recycling at the end of its life. Recycling clearly helps the environment in many ways and the high recycled content is a key criterion towards achieving accreditation under important schemes. However recycling is only a small part of the sus-

tainability story and all recycled content claims are not alike. It is important that recycling claims are checked and verified against internationally agreed definitions if they are to be credible. There are two essential types of recycling and the procedures for both types must comply with ISO 14021 standards.

Pre-consumer Recycled Materials

This procedure involves reusing of post-industrial materials diverted from the waste stream during manufacturing process. It must exclude materials such as rework, regrind, broken or scrap generated in a process as this is reclaimed primarily to improve production cost and efficiencies and not to reduce the environmental impact.

Post-consumer Recycled Materials

The recycling procedure for this type of materials is more complex. For example, most carpet products are difficult to separate into recyclable parts. In some cases, the carpets are recycled to produce other products such as equestrian centre flooring and underlay. Significant strides are being made through these "down cycling" initiatives to divert some of the huge carpet volumes sent to landfill and reduce the consequent negative environmental impacts.

Carpet recycling UK has led the way here and "down cycling" now diverts around 16% and it is targeting 25% by 2015. While making a significant contribution to the sustainability agenda it should be noted that the down cycled products will eventually find their way to landfill of incineration. Other initiatives include using carpet waste as an energy source. The ultimate goal is however to continuously recover and "up cycle" this waste to produce new carpet products through the use of production processes such as waste nylon depolymerisation to produce new polymer and carpet fibre. This is being achieved to varying degrees by some manufacturers. This closed loop approach has the most potential for environmental improvements in manufacturing as well as eliminating the need for landfill and thus reducing the demands of finite raw materials, energy and water.



**INTERNATIONALLY
RECOGNISED
ENVIRONMENTAL
CERTIFICATION**

it provide comparable information about the environmental performance of products

GREENWASHING

is a generic term that has NO scientific grounds and leads only to further confusion in an already confused market



Green or Red Light for Flooring Products

For various compelling reasons governments and corporations are insisting on improved environmental performance from buildings and the products used in their construction and fit out. BREEAM (BRE Environmental Assessment Method), the English Code for Sustainable Homes (regulation for sustainable buildings), LEED (Leadership in Energy and Environmental Design) and the SKA ratings schemes require accurate information. The demand for reliable technical data to back up commercial offers is also growing. What then is the way ahead? Is regulation the right answer to these new needs?

Regulations and Certifications: is this the Right Path?

Flooring products come within the “European Construction Products Regulation 2011” and these require manufacturers across the EU to show sustainable use of natural resources. The regulations have advantages in terms of forcing people to act and thus making products selection easier, but the rules have to be workable. Given that environmental science is evolving rapidly and that building regulations are looked at only once every three years, they may even have been superseded by new market demands as soon as they

appear. In addition, although European Regulations and testing requirements are designed to set harmonised standards across the EU, this doesn't appear to stop an individual member country going its own way with a particular issue it isn't happy about. This has happened for example with potential harmful emissions from flooring products. Germany has set the bar much higher than the European standard for VOC's (Volatile Organic Compound), compared to the standards of other European countries, such as England, which also meets the BREEAM requirements. Germany insists on individual testing of products to its own standard regardless of any testing to EU standards and possession of the CE marking that a manufacturer has in place. This is now the subject of a court action with the EU Parliament deciding that such action is a barrier to trade. Probably the Germans will lose the case, but that the VOC standard will be set at the higher German level across Europe.

Environmental Product Declarations

A much more promising approach than regulation is the development across Europe of Environmental Product Declaration (EPD's). These are formal documents

that are produced to a standardised methodology under EN 15804. These will provide consistent data on the environmental impacts of construction products or systems throughout their life from raw material to manufacture, installation and use, demolition, waste and recycling phases - based on powerful Life Cycle Assessment (LCA) software tools. EPD's are primarily designed to allow specifiers to compare products and systems and to quantify their potential to damage the environment through impacts such as climate change, which have been agreed internationally under so called Product Category Rules (PCR). A major advantage is that EPD's offer a means to set target environmental impacts for whole buildings, based on the cumulative sum of EPD data. Unfortunately the EPD's currently available are difficult to comprehend - some run to over 100 pages - and are not therefore a particularly useful basis for comparisons even by experts.

Eco-label Certifications

Eco-label certifications are worth a separate mention. They provide independent confirmation of green credentials, they look at LCA and EPD data and match it to their own stringent criteria. Although these are voluntary labelling schemes,

GLOSSARY OF ECO-SUSTAINABLE TERMS

BLUE ANGEL (or Der Blaue Engel)

German certification system that has been awarded since 1978 to certify the low impact of products on the environment.

BREEAM (BRE Environmental Assessment Method)

assessment protocol that sets the standard for green building design of the highest quality.

DOWNCYCLING

a process that transforms waste material and used products into new materials or different products, usually of a lower quality.

EU ECOLABEL

European environmental certification mark for products and services established in 1992. The logo, symbolising a flower, is used to indicate products and services that have a low impact on the environment.

ECO-SUSTAINABILITY

when human activity regulates its practices according to concepts located within a framework of sustainable development.

EPD (Environmental Product Declarations)

a voluntary certification scheme to provide relevant, verified and comparable information about the environmental impact of a product or service.

GREENWASHING

the misappropriation of environmental integrity by a company, industry or organisation in order to create a positive image of their activities or products.

LCA (Life Cycle Assessment)

a method of analysis to assess the whole set of interactions that a product or service has with the environment by considering its entire life cycle, including pre-production (extraction and production of materials), production, distribution, use, recycling and final disposal.

LEED (Leadership in Energy and Environmental Design)

a certification system for buildings that indicates the requirements for constructing environmentally sustainable buildings.

NORDIC SWAN

mark used to certify the ecological qualities of a product in Scandinavian countries (Denmark, Finland, Iceland, Norway and Sweden).

PCR (Product Category Rules)

a set of specific calculation methods that have to be followed when preparing an EPD for a specific product. Following these methods allows the environmental declarations of similar products to be compared.

SUSTAINABLE DEVELOPMENT

a process that ties the exploitation of natural resources to economic, social and institutional perspectives so that the needs of present generations are met without compromising the ability of future generations to meet their own needs.

VOC (Volatile Organic Compound)

volatile organic compounds emitted in the form of gas from solid and liquid products. They include a large number of chemical substances, some of which can have a negative impact on our health.

which differ widely from each other, there are several well-established eco labels across Europe. Among them is the EU Ecolabel with the daisy logo, the Scandinavian ecolabel with Nordic Swan, and national labels such as the German Blue Angel and the Austrian Umweltzeichen. In summary, this is all very complex and it may be helpful to draw a comparison with food labelling, regulated for across Europe since 1979. The manufacturers were keen to extol the sometimes dubious health claims of their food we now have standard nutritional data on every item of packaged food that most customer are familiar with. That data is like the EPD for food. It gives information but doesn't interpret it for you so further assistance is necessary if you are to compare it and decide if it is healthy. The latest proposal is for a traffic light scheme which avoids the need for scientific understanding and conveys a simple message, as a red light. I suspect that in 10 years flooring will have something similar.

The two articles published here first appeared in the magazine Contract Flooring Journal (November 2012 and January 2013). The author of the articles is Alan Best, an English expert on environmental sustainability, whom we kindly thank.

Compatibility, Durability and Green Innovation

The Mapei approach to this subject is scientific and holistic thanks to our twenty-year experience in the development of eco-sustainable products

The technical approach that Mapei adopts when proposing interventions that may be defined as to the highest standard must be characterised by their compatibility and durability. Chemical, physical and mechanical compatibility with the substrate on which the intervention is carried out, that is, by taking into consideration the environment in which the work is located, is a constant reference point, starting from the initial Research & Development activities, to determine the characteristics of a product. Guaranteeing the performance compatibility of the entire system plays a fundamental part in the quality of the intervention as a whole and, therefore, the final durability of the intervention. Guaranteeing the long service life of a construction, be it a building or a structure, a new build or repair/renovation work, and correctly specifying the methods, techniques and innovative products right from the design phase, means making a concrete contribution to its durability.

This characteristic, typical of large public works and infrastructures, has now even become a design constraint for smaller interventions in the more widespread private building sector. Paying attention to durability means paying attention to building and maintenance costs which have to be evaluated very carefully, especially in times like these when the financial resources available are limited. Which is why durability has become a necessary condition for sustainability.

This concept deserves to be examined more closely to avoid running the risk of putting sustainability on the same level as a not clearly defined concept of environmental ethics, entrusted to the conscience and good will of the individual. We must also clear the field of slogans and publicity campaigns which, by evoking rustic images with a strong emotional impact, generate false illusions which have no connection to the technical and scientific rigour or professionalism of those who work in the construction sector.

If approached correctly, sustainability can guarantee profitable growth and create a veritable driving force to development, extremely important particularly in a period of global market crisis. An efficient simplification of sustainable development is represented by a "three-legged stool" made up of environmental, economic and social factors, which by coexisting and integrating with each other form and support the structure of the system.

It is the environmental, economic and social considerations, therefore, that guide our focus on sustainability, and that presuppose a change in mentality through a holistic approach in a context in which two fundamental concepts must always be borne in mind:

- 1) Cause less damage
 - 2) Repair whatever we damage
- while always evaluating the economic advantage. For the building industry, the translation of *sustainable development*

is green building, and it proposes to use fewer natural resources and virgin raw materials and limit the production of atmospheric emissions and solid and liquid waste.

The Green Building Council is one of the largest international associations in the world, and is proposing to translate the principles of sustainable development into the design and construction of buildings following the LEED protocol.

LEED (Leadership in Energy and Environmental Design) is a voluntary certification system based on Prerequisites and Credits that can be applied to both public and private buildings. To earn LEED certification, certain fundamental choices must be applied rationally from the design phase right up to final approval of the building, along the lines of Sustainable Development, and must involve all the actors in the process: client, designers, building companies, subcontractors and manufacturers of building materials. Mapei has always been a member of the Green Building Council in Italy and abroad. Specific documentation, a programme that can be consulted on our website and Mapei's squad of technicians are all available to help designers, building companies and those who work in the building sector to choose durable, eco-sustainable systems, with the skill and professionalism deriving from research work carried out in our laboratories and the experience gained by operating on sites all over the world.

Fiorella Rodio. Head of Mapei's Large Projects Division

**RECYCLED AND
ULTRA-LIGHTWEIGHT
MATERIALS**

**LOW EMISSION
OF VOC**

**ENERGY
SAVING
STRATEGIES**

**PRODUCTION
CLOSE TO
REFERENCE
MARKETS**





GREEN INNOVATION

Since as far back as 1980, Mapei has been investing in research into eco-sustainability

From design to product, from laboratory formulations to on-site application, never forgetting recycling and its impact on the environment. And never overlooking the effect on the health of installers and final users: a 360° commitment in favour of the sustainability of their products. This is Mapei, which invests around 60 million Euros in this sector every year. And that measures its results with concrete steps forward. Along the way, apart from guaranteeing low emissions of VOC (Volatile Organic Compounds) thanks to the Ecode quality mark and other valid international marks, Mapei products help designers create innovative LEED projects. Mapei products can contribute to the award of precious LEED points.

Among the **floor products**, our catalogue includes ULTRALITE S1 containing 30% recycled materials. And ULTRABOND ECO is a line of adhesives with very low emission of VOC. The innovative Low Dust technology that characterises the mortars KERAFLEX MAXI S1 and ULTRALITE S1 help **reduce dust levels** a valid contribution to meet LEED requirements regarding the quality of indoor air. Not to mention the MAPETHERM **thermal cladding** system which, by isolating buildings from the heat and the cold, leads to savings in both energy consumption and costs.

To help technicians calculate LEED points Mapei has developed a dedicated software programme, an easy-to-use calculator you can find on our website www.mapei.com.



GREEN INNOVATION



55th European Ufemat Congress

Quality in products and services: the way forward in a challenging market

This year it was Austria's turn to host the traditional annual Ufemat (European Association of National Builders' Merchants Associations and Manufacturers) Congress, held in Vienna from the 27th to the 29th of June, with representatives from eighteen European countries: Italy, Bulgaria, Germany, France, Hungary, Ireland, Luxembourg, Switzerland, Belgium, Denmark, Holland, Portugal, Slovakia, Sweden, Great Britain, Poland,

Spain and, of course, Austria. Mapei, which has always been a close ally of builders' merchants, is a main sponsor of Ufemat and, every year, supports this annual event which sees it working alongside builders' merchants so that, together, they can successfully face up to the challenges set by the global market and strengthen the bond and synergy between industry and the distribution network.

After the Congress held in 2001, this is the second time that Austria has welcomed this event which, just like the first one, was organised by Leonhard Helbich-Poschacher, Chairman of the Federation of Austrian Builders' Merchants. After the meeting between the Chairmen and Directors of the National Federations held at the Intercontinental Wien Hotel (where the entire event was held) on Thursday the 27th of June, the congress itself was



ON THE LEFT. The General Secretary of Ufemat, Marnix Van Hoe and the Chairman of Ufemat Giuseppe Freri.

ON THE OPPOSITE PAGE. Some photos of the Congress, held in Vienna from the 27th to the 29th of June.

held the following day with the theme of "Quality in products & services - The way forward in a challenging market".

The same theme had also been discussed and developed during previous editions, and a decisive resolution was passed during this particular one regarding the coming into force on the 1st of July 2013 of the new European Regulation on building products (CPR, see the following article). In fact, the General Assembly of Ufemat unanimously approved a document which urges the European Commission to introduce a transition period, to be applied up until the Delegated Act is adopted, before they start applying sanctions for non-conformities.

Times Are Changing

During his opening speech the acting Chairman of Ufemat (and also of Feder-

difficult road ahead of it, and a lot of creativity will be required. The CPR offers us the chance to demonstrate our professionalism and it can be used to sell even more and better. I have noticed, however, that there are a number of different interpretations.

And this is exactly why Ufemat has intervened: we have raised the question in the European Parliament and we have prepared a summary document».

CPR: Opportunity or Threat?

Tappani Mikkeli (MEP and Head of Construction Unit) said that the CPR is not a revolution but an evolution: «Anyone who takes pride in what they do», he added «Already works along these lines and it is an opportunity: the CPR is a trademark and it is up to us to make it work. The idea behind this new norm is to impose



comated, the Federation of Italian Cement, Brick and Building Materials Merchants), Giuseppe Freri, underlined how the Association must gather its strength even more and use the intense activities that the Italian Federation carries out as an example. «Ufemat», said Giuseppe Freri, «Must act as a platform, and the cracks that still need to be repaired must be repaired by using cooperation and communication even more».

«In difficult time such as these, "prices" must not be our only objective», continued Freri, «And this conference must be a history-maker. In fact, with the introduction of CPR we have chosen the right path, but there are still a lot of problems and questions that need to be addressed».

«Our sector», declared the General Secretary of Ufemat, Marnix Van Hoe, «Has a

the same rules for all professional activities and, in so doing, prevent fraud».

The important thing to bear in mind is the purpose of these measures, and that their aim is to guarantee the traceability of materials; to strive, therefore, for quality materials, and welcome the new Regulation as an opportunity for the various players in the building sector to be more responsible, and not see it as yet more red tape.

Apart from the professional issues discussed, this 55th Congress has allowed us once again to strengthen the bond of friendship between all the delegates of the European Federations. It was a meeting characterised its high ethical approach to promote the creation of the Europe of tomorrow. It will be Spain's turn next year to host the 56th Ufemat Congress.

FOURTH UFEMAT AWARD

Since the jury reached an ex aequo, two Ufemat Awards/ Artworks by ceramic artist Rik Delrue were given this year:

- Ryszard Florek (CEO Fakro, on the right) as an appreciation of the members for Florek's personality and the company Fakro
- Dr. Leonhard Helbich-Poschacher (pres. Austrian Federation) for his commitment of many years in Ufemat, especially during his presidency (2001-2003).



European Construction Products Regulation (CPR 305/2011)

On 1 July, the legal regulation entered into force, with the CE marking and related documents (DoP)

Without wasting time in updating their packaging and technical data sheets, **Mapei is in line with the new norms of the European Construction Products Regulation (CPR 305/2011) that is coming into force.** On our website at www.mapei.it you can download the DoP (Declaration of Performance) for the various products, while CD's containing the DoP's will be available upon request. The new tools are valid in Italy and the whole of Europe, and their timing and implementation vary from Country to Country.



What Will Change?

From 1 July 2013, the Construction Products Regulation (CPR 305/2011) will replace the previous Construction Products Directive (CPD 89/106) on the packaging and redefine the obligations of manufacturers, distributors and importers regarding the application of **CE marking**, that highlights the performance characteristics of cementitious products (Fig. 1). The most significant change is, without a doubt, the introduction of a mandatory "Declaration of Performance" (DoP) instead of the current "Declaration of Conformity". For each product with CE marking, manufacturers will be obliged to issue a DoP that indicates, as well as all other relevant information, the declared performance characteristics of the product with reference to their relative harmonised technical specification (harmonised European standard or ETA). **The main aim of the DoP is to enable clients and users to compare the various products available on the market on the basis of a series of common, well-defined, measurable elements, so that they may then identify which product is the most suitable for their specific requirements** (Fig. 2).

Art. 7.1 of the CPR requires that "Each product placed on the market will have to be accompanied by its DoP, either as a hard copy or electronically on a suitable support media". Since some of the points are still under discussion at the European Commission and there are no clear guidelines, at the moment the course of action is to include the DoP with the first consignment of a product, and then each time the product or reference standard is modified and, as a result, the product's DoP or relative CE marking require updating.

Paper? No Thanks

In order to meet these requirements and avoid the obvious difficulties of having to manage a paper-based system, which would also be a

 1305, 0767	 Via Cafiero, 22 – 20158 Milano (Italy) www.mapei.it
09 CPR-IT1/0210 EN 1504-2:2004 MAPELASTIC <i>Coating for intended use in concrete surface protection by protection against ingress; moisture control and increasing resistivity methods</i>	
Permeability to CO ₂ : Water vapour permeability: Capillary absorption and permeability to water: Thermal compatibility: - Freeze-Thaw cycling: - Thunder Shower: Adhesion strength by pull-off test: Reaction to fire: Dangerous substances:	$s_D > 50$ m Class I $< 0,1 \text{ kg} \cdot \text{m}^{-2} \cdot \text{h}^{0,5}$ $\geq 0,8 \text{ N/mm}^2$ $\geq 0,8 \text{ N/mm}^2$ $\geq 0,8 \text{ N/mm}^2$ Class C-s1,d0 see SDS

1


2

Declaration of performance: No. **CPR-IT1/0210**

- Unique identification code of the product-type: **MAPELASTIC**
- Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4) of the CPR
SURFACE PROTECTION TWO-COMPONENT PRODUCT-COATING
- Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:
Coating for intended use in concrete surface protection by protection against ingress; moisture control and increasing resistivity methods
- Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5): **MAPEI S.p.A. – Via Cafiero, 22 – Milano (Italy) www.mapei.it**
- Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2): **Not applicable**
- System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:
**System 2+
System 3 for reaction to fire**
- In case of the declaration of performance concerning a construction product covered by a harmonised standard:
**The notified body ICMO S.p.A., No. 1305, performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, under system 2+, and issued the certificates of conformity of the factory production control No. 1305-CPD-0615, 1305-CPD-0616 and 1305-CPD-0852.
The notified testing laboratory MPA Dresden GmbH, No. 0767, performed the determination of the class of reaction to fire on samples taken by the manufacturer, under system 3, and issued the report No. 2009-B-0141/04.**
- In the case the declaration of performance concerning a construction product for which a European Technical assessment has been issued: **Not applicable**
- Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Permeability to CO ₂ ; Water vapour permeability; Capillary absorption and permeability to water;	$s_D > 50$ m Class I $< 0,1 \text{ kg} \cdot \text{m}^{-2} \cdot \text{h}^{0,5}$	EN 1504-2:2004
Thermal compatibility: - Freeze-Thaw cycling: - Thunder shower: Adhesion strength by pull-off test: Reaction to fire: Dangerous substances:	$\geq 0,8 \text{ N/mm}^2$ $\geq 0,8 \text{ N/mm}^2$ $\geq 0,8 \text{ N/mm}^2$ Class C-s1,d0 see SDS	
- The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.
 Signed for and on behalf of the manufacturer by: **Paolo Murelli – Corporate Quality Manager**
 (name and function)

Milan, 01/07/2013
 (place and date of issue)


 (signature)

waste of natural resources, Mapei will make the entire collection of DoP's available to their clients electronically by distributing a CD and via a download by simply clicking on the link www.mapei.com/dop/it-it (for the Italian versions) and on www.mapei.com/dop/it-en (for the English versions). Since there will be products available on the market for a certain period with both the updated CE marking and the previous CE marking on the packaging, our DoP's will include an example of the new marking that will shortly be printed on the packaging.

Which Yes and Which Not

We would like to take advantage of this occasion to clarify that, since the harmonised standards themselves have not been modified, there is no change to the types of product that carry the marking: today, that means around 400 of the more than 1,400 products available in the Mapei catalogue. Widely used construction products such as grouts for ceramic tiles, adhesives for resilient and parquet flooring, curing agents for concrete, etc. are NOT currently subject to mandatory CE marking and for these, therefore, it is not possible to issue their relative DoP. If you encounter problems with the link, please contact ce.dop@mapei.it; while for any other query please get in touch, as per usual, with our commercial network.

FIGURE 1. The new CE marking with the mandatory performance characteristics printed on the packaging.

FIGURE 2. An example of a DoP available for download from our website www.mapei.it



Trade Fairs in the World

Batibouw, Construmat and Construma: three events at which Mapei took part this year too, and with great success



Batibouw Brussels - Belgium

21st of February - 3rd March

The overriding themes at this trade fair were “the return to the city”, with the renovation and reconstruction of buildings, and “renewable energy”, with the accent on energy savings. This year too, Batibouw turned out to be the most important date on the construction calendar, with two days dedicated to professionals from this sector: Thursday the 21st and Friday the 22nd, with a high turnout of designers, architects and building companies. Mapei, through their Belgian subsidiary Mapei Benelux, took part at the event with a 160 m² stand to highlight all their lines of product through a series of practical demonstrations. From waterproofing to grouting ceramic and mosaics with KERAPOXY CQ and ULTRACOAT to the recovery of concrete.



Construma Budapest - Hungary

10th - 14th April

This is the most important exhibition for the construction sector in Hungary. Mapei, through their Hungarian subsidiary Mapei Kft, also took part by proposing solutions for floor layers and designers. Amongst the products on show: MAPEFIX product family of chemical fasteners and anchoring; KERAPOXY CQ, anti-acid epoxy grout; ULTRALITE S2, adhesive for the application of big format tiles; MAPELASTIC AQUADEFENSE, liquid membrane for waterproofing; MAPESONIC CR, soundproofing solution in thin thickness with low emission of VOC; and ULTRABOND MS RAPID adhesive for bonding a wide range of materials which makes fixing easy and fast.



Construmat Barcelona - Spain

21st - 24th May

630 exhibitors, 1,300 companies from 35 different countries and 120,000 sector professionals. These are the figures that summarise the 2013 edition of Construmat, the Spanish international construction trade fair. Mapei was also present through their subsidiary Ibermapei. Environment-friendly systems and new constructive solutions were the stars on the stand, including RE-CON ZERO and MAPEWRAP EQ SYSTEM. RE-CON ZERO is a two-component powdered product used to recover all returned concrete with Zero impact on the environment and Zero investment for mixing plants. MAPEWRAP EQ SYSTEM is an innovative system that is presented in the form of wallpaper and allows people more time to evacuate a building in the event of an earthquake. It is easy and safe to install both indoors and outdoors and adheres perfectly, even on mortared substrates. MAPEWRAP EQ SYSTEM is the only anti-seismic system with EMICODE EC1 PLUS certification.

SAVE THE DATES

Mapei will be there this year too at Cersaie, Marmomacc, MadeExpo, Saie and Expo Tunnel. Visit our stands to find out more about the most innovative systems for the building industry!



CERSAIE

Bologna, 23rd-27th September
Gallery 25-26

Free-of-charge entrance to trade fairs



MARMOMACC
48th International Trade Fair for Stone Design and Technology

Verona, 25th-28th September
Pavilion 7, stand E2



MADEexpo

Milan, 2nd-5th October
Site Construction Pavilion

FOLLOW THESE STEPS TO REGISTER AND GET FREE TICKETS FOR CERSAIE,MADEEXPO AND SAIE (below you see the case of Cersaie)



SAIE 2013
BUILDING INNOVATION EXHIBITION

Bologna, 16th-19th October
Gallery 25-26



EXPO Tunnel

Bologna, 17th-19th October
Pavilion 19, stand B77-83

- 1 visit www.mapei.it
- 2 click on the banner of the trade fair
- 3 fill the on-line form
- 4 you will receive a confirmation email
- 5 print the email and show it at the entrance gates of the fairground, without going to the ticket counter



www.mapei.it

Mapelastic

The most popular elastic cementitious waterproofing product for more than 20 years



Why choosing Mapelastic

- It is a safe, proven, durable system that has been used to waterproof more than 300 million square metres
- It offers permanent flexibility in all atmospheric conditions, particularly at low temperatures
- It may be applied on both new screeds and existing flooring without removing tiles
- It is certified according to the most severe international standards

more info



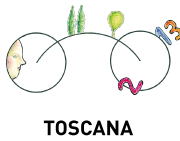
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/mapeispa

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





UCI ROAD WORLD CHAMPIONSHIPS TOSCANA 2013 | ITALY



TOSCANA 2013

22-29 September



UCI MAIN EVENT PARTNER

