INTERNATIONAL

REALTÁ MAPEI

Year XII - No. 31 - June 2010

31

Realtà Mapei hits the hundred mark

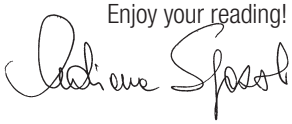
Adriana Spazzoli
Realtà Mapei's
Editor-in-chief.

Just as *Realtà Mapei International*, the Mapei Group's house-organ published in English has reached issue number no. 31, its "predecessor" in Italian language, *Realtà Mapei*, has reached issue number 100. When the first issue was published in 1989 – quite some time after issue no. 0 - we were not at all certain we would reach this landmark. We were well aware that, as the Company grew, Mapei needed some kind of means of communication to provide the outside world with news and information about what the Company was really like, tracing the changes it underwent and following its rapid development. Not some advertising channel but an authentic newspaper, bursting with contents and set out in different sections (news, standards, trade fairs, projects, research etc.).
The name of the magazine was chosen to really express what takes place at Mapei, deliberately focusing on the concrete substance of "doing things". The Italian word "realtà" actually means "facts, reality" but at the same time encloses the meaning of "situation, world".
So *Realtà Mapei* is a magazine about current affairs, technology and culture - designed to talk about real events, innovative products, projects carried out, the views of expert technicians and, at the same time, to provide readers with a clear understanding of the guidelines the Company follows and spirit in which it is constantly developing. Twenty-one years have gone by since *Realtà Mapei* was first set up, and the magazine has developed in tune with how both the surrounding world and, of course, the Company have progressed. Visible growth both in terms of the increasing number of pages in the magazine down the years - the first issue had just 20 - and, above all, from a quality viewpoint.
Realtà Mapei now presents a wide range of different topics and reaches every imaginable category of professionals and other operators in the building industry: architects, engineers, surveyors, businesses, installers, manufacturers and distributors of building materials, building managers, associations, institutes, specialist press, banks, institutions etc. It reaches them and is reached by them: our readers get actively involved by sharing their comments and own experiences.

Lots of Topics, a Big Network

Realtà Mapei has changed, grown and transformed into a magazine which faithfully mirrors the Company's process of internationalization. In addition to the Italian version, a quarterly version published in English was added in 1996 - *Realtà Mapei International* - printed in 50,000 copies and distributed worldwide. But that is not all. *Realtà Mapei* has taken off from Italy, where it was first created, and has "multiplied". There are now 15 different local versions of *Realtà Mapei*, distributed in Austria, Canada, Croatia, United Arab Emirates, France, Germany, Great Britain, China, Poland, Portugal, Czech Republic, Russia, Serbia, Slovenia, Spain, United States of America, Switzerland, Ukraine and Hungary (both *Realtà Mapei* and its local versions are available from the website www.mapei.com). While following the guidelines set by the "mother magazine" in Italy, these magazines, which are coordinated from Italy but managed independently by the Mapei Group's various subsidiaries, each have their own specific graphic identity and own stories to tell about the "state of Mapei" in the country in which they are published. This is based on the Mapei rule of internationalization while paying special attention to local market demands. New technology is also an integral part of the development of *Realtà Mapei*. Every issue of *Realtà Mapei* and *Realtà Mapei International* published so far can be consulted and downloaded from the Company website, www.mapei.it, and all the articles from the various issues on different specific topics can be read online. This demonstrates a real determination to grow, evolve and share both human and professional relations. In actual fact, *Realtà Mapei*, which I have had the honour and ambition to edit right from issue no. 0, is the result of partnerships with such important old acquaintances as Barbara Mennuni, our graphic designer, Roberto Airoldi, our printer with his team from Arti Grafiche Beta, and Overscan agency for colour separations and layouts. Right down to such present-day contributors as the journalists Tiziano Tiziani and Federica and Barbara Tomasi, who followed in the footsteps of Barbara Gerosa, Alberto and Giancarlo Mazzuca and Rosanna Brambilla, who now hold important positions in the publishing and media world. And, in addition to these outside professionals, it is worth mentioning the contribution of numerous other in-house assistants, such as our first publishing secretary, Carla Fini, who now deals with other company business, Metella Iaconello, who coordinates *Realtà Mapei International*, Davide Acampora for photo coordination, and a new arrival, Federica Pozzi, as well as all the Mapei technicians, who send useful information to building operators, and the translators Martyn Anderson and Nicholas John Bartram. We already have 131 issues behind us but still feel a very strong desire to talk in our own style about our everyday working life in the Company. We are ready to make even greater steps forward. This is required by the way the Company, indeed the Group, is continuing to grow, and it is also expected by all our numerous readers, who are a key part of the success we have achieved. So we would like to thank you all and ideally embrace every member of the big Mapei Family, who all follow us so attentively and affectionately.

Enjoy your reading!



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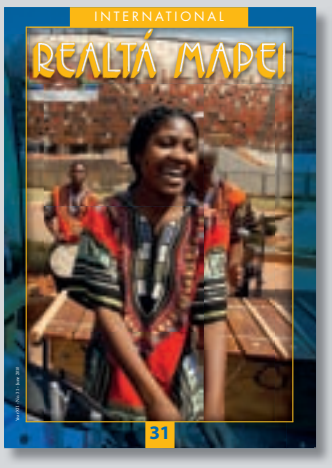

COVER STORY:
The next FIFA World Cup Championships are taking place in South Africa from 11th June to 11th July, 2010. Mapei contributed to the restoration of the Soccer City Stadium in Johannesburg which is hosting several matches. In the next issue of *Realtà Mapei International* we will fully describe the sport event and Mapei's contribution, as well as the Company's presence in South Africa.

EDITOR IN CHIEF
Adriana Spazzoli

EDITORIAL CONTRIBUTORS AND ENGLISH TRANSLATION:
Tiziano Tiziani, Federica Tomasi, Metella Iaconello, Martyn Anderson, Nicholas John Bartram

PRODUCTION AND EDITORIAL COORDINATOR
Metella Iaconello

GRAPHIC DESIGNER:
Studio Magazine - Milan (Italy)

PRINTED BY
Arti Grafiche Beta - Milan

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

PRESIDENT & CEO
Giorgio Squinzi

OPERATIONAL MARKETING DIRECTOR
Adriana Spazzoli

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CREDITS
Arscolor, Aquaworld Hotel és Elményfürd Zrt, BiciSport, Cassa di Risparmio di Venezia, Sándor Bányai, Luigi Benati, Roberto Bettini, Sara Clerici, Commission of Italy for World Expo Shanghai 2010, Confindustria Ceramica, Gianni Dal Magro, ©2009 DUG, Sergio Fortuna, Fotoreporter Sirotti, Clara Longinotti, Mapei China, Mapei Construction Materials (Guangzhou) Co Ltd, Mapei Construction Materials (Shanghai) Co Ltd, Mapei Corp., Mapei France, Mapei GmbH (Germany), Mapei Hellas, Mapei Inc., Mapei Kft., Mapei Romania, Mapei Sport, Mapei Suisse, Giuseppe Mancini, Andrea Sarti/CAST1466, Solomon R. Guggenheim Foundation, TuttoBici, Vinavil Spa, Graziano Sezzi, Ufemat, Miro Zagnoli.

The numbers do not lie

by Giorgio Squinzi

Giorgio Squinzi, CEO of the Mapei Group.

While *Realtà Mapei International*, the Mapei Group's house-organ published in English, has reached issue number no. 31, its "predecessor", *Realtà Mapei*, has reached a round number: issue number 100. When dealing with figures like these it is hard to resist the temptation to look at oneself in the mirror and say we have made it.

We are entitled to look ourselves in the eye with a certain amount of satisfaction for the work we have done, for the magazine and the entire Company.

One hundred is a nice round figure, but numbers like 56 factories spread across 5 continents all over the world, almost 7000 staff employed either directly or indirectly, a turnover which exceeded 1.7 billion in 2009, over 80 million invested in Research & Development..... yes, Mapei can boast some fine figures.

Even during an extremely tricky period for the international economy as a whole and within Italy's own system, which, as we all know, does not exactly help companies to grow as they are faced with the same old problems on a day-to-day basis, such as all the truly intricate bureaucracy, a real lack of infrastructures and extremely high energy costs.

Even on the market abroad, particularly over recent times, things are not going well for Italian companies, although there are a few minor signs of recovery.

Nowadays, two thirds of our manufacturing capacity as a Group is directed abroad. The downturn in the North American market has really affected us badly, and we are only now just beginning to see a slight recovery in consumption in that area. But, again as a Group, we have managed to focus our attention towards areas which have been less significantly affected by the crisis, we are thinking about Canada, which has been very successful at exploiting a nationwide propensity towards investments in R&D, so becoming a country capable of exporting high technology.

And, just to give another example, we might also refer to the Asia-Pacific area, which has shown a very positive trend in 2009.

So what can companies do in order to survive? They need to focus on the "grey matter" of business people. That is what high-level Italian and international manufacturing is based on: the ability to innovate, produce quality and develop research.

The most successful companies are those which are brave enough to try and play in attack rather than defence, driven by what on other occasions we have described as a real "obsession to grow", as was the case in the 1950s and 1960s in Italy. And Mapei is brave and consistent. But blowing our own trumpet is not our style.

Reaching issue number 100 of *Realtà Mapei*, number 31 of *Realtà Mapei International* and every other target we set ought to be an opportunity to take stock, keep our feet on the ground and ask ourselves what has been successful so that we know

The sales of all the companies belonging to Mapei Group over the first quarter of 2010 actually increased by 8.8%.

1.7 Billion Euros total turnover in 2009

56 Manufacturing plants worldwide

More than **1300** Products
Adhesives • Sealants •
Chemical products for Building

6100 Employees
of which 730 in Mapei Research & Development laboratories

More than **18000** Tons of products shipped each day

More than **50000** Customers worldwide

what action to take in future.
We have already said this several times, but it is worth mentioning it again: the three columns on which our corporate philosophy is built are specialization in our specific market niches (i.e. chemicals for the building industry), internationalization and Research & Development. We know how to make the most of our potential on an ongoing and significant basis, by means of new manufacturing plants in countries we have not yet explored and in countries where we already operate.
Our commitment to R&D is constant, we invest over 6% of our annual turnover in this specific field and a total of 730 people work for Mapei at its research centres located all over the world.

Taking advantage of these columns we continue to grow: last year was a terrible year for the world economy in general and yet, based on the same basic benchmark, the Mapei Group only recorded a drop of -2%, which is a good result, particularly bearing in mind that the average figure for the chemicals industry for building was around -10% (the average figure for our international competitors). Consolidating the acquisitions made during the latter part of 2008 and in 2009, the Group is actually closing with a figure of +5%, which, at the present moment, is certainly a positive result.
Taking into account the most recent figures, we can point to a notable increase in turnover during the month of March.

The Mapei Group's consolidated turnover, which includes all the Mapei companies' sales worldwide, increased considerably during the month of March: 14.1%. The sales of all the companies belonging to our Group over the first quarter of 2010 actually increased by 8.8%.
As can be seen, we are capable of doing our job extremely well: we focus on our business and internationalization, and constant commitment to Research & Development allows us to introduce new product ranges and to constantly push in the right direction.
Doing well means focusing on excellence and quality. This is the strength of Italian manufacturing and, most significantly, the great strength of products "made in Mapei". RM

EXPO SHANGHAI 2010

The innovative Italian Pavilion and Pavilions for Australia, Belgium and Saudi Arabia were constructed using Mapei products

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Shanghai World Expo officially began on 1st May, an event on a grand scale which the Chinese authorities were very keen to organize, in order to show the entire world how modernized China is and its increasing importance on the international scene.
During the six months over which it takes place, Shanghai Expo covering an area of 6 km² will welcome approximately 70 milion visitors and over 260 exhibitors from various different nations, international organizations and ordinary visitors in the Pudong neighbourhood, where all the most striking skyscrapers in the city and entire nation are located. China and the various countries taking part certainly have not tightened their purse strings for this event and have allowed architects, designers and set designers free reign to design some of the most original-looking pavilions using the most innovative and at times unusual materials.

Record-breaking Italy

These include the Italian Pavilion, whose 3600 m² of exhibition space rising up to a height of 18 m is one of the biggest at the Expo. The idea is to show off Italian creativity and expertise inside a facility designed by the architect Giampaolo Imbrighi, capable of reconciling innovative materials with the spirit of Italian urban tradition. The Pavilion theme is in fact "The City of Man" and neatly embodies the Expo's slogan "Better City, Better Life". The idea is to emphasize Italy's interest in safeguarding its

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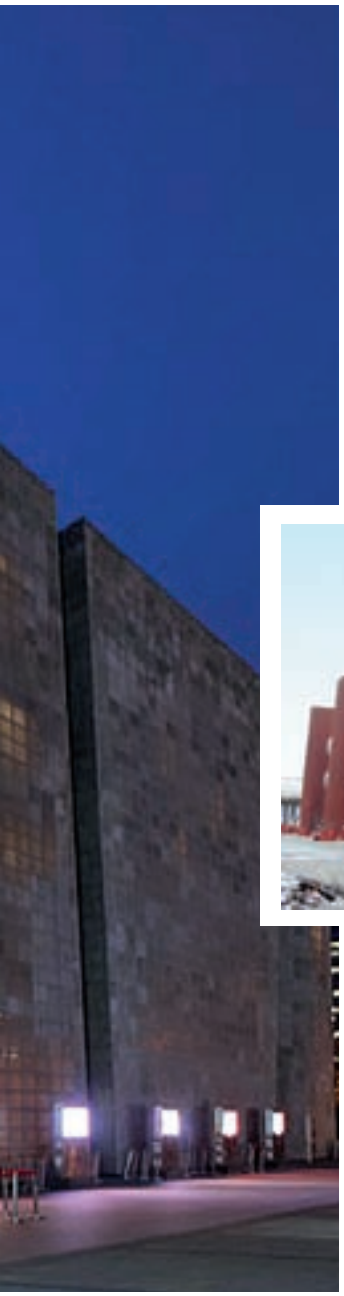

THE FACTS AND FIGURES INVOLVED IN SHANGHAI EXPO 2010

- **5.28 km²** of exhibition area
- **70 million** visitors expected
- **260 participants** from the various international countries (191) and organizations taking part
- **242 pavilions**
- **100,000 volunteers** recruited to survey the exhibition area
- Overall investments of **5 billion Euros** for infrastructural projects and other ancillary works in the exhibition area alone
- Chinese investors expecte to make net profits of **1 billion Euros**
- **11 billion Euros** invested in constructing infrastructural links (roads, underground lines, bridges, tunnels etc.)
- **8 billion Euros** spent in 2007 on 58 major infrastructural projects and urbanization works in the metropolitan borough of Shanghai
- **6 new underground railway lines** opened over three years
- **300 newly opened hotel facilities**
- **400 hotel facilities modernised** specially for the event
- the three-storey Italian Pavilion takes up a space of **6000 m³**

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Photo 1. *The Italian Pavilion is one of the biggest at the Expo and was built with Mapei products.*
Photo 2. *The ribbon-cutting ceremony at the official opening of the Italian Pavilion; the photo shows the Italian Government's General Commissioner for the Shanghai Expo, Beniamino Quintieri, the Italian Minister for the Environment, Land and Sea, Stefania Prestigiacomo, and the Italian Ambassador in China, Riccardo Sessa.*
Photos 3, 4 and 5. *Mapei products for installing ceramics and natural stones and for waterproofing the surfaces of balconies, restrooms and kitchens were also used for the Australian, Belgian and Saudi Arabian Pavilions.*

cultural heritage on one hand and the environment on the other, simultaneously bringing them in line with the latest in modern technology.
The Pavilion also casts an eye towards Chinese culture encompassing some of its symbols: viewed from above the intersecting lines on its top surface (and which actually separate 20 modules representing Italy's 20 regions) call to mind a popular Chinese game called "Shanghai" in Italy (pickup sticks in English), also evoking the network of small alleys and intricate streets characterizing so many Chinese and Italian cities.
The results comes up to expectations: as Davide Rampello, President of the Milan Design Triennial who helped put together the permanent exhibition on the ground floor, has pointed out: "the wonderful thing about the Italian Pavilion is the way it reconstructs a multi-sensorial journey showing just what can be achieved nowadays". For further information about Italy's involvement in this event, please consult the website www.expo2010italygov.it.

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China, Italy, Australia, Belgium, Saudi Arabia... Mapei is there

Due to its ability to combine technological expertise, love of culture (Italian and Chinese) and respect for the environment, Mapei has been chosen along with other Italian companies to provide a notable contribution to the construction of this Pavilion. As the official supplier of the Commission of Italy for Expo 2010, the Company has supplied products for constructing screeds, smoothing and waterproofing substrates, finishing walls and installing ceramic floors etc. Thanks to its well-established operations in China, where the Company has various offices and two manufacturing plants (see the box at the end of this article), Mapei has been able to take part in the construction of what, at such an important event on the international scene, is the ultimate showcase for both Italian products and companies and the "Italian system" overall.

Mapei's involvement in the Shanghai Expo is part of the Company's decision to take part in major international events (including those in China), such as the Olympic Games held in Beijing in 2008 for which Mapei supplied its own range of products for constructing the swimming pools, athletics tracks and indoor and outdoor sports facilities.

Alongside the Company's involvement as an official supplier of materials for the Italian Pavilion, various Mapei products have been used for constructing the various pavilions for Australia (Mapei adhesives and grouts for joints were used to install ceramic tiles on the inside), Saudi Arabia (Mapei products were used for waterproofing

LOTS OF EVENTS, LOTS OF MAPEI

As an official supplier for the Italian Pavilion, Mapei was also involved in an extensive schedule of meetings with Chinese counterparts, technical forums, cultural events and activities aimed at informing people about and promoting Italian expertise organized by the Commission of Italy for Expo 2010.

For example, MAPELASTIC, the Company's leading product for waterproofing (shown in the photo on the left) was chosen to take part in the temporary exhibition entitled "Italia degli Innovatori" (www.innovazionepa.gov.it), promoted by the Italian Ministry of Public Administration and Innovation and the Commission of Italy for Expo 2010. The exhibition will be set up inside the Italian Pavilion from 24th July to 7th August 2010 and MAPELASTIC, already used for construction work on this structure, will appear among the country 's most prestigious and emblematic technological innovations.

Mapei is also involved in the Expo through the Group's Portuguese subsidiary, Lusomapei, which helped carry out an extremely innovative project: the TTT or Transportable Tourist Tower, a modular and eco-sustainable architectural design, which is very popular both in Portugal and in other countries and allows the construction of housing units (mainly for the tourist industry) in all kinds of different environments, mainly taking the form of vertical towers (which, if need be, can also be laid down horizontally), made of wood, ceramics, iron and glass.

Lusomapei also supplied some products (KERALASTIC T and MAPEBAND) for bonding covering materials and waterproofing certain sections of the structure.

The TTT project has actually been chosen to take part in the "Urban Best Practices Area" (UBPA) exhibition at Shanghai Expo, which is devoted to the most innovative modern-day solutions in the realm of eco-sustainable architecture.

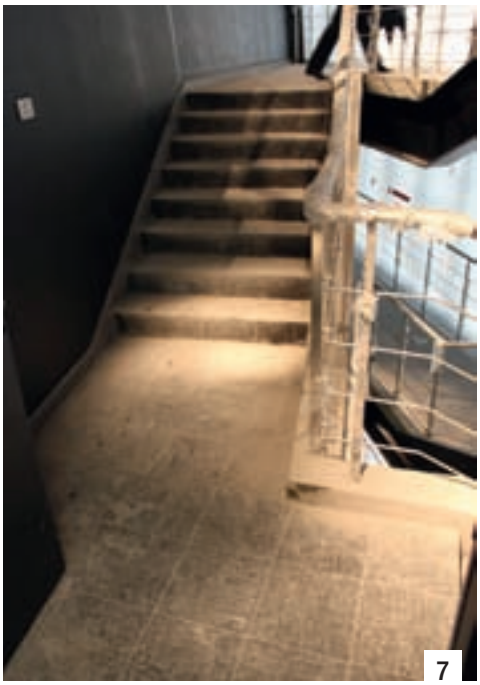
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Photo 6. *Mapei products were used in various premises inside the Italian Pavilion.*
Photo 7. *The installation of ceramic tiles along the stairways and in the toilets was carried out using KERAFLEX, ULTRACOLOR PLUS and MAPESIL AC.*
Photos 8 and 9. *Various interior walls were treated with MALECH before applying COLORITE PERFORMANCE finishing agent in the colours of white and black.*

the surfaces of the terraces, restrooms, kitchens and certain sections of the roof) and Belgium (for waterproofing the substrates of the kitchens and restrooms).

Mapei for the Italian Pavilion

Numerous Mapei products were used for constructing the Italian Pavilion.
Notably, NIVOPLAN, PLANICRETE and TOPCEM were used for preparing the substrates of the interior walls and floors; MALECH for smoothing out any rough areas before applying the special COLORITE PERFORMANCE finish in the colours of black and white. MAPELASTIC, MAPEBAND and MAPEGUM WPS were used for waterproofing the surfaces of the pools surrounding three sides of the outside of the Pavilion and the walls and floors of the bathrooms.
A system including KERAFLEX high-performance adhesive, ULTRACOLOR PLUS mortar for grouting the joints and MAPESIL AC sealant for sealing the expansion joints, was used for installing the ceramic coverings along the stairways and in the bathrooms. RM

Teamwork MAPEI: CHINESE IN CHINA

Mapei's involvement in the Expo was helped along by the Company's well-established operations in China, where the Group has three subsidiaries:
- Mapei China Ltd, based in Hong Kong founded in 2004;
- Mapei Construction Materials (Shanghai) Co Ltd, which is based in Shanghai and was purchased at the end of 2005, has a manufacturing plant specialising in the manufacture of superplasticizers;
- Mapei Construction Materials (Guangzhou) Co Ltd, located in Canton and resulting from the purchase of a leading company on the South China market; its plant mainly manufactures adhesives for ceramics and stone materials, mortars, smoothing agents and waterproofing compounds.

The two facilities in Shanghai and Guangzhou are extremely emblematic of its two product lines for building and installing ceramic and stone materials, which Mapei intends to develop first on the local market. At the same time they underline the corporate strategy to strengthen operations in various key parts of the Chinese nation's economy. In the near future Mapei plans to extend the production and sales of various lines and open new manufacturing plants and offices in equally strategic realms of the Chinese economy.
The Company's well-established presence in China has already borne good fruits. Mapei products have been chosen for constructing numerous works, such as bridges, railway lines and aqueducts and residential buildings, notably the Three Gorges Dam, various skyscrapers in Hong Kong (like those in Sham Mong Road, the Victoria Towers and the multipurpose Cyberport complex) and the Venetian Macao Resort and City of Dreams entertainment and hotel centres in Macao.

Below. *Mapei's two Chinese manufacturing plants in Canton and Shanghai.*

Eco-sustainability: everybody's committment

Giorgio Squinzi's comments on the Copenhagen Summit

In an interview he gave the Italian newspaper *Il Giornale* (6th December 2009) during the Copenhagen summit on the climate, as the President of Federchimica (The Italian Federation of the chemical industry) Giorgio Squinzi admitted he was sceptical about the idea that leading countries could really reach an agreement on global warming. And he certainly turned out to be right.

The CEO of Mapei had just been to the Chinese tiles manufacturing district of Foshan and was able to see the high pollution rate in the area for himself. According to Squinzi, it is highly unlikely that China will adopt a policy of environmental sustainability, because the nation is developing too quickly, to the detriment of any overall vision taking into account every aspect connected with industrial growth and hence environmental impact.

As far as the United States are concerned, on the other hand, Squinzi noted that, despite Obama's electoral promises concerning the environment, the country mainly seems to be focusing on solving the economic crisis.

Called upon to describe possible scenarios in the future, Squinzi pointed out that the Danish conference would be a failure if the proposal for reducing emissions was set at 5% and noted that: "the USA and China are responsible for 50% of the entire planet's carbon dioxide emissions. I'm talking about 45 billion tons a year. Europe accounts for just 10% of the total and Italy just 10% of that 10%."

Again according to Squinzi, Europe should not take on the burden for the failure to take adequate action on the part of leading countries, although it cannot ignore the leading role it has to play in actually solving the problem, otherwise future generations will find themselves paying far too high a price. At the same time this issue also concerns the economic development and future of Italian and European manufacturing companies, whose competitiveness would be placed in jeopardy.

In answer to a direct question about the measures taken by the Italian chemicals industry, Squinzi was more than ready to reply: "Our chemicals industry is ahead of the deadline set by the Kyoto Treaty. Since we adopted the Responsible Care program in 1991, we have drastically reduced emissions by 7%. The industry has invested 900 million Euros a year in the environment out of an overall turnover of between 50-60 billions. For example, the plastic materials employed in the car manufacturing industry make it possible to reduce polluting emissions".

The Responsible Care Programme

There is nothing new about the issue of Responsible Care. Every year, Federchimica, whose President is Giorgio Squinzi, presents all the facts and figures concerning the implementation in Italy of an effective policy on climatic changes, which is bound to take into account the virtuous role played by the chemicals industry and its products. Responsible Care is, in fact, the voluntary program undertaken by the world chemicals industry based on the implementation of principles and behavioural patterns concerning the safety and health of staff and environmental protection and on pledges to keep people informed about the results of efforts to constantly improve in a significant and tangible way.

In face of an increase in production of almost 10%, from 1990 (the year of the signing of the Kyoto Protocol) to 2007, the chemicals industry has reduced the amount of greenhouse gases given off into the atmosphere by 50.3%, equivalent to approximately 14.5 million tons representing over 43% of the target set for Italy in the Kyoto Protocol. In addition to this, the commitment made by the Italian chemicals industry has had positive repercussions on the country's entire economy, thanks to its products, which allow energy saving, more efficient manufacturing processes, the rational use of lighting and so forth. This is what has emerged from the Responsible Care Report, the chemical industry's voluntary program in favour of sustainable growth, which has now reached its 15th edition and was officially presented by Federchimica in October 2009.

The report estimates, among other things, that for every ton of carbon dioxide given off by the chemicals industry, other sectors using chemical products can save up to 3 tons of emissions. So Italy, which emitted almost 553,000,000 tons of carbon dioxide into the atmosphere in 2007, would have emitted 42 million tons more without the use of products from the chemicals industry. An important figure, not just for the environment, but also for the Italian government funds: taking the average price of carbon dioxide at the moment (approximately 14 euro per tonne), this corresponds to a saving estimated at approximately

600 million euro a year up to 2012.
"It has now been proven that the Italian chemicals industry has consolidated its own commitments to eco-sustainability - so Giorgio Squinzi noted -. Our industry is now even capable of providing some extremely important tools for tackling the issue of climate change on a global basis.
Nevertheless, the world seems to be heading in the opposite direction: there is still a hostile prejudice towards chemical products, which can even be seen in so-called "green purchases" on the part of public administrations, since guidelines for tenders often identify what is "natural" or "biological" as having less environmental and social impact. This is not always the case and very often chemical products can actually perform better".

Squinzi went on to note that "we believe that the tools referred to by European Union policy in relation to sustainable production and consumption (including green public purchases and the Ecolabel) are an important part of thinking in terms of sustainability and the drive towards innovation which they introduce. Nevertheless, the guidelines for their implementation must be identified in accordance with scientific methodology based on analyses of the lifecycles of products and not on emotional factors, according to which everything which is "chemical" cannot be in harmony with the environment".
As regards emissions, Giorgio Squinzi sent out a message to the Italian Government in view of the Copenhagen negotiations on international pledges to tackle climate changes: "Our concern is that the cost of the measures required to reach the targets set in climate policy may widen the already notable competitive gap between Italy and other countries due to high energy costs.
The situation would be even further jeopardised by an eventual extending of Europe's commitments in the international treatise for the post-Kyoto world, for example if the target for reducing emissions were raised from -20% to -30% by the year 2020 compared to 1990".
For this reason Squinzi hoped that the EU would not reassess in Copenhagen the settlement made in 2008, raising the limits on emissions in the wake of some generic pledge made by the USA and China.

DOMOTEX 2010 HANNOVER

The centre of the flooring world

There are some international events which Mapei never misses: both to keep up the image of a company operating globally and also to outline the continuous progress made in all its numerous products used so successfully in the building industry around the world. Domotex, the leading international trade fair in the textile, resilient and wooden floors, is certainly one of these events. The 22nd edition took place in Hannover, Germany, from 16th to 19th January. Some positive signs emerged from the German show, which closed its gates after welcoming an increasing number of visitors.

Over the four days of events, approximately 40,000 professionals (+12% compared to 2009) came together to admire and assess the products displayed by 1395 companies from over 70 different nations. Of the 22,600 foreign visitors, over 60% came to Hannover from European countries, with an increase in the number of professional visitors from every continent. A survey carried out among those in attendance highlighted that 89% were the purchasing decision-makers for the companies they represented.
This major international trade fair devoted to the world of textile, resilient and wooden floorings focused on

the topic of eco-sustainable products, an issue which is actually in Mapei's DNA and which, as we shall see, was embraced by presenting some important novelties. Another factor emerging from the German show is also significant: a 30% increase in the amount of space devoted to parquet and laminated floors and the techniques and products used for their installation and maintenance (and all the related installation technology).

Plenty of Room for Great Solutions

Mapei had its own elaborate exhibition area in Hall 7 for presenting all its new systems and products specifically for installing wooden, textile and resilient materials. A space which also bore witness to the well-established expertise it has gained through decades of experience working all over the world. Walking around the Mapei exhibition area, the themes the Company wanted to focus on were quite clear.

First and foremost, the fact that Mapei is eco-sustainable. Attention to the environment is one of the fundamental aspects of its corporate philosophy, embodied in research programmes for creating products capable of even improving the well-being of buildings. Mapei also means constant innovation, in that it allocates 12% of its workforce to Research & Development, investing 5% of its own profits in this realm every year.

Moreover, the concept of internationality is a concrete fact for Mapei, because the Company is in close contact with its own customers all over the world and with the specific building needs of every area of the planet, thanks to its 56 manufacturing plants in 25 countries across 5 continents and an efficient locally-based technical assistance service.

All these aspects, combined with specialisation and "total immersion" in the world of building inhabitants, mean that Mapei can without doubt claim to be "technology to build on".

The 2010 edition of Domotex was a further demonstration of Mapei's expertise in the specific realm of laying every type of flooring material, carried out by providing complete systems, custom-designed for every imaginable need, ranging from the products for the preparation of substrates to adhesives and paints for wood.

Mapei's enormous experience was concretely on display in its stand at Domotex 2010: a special exhibition space devoted to demonstrations of how to apply its products. A highly successful idea presented by Siegfried Heuer, a well-known figure in Europe in the flooring technology industry. A teacher, author of various books and specialist journalist, his verve really captured the attention of all visitors flocking to the Mapei stand to find out and see for themselves the results which can be obtained by using the Company's technologically cutting-edge products.

From Screeds to Soundproofing Floors

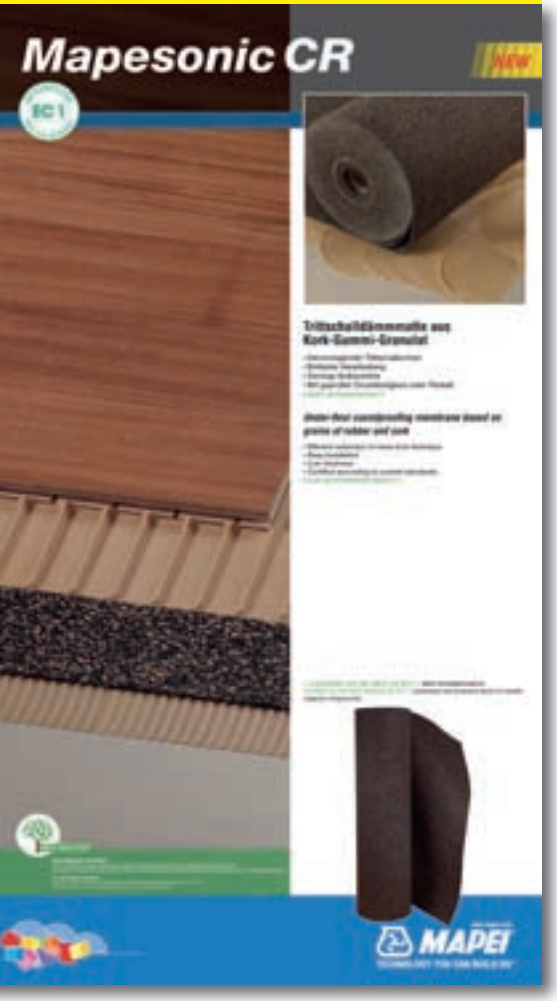
Mapei showed at the fair that it can provide custom-designed solutions for any kind of wooden, resilient or textile floor.

Starting with binding agents and pre-blended mortars for screeds, Mapei presented MAPECEM, a special hydraulic binder for the preparation of fast setting and drying screeds (24 hours) with controlled shrinkage; MAPECEM PRONTO, a pre-blended fast setting and drying (24 hours) mortar with controlled shrinkage, in accordance with EN 13813 (CT-C60-F10-$A1_{fl}$); TOPCEM, a normal setting hydraulic binder for the preparation of fast drying (4 days) screeds with controlled shrinkage; TOPCEM PRONTO, a normal setting ready-to-use pre-blended mortar for fast drying (4 days) screeds with controlled shrinkage, in accordance with EN 13813 (CT-C30-F6-$A1_{fl}$), with very low emission level of volatile organic compounds (EMICODE EC1 R certified).

Pride of place among the self-levelling and smoothing compounds went to ULTRAPLAN ECO, an EC1-certified self-levelling smoothing compound (with very low emission level of volatile organic compounds) for thicknesses of 1-10 millimetres, which is also fast hardening (12 hours), in accordance with EN 13813 (CT-C25-F7-$A2_{fl}$-s1). Other products on display worth mentioning included ULTRAPLAN MAXI, which is also an EC1-certified self-levelling ultra-fast-hardening smoothing compound for thicknesses of 3-30 millimetres, of class CT-C35-F7-$A2_{fl}$-s1 in accordance with EN 13813.

And then, as regards soundproofing, MAPESILENT SYSTEM: a modular system of special panels, sheets and soundproofing accessories to be directly installed on the floor slab and prior to laying the screed. MAPESILENT conforms to Italian legal requirements in terms of soundproofing against noise caused by footstep and creates screeds which are perfectly isolated from the substrate, in accordance with the Italian Decree DPCM 5.12.1997.

In addition to MAPESILENT (ROLL or PANEL), Mapei also presented an absolutely new product: MAPESONIC CR, an under-floor soundproofing membrane made from grains of cork and rubber,



suitable for being directly installed on every kind of substrate and even on old floors before laying any kind of coating (ceramic, stone, parquet, resilient materials).

A New Primer and Special Adhesives for Textile and Resilient Materials

Preparing the substrate properly is vitally important for achieving a craftsman-like result as high-performance as possible. The main primers on display at Domotex were the brand-new ECO PRIM GRIP, a universal acrylic resin and inert silica-based bonding promoter with very low emission level of volatile organic compounds (EC1). Mapei's wide range of primers also includes ECO PRIM PU 1K and ECO PRIM PU 1K TURBO consolidating and waterproofing primers which are EC1 R-certified.

The systems for installing Mapei's eco-sustainable resilient materials in civil engineering projects (schools, offices, hospitals, libraries, etc.) were also in perfect tune with the main theme running through the trade fair. ULTRABOND ECO 520 is an EC1-certified adhesive in water dispersion specifically designed for linoleum floors, with quick, high initial bond; ULTRABOND ECO 380 is an EC1- adhesive in water dispersion with a very long open time, a quick, high initial bond, specially designed for vinyl floors. ULTRABOND ECO 170 is an EC1-certified adhesive in water dispersion with a quick, high initial bond, specially designed for textile floors. ULTRABOND ECO 540 is an EC1-certified adhesive in water dispersion specially designed for linoleum floors. ULTRABOND VS 90 is an EC1-certified universal acrylic adhesive in water dispersion ideal for vinyl and rubber floors.

Sports Facilities and Synthetic Grass

Eco-sustainability is also intended for any kind of sports facility, ranging from football and tennis to athletics, etc: Mapei products have actually contributed to the construction of numerous sports facilities all over the world.

The flower in the buttonhole are Olympic Games starting in Munich 1972 and then Montréal 1976, Barcelona 1992, Atlanta 1996, Sydney 2000, Salt Lake City 2002, Athens 2004, Turin 2006, Beijing 2008 and

also the most recent Winter Olympics in Vancouver 2010 and the Football World Cup finals in South Africa. Not to mention the synthetic football pitches, gymnasiums and swimming pools installed across all five continents.

Mapei products for installing synthetic grass surfaces are: ULTRABOND TURF PU 1K, an EC1 R-certified one-component polyurethane adhesive; ULTRABOND TURF PU 2K, an EC1 R-certified two-component polyurethane adhesive with no water and solvents; ULTRABOND TURF EP 2K, a two-component epoxy-polyurethane adhesive. Attention also focused on two projects specifically developed for installing athletics tracks: ADESILEX G19, a two-component epoxy-polyurethane adhesive for rubber or PVC floors and ADESILEX UP71, an EC1 R-certified two-component polyurethane adhesive with no water and solvents for bonding internal PVC and rubber floors. Finally, for gyms and indoor areas, the spotlight at Domotex was also focused on ULTRABOND ECO V4 SP, an EC1-certified universal adhesive in water dispersion with a very long open time.

ouring capacity, was also in the spotlight.
SILWOOD is also worth a mention: this is a specific acrylic sealant in water dispersion for wooden floors, certified EC1, available in 8 different colours which perfectly match the shades of the most common types of wood used, plus the new white colour.
Mapei was present on all fronts at Domotex 2010, concretely highlighting the variety of solutions the Company offers for installation purposes in the field of resilient, textile and wooden coverings. This is a sector traditionally linked with Mapei's corporate history, in which it has played a leading role on the world market for many years. The next edition of Domotex will once again be held in Hannover from 15th to 18th January 2011.

New Products for Installing Wooden Floors

Mapei presented some new high-performance products for installing wood at Domotex, capable of satisfying even the most demanding installer. Amongst the products for laying wood numerous new products we were on display: for treating the substrates, PRIMER MF EC PLUS two-component, low-viscosity epoxy primer, solvent-free with extremely low emission level of volatile organic compounds, certified EC1 R. Among the adhesives, one could find ULTRABOND ECO P909 2K, a two-component solvent-free polyurethane adhesive for all types of parquet, certified EC1 R, and ULTRABOND ECO S945 1K, a one-component sililate polymer-based adhesive with no solvents or iso-cyanates for bonding multi-layered, pre-finished parquet, certified EC1 R. As for the painting products for parquet, the ULTRACOAT range (stucco, base-coats and water-based varnishes with no NMP for finishing coats on parquet) complete with the new ULTRACOAT P920 S-T two-component water-based base product with an extremely high col-

Architectural solutions

A new design handbook for project designers and architects

Alongside the new catalogues in German and English - "Products for the Installation of Wooden Floors" and "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings" - Domotex 2010 also saw the presentation of a new and innovative Mapei publication. "Architectural Solutions" is a handbook for project designers and architects containing all the main practical solutions for businesses, including all the detailed specifications, in order to simplify construction site work and help with the selection of certified, eco-sustainable, high-quality products. Whether dealing with textile or resilient materials or parquet, the professional installation of flooring calls for craftsman-like planning, a task increasingly assigned to architects, project designers and expert craftsmen.

The handbook (now only available in German language) in A4 format is 370 pages long and tells you everything you need to know from how to prepare the substrate to grouting operations. Clarity is one of its most distinctive features: each chapter focuses on the various installation substrates for everything, from brand-new constructions to the restoration and repair of existing buildings.

The first few chapters begin with concrete and ready-mix concrete; this is followed by various types of wooden and metal substrates right through to all kinds of different existing substrates. The handbook provides all the necessary detailed information for every kind of substrate, as well as installation advices, descriptive articles and the various registration mechanisms to be conformed to.

At the end of each section, the handbook lists the most effective construction systems, illustrating the specific Mapei materials which can be used for every kind of substrate. Reading the handbook is made easier by a coloured guide system characterising every type of substrate, thereby making it easy and instinctive to find your way through the handbook.

The publication is completed by more detailed sections, such as "The Installation of Conductive Floors", "Waterproofing Buildings" and "The Laying of Natural Stones". The issue of "eco-sustainable building" plays a central role, allowing Mapei to help architects and project designers construct innovative buildings using over 150 products which can contribute to obtain the LEED (Leadership in Energy and Environmental Design) certification, in accordance with the provisions set down by the U.S. Green Building Council.

Mapei GmbH, the German subsidiary of the Mapei Group, became a member of the Deutsche Gesellschaft für Nachhaltiges Bauen (the Germany equivalent of the American Green Building Council, which issues LEED certification) in June 2009. The ease of usage and completeness of the information contained in "Architectural Solutions" is further enhanced by simple graphics and numerous exemplary illustrations.

This is a complete and up-to-date handbook designed to help operators make key decisions on the building site. In a nutshell, it is a handbook encompassing Mapei's over 70 years' experience as world's leading manufacturer of adhesives for the building industry.

Strategies on the German market

Talking to staff at Mapei GmbH (Germany)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***1. Uwe Gruber**, General Co-Manager of Mapei GmbH.*

***2. Heinrich Meier**, General Co-Manager of Mapei GmbH and Mapei Group's Country Manager for Germany.*

***3. Michael Heim**, Operational and Strategic Marketing Manager of Mapei GmbH.*

***4. Günther Hermann**, Head of Mapei GmbH's Technical Service for the product line for the installation of resilient, textile and wooden floorings.*

The international nature of Domotex should not distract us from the fact that, because it is held in Germany, it is an extremely important meeting place for all Mapei operations in Germany and everything revolving around the German subsidiary Mapei GmbH.
Mapei GmbH has clear strategies for 2010: to optimise its sales network in the field of floor installation; to present and widely publicise the new "Architectural Solutions" handbook for project designers; to obtain EC1 certification for other products. Taking stock of what happened in 2009, Uwe Gruber, the recently appointed General Co-Manager of Mapei GmbH, announced that over the last few years the Company has grown nicely and in the coming future it will focus on strengthening the positions it has attained, investing heavily on the Mapei brand and, at the same time, developing a solid sales network based on more effective regional coverage than in the past. Gruber claims: "this will also allow closer ties with distributors and installers, thereby getting us closer to our target groups. The training centre in Kleinwallstadt will be used more extensively and more meetings and seminars for distributors and installers will be held in 2010." As regards the current situation concerning products for restoring floors in Germany, Heinrich Meier, General Co-Manager of Mapei GmbH, has clear ideas: "in the flooring technology sector we have, on average, grown at a double-figure rate over the last 2-3 years. We want to grow even more and believe we have a corporate structure and products at the absolute cutting-edge. The Mapei brand provides incredible potential, which we plan to exploit to the maximum, as is the case with all of the Group's subisidiaries.
Among the strategic and logistic marketing decisions currently being made is the restructuring of relations between Mapei and customers' warehouses, which will be speeded up and made more practical, thereby allowing savings on costs for the customers themselves."
Günther Hermann, Head of Mapei

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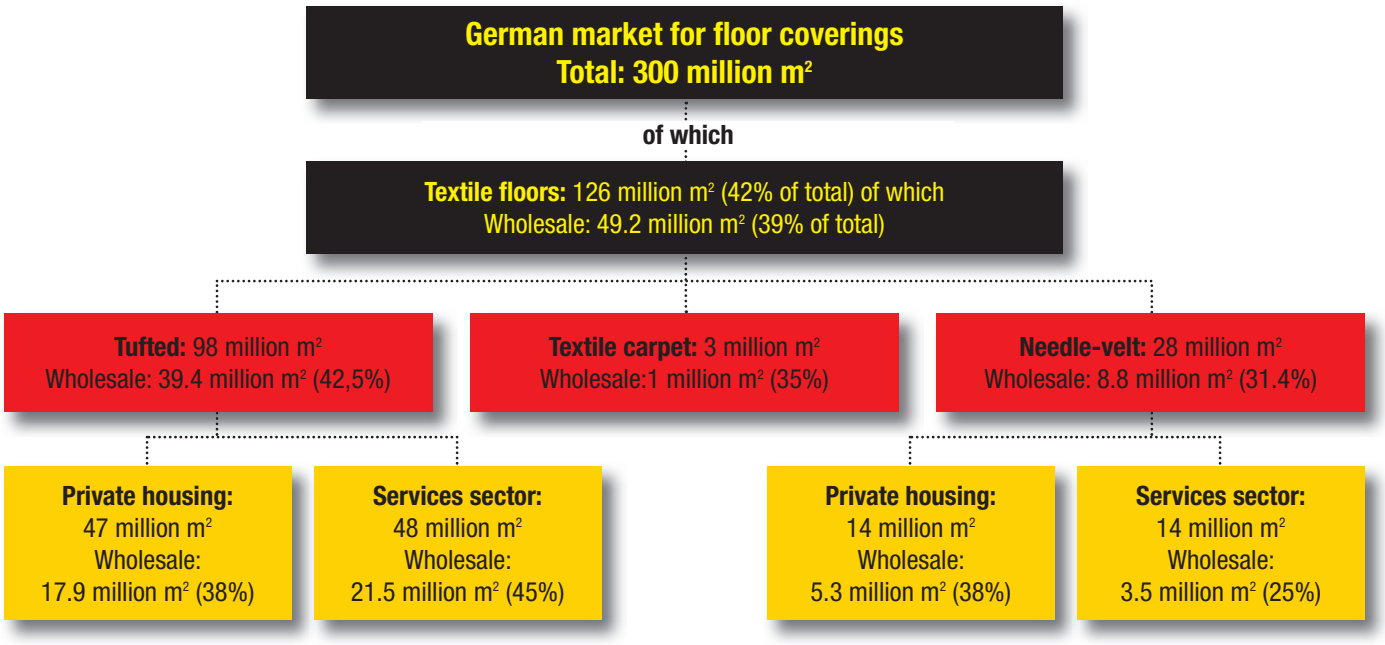
GmbH's Technical Service Department for products for installing resilient, textile and wooden floors, pointed out that one of the issues which sees Mapei playing a leading role on the market are its rapid systems for screeds. "In this field we can provide products with specific, certified technical properties. We have, for example, a fast-drying system for screeds, which allows a screed to be made in a day, even for floor coverings sensitive to humidity and for parquet surfaces. Another system allows a screed to be constructed in four days. This is what the installer needs and what allows us to help them right throughout every stage in their work."
Mapei has a very rational stance to the cutting-edge issue of eco-sustainability. "The introduction of Blauer Engel" certification, which is only valid in Germany - according to Heinrich Meier – only causes greater confusion. EMICODE certification already provides a system recognised not only in Germany but throughout the whole of Europe and lots of other countries around the world, including the USA and China. We are certain that EMICODE will become the benchmark for products' emission levels of volatile organic compounds, and that is why we as a Group have set ourselves the target of obtaining EMICODE certification for as many products as possible. As regards eco-sustainability, we believe that LEED certification will become increasingly important and effective. RM



PVC

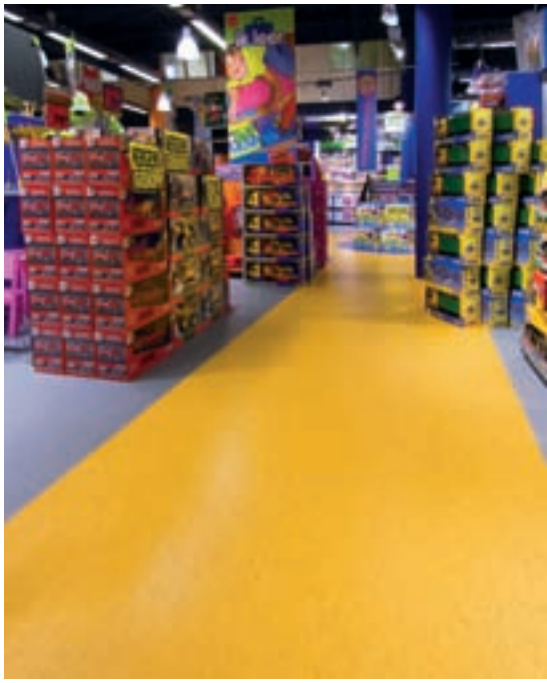
Chemistry meets technology to form a material which is increasingly used in the building industry

*by Marco Albelice**

PVC is the main binder of the mixture which is commonly known with the same name. PVC stands for polyvinyl chloride. It is not directly present in nature in this form, but is obtained artificially from the synthesis of chloride (an abundant by-product of the salt-making process) with ethylene, one of the main products of the petrol refining process.
PVC itself is rigid, waterproof, a good insulator and thermo-plastic. Its ductility and resilience derive from its being combined with other elements, such as plasticizers (the most widely used is butyl phthalate) which make it more flexible so that large amounts of minerals may be added to lower its cost and make it less sensitive to thermal expansion. Careful blending of these elements, whose matrix and binder is polyvinyl chloride, form the various types and grades of PVC which are currently available.
The discovery of PVC has its roots in recent times. During the 19th century polyvinyl chloride was discovered almost by accident, but it was only at the beginning of the 20th century that the right technology to make it workable was available. The unstoppable rate of technological development led to the production of the first polyvinyl chloride-based co-polymers and polyvinyl acetate in the USA, while in Germany techniques of polymerisation in emulsion were patented. Amongst the main producers of PVC in Italy, there are Montedison and S.A. Ursus Gomma from Vigevano (Province of Pavia).
During the Second World War, PVC was widely produced for armaments, especially because of its excellent electrical insulation properties.
The war effort in certain European countries, such as Germany and Italy, led to a considerable increase in the number of companies producing PVC goods compared with those which produced PVC in the first part of the century. At the end of the war, the easiest and quickest commercial transformation of these companies was to adapt the production of PVC to civil applications on a vast scale.
Since then, polyvinyl chloride has become one of the most widely used materials in the history of resilient and non-resilient systems for civil applications: plugs, sockets, insulation for electric wires, junction boxes, valves, pumps, shutters, upholstery, waterproof piping for drains and toys.

PVC Floors

The first PVC floors were much stiffer than the ones currently available. The stiffness was due to the high percentage of minerals in the blend (approximately 70%) compared with the low percentage of high quality substances, that is, polyvinyl chloride and plasticizers (approximately 30%). Minerals obviously cost much less than PVC. This blend formed a dimensionally-stable but stiff product, similar to the minerals which composed the blend. This made it impossible to produce and supply large spreads of PVC, and in fact it was only available in tile form up to a size of 25 x 25 cm.
PVC gradually replaced certain types of old flooring materials for civil applications, which used asphaltic resin as a binder (asphalt tiles available in brown and black), livened up using coumarone to form coloured streaks or lighter background colours. And so, by carefully selecting and dosing the minerals, the quality of PVC floors grew until it occupied an important position in this sector.
The most important types of PVC currently available on the market are generally divided into homogeneous and heterogeneous.
Homogeneous PVC is a product with the same composition through the whole of its thickness: vinyl resin, plasticizers, minerals and coloured pigments. Heterogenous PVC was introduced into the market for its lower costs and has a composite, multi-layer structure, where the pure PVC is supported by a layer of PVC recycled from other pieces, such as waste material which might not have their colour removed.
This recycled component might represent up to 80% of the material and this was often the case in the past. Both systems have benefited from the use of modern production technology and precision calendaring and pressing processes.
The development of homogeneous PVC allows for a lower quantity of minerals and a higher quality product. Modern heterogeneous PVC may be made up in a series of different, good quality layers to form a product which is comfortable, stable and easy to clean. These characteristics, together with its competitive price, makes it ideal for environments such as hospitals, sanitary structures and public buildings, such as schools and nurseries.



PVC can be used in several practical and aesthetically appealing applications, such as for floorings and many other daily used objects.

**Mapei SpA Technical Service Department*

Ultrabond Eco VS90

Application

Acrylic adhesive in water dispersion with a very low emission level of volatile organic compounds (VOC), for bonding vinyl and rubber floor coverings

- Solvent-free
- Ready-to-use
- Is suitable for bonding resilient floor coverings which are dimensionally stable
- Has excellent initial bonding
- Is not flammable
- Low environmental impact(*)

GEV-EMICODE EC 1 very low emission

GEV EMICODE

GREEN INNOVATION

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

Sacco Hospital - Milan, Italy
PVC installation with **ULTRABOND ECO VS90**, **ULTRABOND ECO V4 SP**

(*)Certified by the GEV Institut as EC1, extremely low emission level of volatile organic compounds.

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MAPEI®
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

Mapei laying systems for PVC

A complete range for everybody's needs

*by Marco Albelìce**

PVC is all around us. It is now part of our lives to such an extent that we don't even notice it anymore. It may be used for an infinite variety of applications. It is available in liquid form and film form and may be modelled to form any shape required.
It is the very expression of vinyl, used in the past to make our favourite records!
Amongst its numerous applications, one of the most widely used is in the building industry for coverings, especially for floors.
PVC floors are highly wear resistant, help to improve acoustic comfort in rooms and are easy to clean. These characteristics, together with its flexibility and waterproofing properties, make it particularly suitable for environments such as schools, offices, hospitals, libraries, gymnasiums and industrial areas.
To make a well-laid PVC floor, a number of factors must be taken into consideration: choosing the most suitable product according to its specified use, correct preparation of the substrate on which the floor is to be laid, choosing suitable materials for treating the substrate, smoothing and levelling compounds and adhesives and the skill of the laying team. Over the years, along with the development of different production methods and changes in the composition of PVC floors, the products used for laying have also changed. Commitment to the research and development of complete laying systems has paid off for those companies such as Mapei which have kept up with the market requirements in this sector.

A good installation of PVC results from both good quality of the material and skillfull floor-layers.

Mapei and Laying PVC
The techniques adopted for laying PVC in numerous public and private buildings in recent decades in Italy and abroad gives us the chance to look back at just a few of the systems Mapei has on offer. Mapei has a number of products to make substrates, such as MAPECEM and TOPCEM binders for screeds and TOPCEM PRONTO and MAPECEM PRONTO pre-blended mortars. These products offer high mechanical performance along with very short drying times. A PVC floor may be laid after just four days on a TOPCEM PRONTO screed installed according to the instructions contained in the product's technical data sheets. In fact, after four days the residual humidity in the screed is approximately 2%, generally considered an acceptable level for laying PVC. As far as mechanical strength is concerned, TOPCEM PRONTO is classified as CT-C30-F6-$A1_{fl}$-s1 according to EN 13813 standards, with compressive strength of 30 N/mm^2.
The screed and smoothing compound underneath the PVC must be particularly resistant to traffic and point loads because PVC floors, unlike ceramic floors, do not distribute loads evenly over the surface of the floor.
For example, just think how the entire weight of the equipment and couches in operating rooms and hospital environments is concentrated on the castors or wheels on which they are mounted.
In the hospital sector, 2003 saw the completion of the new European Oncology Institute (IEO) in Milan (Italy).
PVC flooring was laid over an area of several thousand square meters. The levelling compound chosen in this case was PIANOCEM FINE mixed with LIVIGUM additive. Nowadays, ULTRAPLAN ECO self-levelling, ultra fast hardening smoothing and levelling compound with an extremely low emission level of volatile organic compounds (VOC) may be used for the same type of applications. Correct electrical dissipation of the flooring in operating theatres is extremely important to avoid the risk of explosion or interference to the electrical equipment in the operating rooms. This was guaranteed by using conductive PVC developed especially for this project, bonded using special adhesives such as ULTRABOND ECO V4 CONDUCTIVE and ADESILEX VZ CONDUCTIVE.
In 2006 in the Diderot University of Paris, PVC floors were laid in the busiest areas such as the refectories, corridors and lecture rooms using ULTRAPLAN MAXI

for smoothing and levelling at a thickness of up to 3 cm and ULTRABOND ECO V4 SP adhesive for bonding.
This adhesive may also be applied on substrates which have little or no absorbency (its open time in this case is approximately 30 – 40 minutes).
For the 2010 editions of Domotex (in Germany) and Made Expo (in Italy) trade fairs, in the civil building sector, Mapei's offer focused on the ECO range of products certified EMICODE EC1 according to the requirements of the GEV Institute.
Several new-generation adhesives for PVC also have the same classification, such as ULTRABOND ECO 380 characterised by its long open time and high initial grab and ULTRABOND ECO VS90, an extremely versatile adhesive which may be used for both PVC and rubber.
A final mention must be made of primers which work as bonding promoter for smoothing and levelling compounds.
ECO PRIM T solvent-free acrylic primer with an extremely low emission level of volatile organic compounds (VOC) and classified as EMICODE EC1, which improves the bonding of smoothing compounds on all absorbent and non-absorbent surfaces: cementitious, gypsum, anhydrite, etc. It is also particularly recommended as a bonding promoter on traces of old adhesives for resilient and textile floorings. ECO PRIM GRIP is a newly-formulated ready-to-use, multipurpose bonding promoter and primer, made from acrylic resin and inert silica, with an extremely low emission level of volatile organic compounds.
Adhesives, smoothing and levelling compounds and primers used in combination form product systems which are adaptable to various requirements, but they only give the best results in the hands of skilled floor layers.
Measuring the residual humidity in a substrate, acclimatisation of certain types of PVC, the absence of rising damp, compliance with the recommended doses of mixing water for cementitious blends and the waiting time for each single product are the various aspects which expert floorlayers know they must pay attention to. This article doesn't claim to be an exhaustive description of the entire range, and the references mentioned above, along with others too numerous to mention. The technical data sheet for each single product are available at the web-site www.mapei.com.

* Mapei SpA Technical Service Department

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A new nursery school

PVC floors were laid in the French Midi-Pyrénées region

The French town of Guitalens-L'Albarède is in the Tarn department in the Midi-Pyrénées region. In 2007, the towns of Guitalens and L'Albarède were amalgamated and since then a number of new projects have been started: one of these is the construction of a new nursery school.
A structure (which included an old 300 m² building and a 550 m² extension) covering 850 m² was designed using part of the old town hall where, since March 2009, large, specious classrooms provide an ideal setting to teach 55 children.
The school has a large entrance hall, a computer room, a library, a nursery, the school headmaster's office, a rest-room for the teachers, a kitchen and large refectory and, of course, four classrooms. Only two of the classrooms are currently in use but, according to the Mayor Raymond Gardelle, the school has been designed to cater for an increase in the number of children.
The floor-laying company Decos 2000 chose Mapei to supply the products used to prepare and treat the substrates, smooth and level the surfaces and lay 800 m² of PVC flooring.
The concrete floors in the old building had particularly bad cracks which were treated with EPORIP two-component epoxy adhesive. It was applied in the cracks after they had been opened and cleaned out. After sanding and hardening, substrates treated with EPORIP have waterproofing properties and high mechanical strength.
NIVORAPID thixotropic cementitious levelling compound was also used to carry out local repairs in the substrate. NIVORAPID has high bonding and quick-drying properties and further operations may be carried just 4-6 hours after application (at 20 °C).
The PVC flooring was laid directly on tiled floors. In this case, Decos 2000 had to comply with the technical requirements of the French standard DTU 53.2 ("Bonded PVC floors") to avoid any risk caused by rising damp.
Decos 2000, the Guitalens town council and the Cabinet Pujol design studio which supervised the work, opted for the quickest laying solution. The SYSTEME BARRIERE MF was applied, which is distributed on the French market by Mapei France. It includes a primer (PRIMER MF) and sand (QUARTZ 1.2)

and has been certified by CSTB (Centre Scientifique et Technique du Bâtiment), the Scientific and Technical Centre of the French Building Industry.
Two layers (400 + 300 g/m^2) of PRIMER MF two-component epoxy primer with high penetration properties were applied and then sprinkled with QUARTZ 1.2. SYSTEME BARRIERE MF fills the pores in the floor and forms a barrier which is resistant to rising damp.
PRIMER MF is easy and quick to apply on both old and new substrates, has high penetration properties and bonds extremely well. Once the SYSTEME BARRIERE MF had dried, MAPESOL 3 self-levelling smoothing compound was applied on the surface, a product certified CSTB P3 according to French standards laid down by CSTB. This product sets to foot traffic after as little as 6 hours and may be applied on both old and new substrates in thicknesses of from 3 to 10 mm. Thanks to its technical characteristics, MAPESOL 3 is ideal for smoothing and levelling and forms a perfect finish.
All the rooms were soundproofed with Colomousse Traffic PVC panels made by Forbo. These 50x50 cm panels are extremely resistant and easy to maintain, which makes them particularly suitable for use in schools. Thanks to their honeycomb structure, these panels have excellent soundproofing properties.
The panels were bonded in place with


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Photos 1 and 2. The classrooms with their new floors.

Photo 3. Application of the first layer of PRIMER MF.

Photo 4. The substrates were smoothed over with MAPESOL 3.

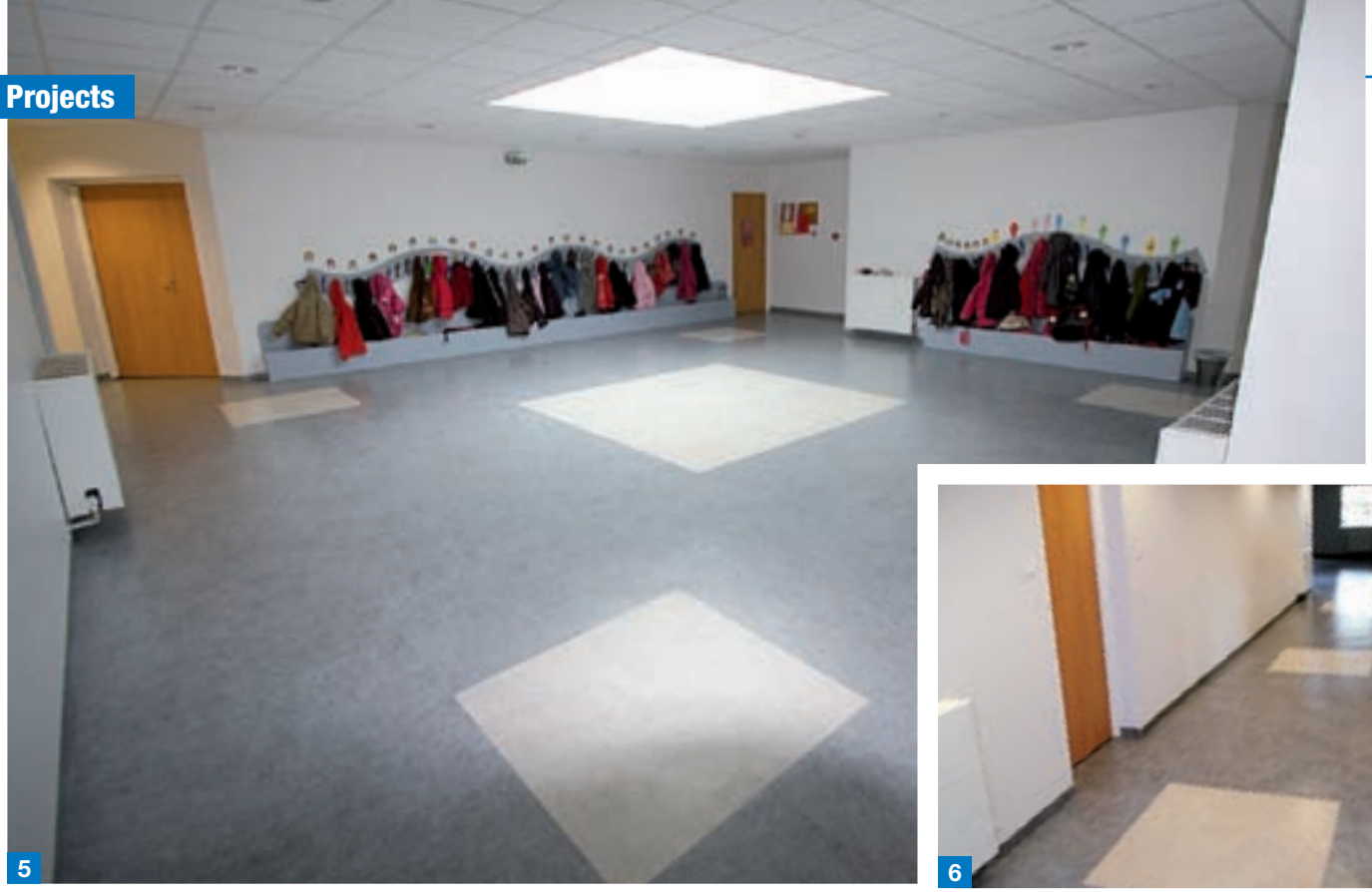
IN THE SPOTLIGHT

NIVORAPID

It is an ultra-fast setting, thixotropic, cementitious levelling compound for horizontal and vertical surfaces, ideal for thicknesses from 1 to 20 mm. NIVORAPID is used for repairing, levelling and smoothing interior floors, walls, steps and arrises where very rapid hardening and drying are required. NIVORAPID mixed with water becomes an easily workable thixotropic paste with high bonding strength to substrates and rapid drying which allows subsequent installation operations for floor and wall coverings, or painting, within only 4-6 hours after application. NIVORAPID hardens without shrinkage and without the formation of cracks or crazing. It develops high compressive and flexural strength and is very resistant to impact and abrasion. The smoothing compunds prepared with NIVORAPID in compliance with the prescriptions present in technical data sheet are classified as **CT-C40-F10-A2$_{fl}$-s1** according to European Norm **EN 13813**. It has also been awarded the **EMICODE EC1 R** certification by **GEV**.

ROLLCOLL

It is a fast-setting synthetic polymer-based adhesive in water dispersion formulated in a light beige paste for application in a single coating. It is not flammable and contains no toxic substances; it can therefore be stored with no special precautions and presents no health hazards during use. It is ideal for the interior installations of all types of vinyl floor coverings, tufted and woven carpet, needlepunch, cork, coconut fibre flooring, textile, PVC and cork wall coverings.
ROLLCOLL is a universal adhesive that can be applied on floors or walls with a trowel, roller or spray depending on job-site conditions and on the materials being installed. It has a very long open time and maintains its tack even after complete evaporation of its water and is therefore recommended in many instances for installing over non-absorbent substrates. ROLLCOLL has fast and strong initial grab and can be a substitute for adhesives in alcohol solution for installing on stairs and walls.



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Photos 5 and 6. Internal view of the school after completion of the works.

Photo 7. The panels were bonded in place with ROLLCOLL acrylic adhesive.

ROLLCOLL universal acrylic adhesive. Thanks to its high initial grab, this product is ideal for both common and most technically complex building works. It forms a strong and flexible adhesive film. ROLLCOLL can be used in environments subject to heavy pedestrian and wheelchair traffic.
The nursery school at Guitalens, for which a name has still to be chosen, is part of a plan to amalgamate the schools. It was officially inaugurated in June, 2009.

**Our thanks go to the Mayor of Guitalens, Raymond Gardelle, for his kind help in writing this article.*

This article was taken from "Mapei & Vous" issue n. 26, the in-house magazine published by Mapei France, the French subsidiary of the Mapei Group, whom we kindly thank.

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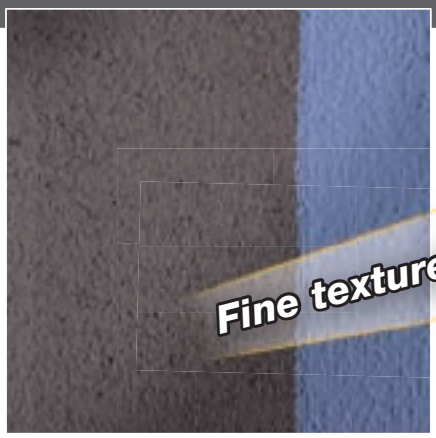
TECHNICAL DATA

Nursery school, Guitalens (Midi-Pyrénées, France)
Period of Construction: 2008-2009

Period of the Intervention: 2008-2009
Intervention by Mapei: supplying products for preparing and levelling substrates and laying PVC coverings on internal floorings
Client: Guitalens town council (France) represented by Mayor Raymond Gardelle
Laying Company: Decos 2000
Laid Materials: Colomousse Traffic panels by Forbo
Works Director: Cabinet Pujol
Mapei Distributor: Seguret Toulouse
Mapei Co-ordinator: Stéphane Vella, Mapei France

Mapei Products: *the products mentioned in this article belong to the "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings" range. The technical data sheets are available at the web site: www.mapei.com. Mapei levelling and smoothing compounds and pre-blended mortars for screeds conform to EN 13813 standard and have been awarded the CE mark in compliance with annex ZA, standard EN 13813. Almost all the Mapei products for laying floors and walls have been awarded the EMICODE EC1 ("very low emission level of volatile organic compounds") mark awarded by GEV.*
Eporip (CE EN 1504-4): *two-component epoxy adhesive for monolithic sealing of cracks in screeds.*
Mapesol 3: *high-performance self-levelling smoothing compound for thickness from 3 to 10 mm. It is classified as SCTB P3 according to the French standard UPEC, set by CSTB (Centre Scientifique et Technique du Bâtiment), the French Scientific and Technical Centre for Building.*
N.B. This product is distributed on the French market by Mapei France, the local subsidiary of the Mapei Group. Plano 3, available on the rest of the European market, is Mapesol 3's counterpart.
Nivorapid (CT-C40-F10-A2$_{fl}$-s1, CE EN 13813, EC1 R): *ultra-fast drying thixotropic cementitious levelling mortar for vertical surfaces, for thicknesses from 1 to 20 mm.*
Primer MF: *solvent-free two-component epoxy primer to be used as an adhesion promoter of Mapefloor line products and to consolidate and waterproof, from residual damp, cementitious substrates. Also used to impregnate surfaces of unsound concrete floors.*
Quartz 1, 2: *siliceous sand with controlled grading, to promote bonding over resins or epoxy primers.*
Rollcoll: *rapid-setting universal adhesive in water dispersion for the installation of vinyl floor and wall coverings, for bonding textile wall and floor coverings with all types of backs.*

Planitop 200 and Planitop 207



Planitop 200

NEW

Planitop 207

One-component cementitious mortars with high bonding strength for interior and exterior smoothing of rough surfaces

Where to use:

- Levelling and finishing concrete walls, cementitious renders or cement lime mortar before painting
- Smoothing walls, even over existing paint such as washable acrylic paints, quartz paints, textured paints etc. as long as they are sound, clean and well anchored
- Smoothing old wall mosaic or ceramic tiled coverings
- Smoothing gypsum wall-board panels (treated beforehand with **Primer G**)
- Smoothing mineral wood panels (such as Eraclit®)

CE EN 1504-2

IN COMPLIANCE WITH EUROPEAN STANDARD EN 1504-2 (C) PRINCIPLES MC-IR MAPEI SURFACE PROTECTION SYSTEMS FOR CONCRETE

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1

Shoppi Center

In a huge Swiss shopping centre in Spreitenbach the new wooden floorings were laid with Mapei products

The Shoppi Center Spreitenbach, together with its two prominent towers, was created in Spreitenbach in the beginning of the 70s and has since become a landmark of this town, located in the canton of Aargau in Switzerland. The Center, designed to attract people from a number of regions, was expanded shortly afterwards by the addition of the Tivoli Shopping Center located immediately adjacent. With estimated sales of 500 million Swiss Francs, the two centers are today still amongst the largest in Switzerland.

A Colorful Restoration

In the latest times the 70s infrastructure required extensive redevelopment. A careful restoration project was carried out to update and renovate the complex. Works started in May 2007 and were completed in November of the same year. First of all one of the two towers was renovated: the Milan-based architect Matteo Thun developed a color concept with 20 different color shades and is responsible for the new look of the renovated "tower".

At the same time extensive upgrading, extension and repair work was carried out in the actual shopping center. One particularly noticeable feature is the completely rebuilt link between the Tivoli and the Shoppi: the "Center Mall" containing more than 30 new stores, which was opened on November 1, 2007. The bridge, constructed as a sales and promenade area, was enthusiastically received by visitors and today continues to have a permanent magnet effect. By comparison with the "old link" the Center Mall creates a sense of size, generous space and brightness.

Another highlight is the Shoppi connection to the motorway which provides the visitors with more improved access.

Reliable Products for a Long-lasting Floor

Numerous Mapei products were used during the course of the floor renovations both in the Shoppi Center as well as in the newly created Center Mall.

The Jatoba solid parquet (made of Brazilian cherry wood) was chosen for the floor covering. This is a vibrant colored timber, with lots of character,

from South America. The core timber is dark, the sapwood lighter, all in a warm, reddish-brown shade. The grain is thick and clear.
First of all, a total of approximately 1,800 m^2 of existing tile covering in the Shoppi Spreitenbach had to be mechanically removed. The resultant imperfections in the substrate were treated with PRIMER MF solvent-free two-component epoxy primer and filled with oven-dried quartz sand. The surface was then primed using ECO PRIM PU 1K TURBO one component, solvent-free, damp-hardening, rapid-drying polyurethane primer. After the application of the second layer of ECO PRIM PU 1K TURBO quartz sand was lavishly spread on the surface.
In order to obtain a smooth and even surface, the sealed surface was smoothed out using ULTRAPLAN ECO ultra-fast hardening self-levelling smoothing compound to a thickness of approximately 5-7 mm.
In addition, a complete barrier layer comprising PRIMER MF with quartz sand was applied to a surface area of around 1,000 m^2 in two coats.
ULTRAPLAN ECO was then spread over this area in a thickness of 3-5 mm.
The thick solid parquet flooring (format 140 x 700 to 2,200 mm) was then laid using ULTRABOND P902 2K. for a total flooring area of approximately 4,500 m^2.
ULTRABOND P902 2K is a two-component epoxy-polyurethane adhesive for bonding all types and sizes of wooden flooring over MAPECEM, MAPECEM PRONTO, TOPCEM and TOPCEM PRONTO screeds, cementitious screeds, existing wooden flooring, ceramic tiles, marble, terrazzo tiles, etc. It is also suitable for underfloor heating systems.
The surface was then oiled. In the Centermall areas the same Mapei products were used as in the Shoppi Center: PRIMER MF for treating the surfaces, spread with quartz sand; NIVORAPID and ULTRAPLAN ECO for smoothing and levelling the surfaces, before bonding the jatoba wooden floor covering with ULTRABOND P902 2K.

TECHNICAL DATA

Shoppi Center, Spreitenbach (Switzerland)
Period of Construction: 1970s

Period of the Mapei Intervention: May-November 2007
Intervention by Mapei: supplying products for preparing the substrates, for laying parquet flooring in the Shoppi Center and in the Centermall linking the Shoppi and the Tivoli Center
Designer: Matteo Thun
Client: Shoppi Tivoli Management AG, Spreitenbach
Works Direction: Inplenia BAU AG (Robert Gyr, Alexander Arnold and Theo Kalbermatter); for the installation works: Walter Horat
Contractor: Itten & Brechbühl, Zurich
Laying Company: Spörri Interieur AG, Zurich
Laid Materials: Brasilian cherry wooden floor
Mapei Distributor: Nydegger AG, Bachenbülach (Switzerland)
Mapei Co-ordinator: Jens Stenzel, Mapei Suisse SA

This article was taken from "Realta Mapei", n.7, the in-house magazine published by the German, Swiss and Austrian subsidiary of the Mapei Group, which we would like to thank.

Mapei Products: *the products mentioned in the article belong to the. "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings" range. The technical data sheets are available at the web site: www.mapei.com. Almost all the Mapei products for laying floors and walls are also GEV-certified and have been awarded the EMICODE EC1 ("very low emission level of volatile organic compounds") mark, awarded by GEV. Mapei levelling and smoothing compounds and pre-blended mortars for screeds conform to EN 13813 standard and have been awarded the CE mark in compliance with annex ZA, standard EN 13813.*
Eco Prim PU 1K Turbo (EC1 R): *one component, solvent-free, damp-hardening, rapid-drying polyurethane primer with very low emission of volatile organic compounds (VOC) for consolidating and waterproofing cementitious screeds.*
Primer MF: *solvent-free two-component epoxy primer to be used as an adhesion promoter of MAPEFLOOR line products and to consolidate and waterproof, from residual damp, cementitious substrates. Also used to impregnate surfaces of unsound concrete floors.*
Ultrabond P902 2K: *two-component epoxy-polyurethane adhesive for bonding all types and sizes of wooden flooring over Mapecem, Mapecem Pronto, Topcem and Topcem Pronto screeds, cementitious screeds, existing wooden flooring, ceramic tiles, marble, terrazzo tiles, etc. Also suitable for underfloor heating systems.*
Nivorapid (CE EN 13813, CT-C40-F10-$A2_{fl}$-s1, EC1 R): *ultra-fast drying thixotropic cementitious levelling mortar for vertical surfaces, for thicknesses from 1 to 20 mm.*
Ultraplan Eco (CE EN 13813, CT-C25-F7-$A2_{fl}$-s1, EC1): *ultra-fast hardening self-levelling smoothing compound with very low VOC content for thicknesses from 1 to 10 mm.*

IN THE SPOTLIGHT

ECO PRIM PU 1K TURBO

It is a one component, solvent-free, moisture curing and rapid drying polyurethane primer with very low emission of volatile organic compounds (VOC) for waterproofing and consolidating cementitious screeds.
ECO PRIM PU 1K TURBO is a primer which hardens due to the humidity present in the surrounding air and in the screed.
It is characterised by the short time it requires to put the surface to light foot traffic and by the fact that it quickly loses tackiness, so that parquet may be laid after a very short time (after approximately 2 hours in normal conditions of temperature and humidity).
ECO PRIM PU 1K TURBO does not contain solvents, is odourless and non-flammable. It has a very low emission level of volatile organic compounds and therefore has been awarded the **EMICODE EC1 R** certification by **GEV**. Because of the total absence of solvents and odour, ECO PRIM PU 1K TURBO may also be used on sites which are located close to inhabited areas (such as flats, schools, offices, etc.). After application and rapid curing of the resin, the substrate treated with ECO PRIM PU 1K TURBO becomes more consistent, harder and is resistant to abrasion.

National Parquet Floor Installation Competition in Romania

Mapei, the main sponsor of the event, presented its products from the Ultracoat range

Last August the gymnasium at Oradea University in Romania staged a very unusual and gripping competition: the National Parquet Floor Installation Competition. Jointly organised by Ampr (Association of Installers of Romanian Wooden Floors), Eufa P+F (European Association for the Promotion of Professional Training for Parquet Laying and Other Floor Covering Techniques in Europe) and Princeps Parchet, a local installation company, the competition was designed to select two professional craftsmen who would go on to compete in the European installation competition to be held in Poland in May 2010.

Mapei, represented by its local subsidiary Mapei Romania, was the event's main sponsor, presenting its own ULTRACOAT range in a country, Romania, which is a lively and rapidly developing force: according to recent Fep statistics (European Federation of Parquet Industries) parquet sales in Romania grew by 11% in 2008 and imports rose by 46%. The competition involved installing and providing the finishing to a square composition of parquet in a pattern designated by the jury. The boards of solid parquet wood with tongue-and-groove joints on four sides, coming in two different wood species, also had to be oiled. The work carried out was then judged for its standard of execution, precision and speed.

In conjunction with the competition, a series of exhibition stands were set up, where sponsors got the chance to present their products, innovations and application techniques. The presentation and demonstration of Mapei solutions provided a chance for participants to personally apply these products and assess the end result. The people taking part in the exhibition were, therefore, able to learn about products from the ULTRACOAT range: ULTRACOAT ACQUA PLUS, a solvent-free water-based binder for grouting wooden floors; ULTRACOAT P920 2K, a two-component water-based coat for wooden floors; and ULTRACOAT P925, a two-component polyurethane water-based varnish, highly resistant to wear-and-abrasion designed for wooden floors.

These products have extremely low emission level of volatile organic compounds (VOCs) and are free from NMPs (N-Methyl-2-pyrrolidone). Overall this was a successful event, which allowed Mapei to underline its presence on a dynamic market with interesting growth prospects. And whenever there is talk of dynamism and growth, Mapei is always there. RM

Photo 1. A partecipant in the competition tries out applying ULTRACOAT ACQUA PLUS.

Photo 2. Part of the presentation of ULTRACOAT P920 2K.

Photo 3. Some partecipants assessing the end result of tests carried out during the presentation.

System for the protection of wood. New Ultracoat line

Heel and stud-proof...

Foto Miro Zagnoli

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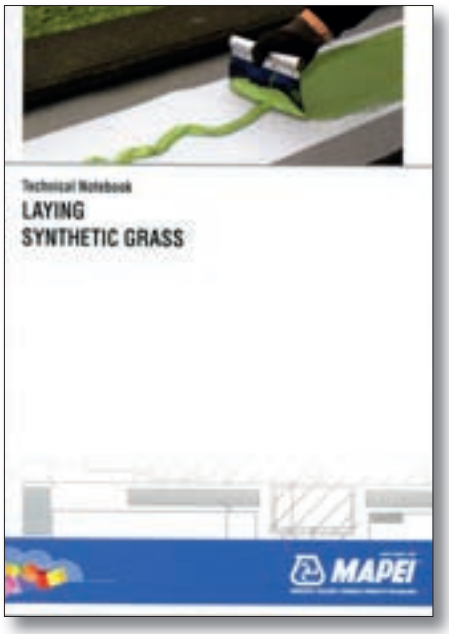
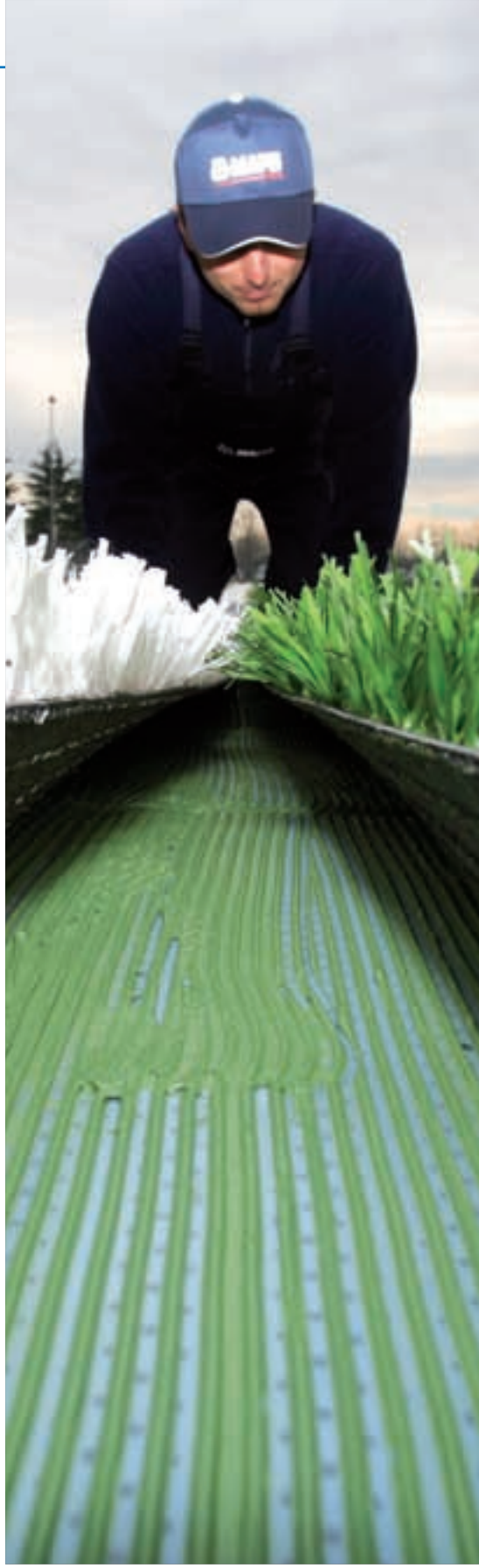
Laying synthetic grass

Ultrabond Turf System: technology for sport

Mapei laying systems are particularly innovative in the resilients sector, for both civil applications (schools, offices, libraries, etc.) and for sports grounds and arenas for any kind of sport (from soccer to tennis, athletics and so on).
Numerous sports arenas all around the world have been built with the help of Mapei products.
Our pride and joy are the Olympic Games, where Mapei may boast a long history: from Munich 1972 to Montreal 1976, Barcelona 1992, Atlanta 1996, Sydney 2000, Salt Lake City 2002, Athens 2004, Turin 2006, Beijing 2008 and to round off, the 2010 Winter Olympic Games in Vancouver and the FIFA World Cup Finals in South Africa.
Particularly worthy of mention and a deeper analysis are Mapei systems for laying synthetic grass, a solid, reliable alternative to natural glass playing fields. A technical innovation to overcome the effect of the atmospheric inconveniencies typical in winter, to limit maintenance costs and to avoid long periods of inactivity of pitches, all of which is proving to be of great help to soccer players at youth and amateur levels. One of the main advantages which may be attributed to synthetic grass pitches is the increased stability of their characteristics, even under extreme climatic conditions.
For example, during the winter, when temperatures often fall to around, or even below, freezing point, natural grass pitches tend to become very hard. The performance characteristics of synthetic grass pitches, on the other hand, remain practically unchanged.
FIFA and UEFA have been following this project very closely for a number of years, and found themselves on the same wavelength when a new set of regulations were introduced in March, 2006.
The Italian National Amateur League (LND) was also quick to accept the new approach, and offered the services of their organisation as a sort of "pioneer" for this innovation. In fact, it is the only organisation in Italy which has the right to approve pitches made using artificial grass, and of releasing a "Seal of Approval" for carrying out amateur and competitive games.



Mapei is on the "Work" Field
Thanks to its collaboration with Mapei Sport centre in Castellanza, and with the main leading companies for the production of synthetic grass, not only has Mapei been committed to the development of products and systems based on advanced technology, but also in the technical-performance assessment of adhesives systems for synthetic grass.
For instance, the substrate of a synthetic grass pitch may be made using various techniques, and without a doubt this is the element which makes the difference between one pitch and another.
The surface must be perfectly levelled, have good drainage properties and have the right slope to allow water to flow off, according to the technical specifications laid down by the various governing bodies (FIFA, UEFA and LND).
Once the drainage work has been completed and the various layers of the substrate have been installed according to the slope required, the artificial


Bonding the edges of the synthetic grass rolls

grass surface may be laid. The single panels must be acclimatised by unrolling them a few hours before starting laying operations, and must be spread out to allow internal stresses caused by the packaging to be reduced.
Once laying has been completed, the joints must be bonded using ULTRABOND TURF TAPE 100 special 40 cm-wide jointing tape. Using a notched trowel or a special applicator, spread on ULTRABOND TURF EP 2K two-component epoxy-polyurethane adhesive, ULTRABOND TURF PU 1K one-component polyurethane adhesive or ULTRABOND TURF PU 2K two-component polyurethane adhesive with very low emission level of volatile organic compounds (certified as EMICODE EC1 R by GEV Institut). It is important to apply the correct amount of adhesive to guarantee that the back of the synthetic grass panel is completely buttered and to avoid detachment.
After bonding the edges and once the adhesive has set, the lines of the pitch may then be marked out.
This operation is carried out by rolling out regulation-sized white lines with the same characteristics as the grass layer directly on top of the artificial grass surface.
The same system as for joining the edges of the rolls is used to bond the lines, with ULTRABOND TURF TAPE 100 and one of the special adhesives chosen from ULTRABOND TURF EP 2K, ULTRABOND TURF PU 1K or ULTRABOND TURF PU 2K.
The pitch must then be packed with silica sand and organic rubber granules to stabilise the grass surface and to promote drainage of surface water, as prescribed by the various governing bodies (FIFA, UEFA and LND).
This kind of playing surface must withstand highly variable temperature ranges according to where they are situated; for example, at very low temperatures in North-East Europe, where the temperature may drop to as low as -20°C when in service, or in the Middle East, where the temperature may reach more than +40°C.
This is why all Mapei products are subjected to severe testing, such as bonding tests, tensile strength tests, ageing tests, etc. to guarantee the best performance possible in order to certify the playing field.

ULTRABOND TURF SYSTEM
Mapei has a complete range of products available to create playing fields in synthetic grass.
ULTRABOND TURF SYSTEM is made up of ULTRABOND TURF TAPE 100 (jointing tape for joining panels of synthetic grass and for marking out pitches for various sports activities) and a complete range of adhesives, chosen according to the laying conditions and requirements of the floorlayer.
ULTRABOND TURF EP 2K: two-component epoxy-polyurethane adhesive for bonding synthetic grass surfaces. It consists of an epoxy-polyurethane polymer, component A, and a fluid catalyser, component B.
When the two components are mixed together, a uniform coloured paste is obtained that is easy to apply using a notched trowel, and which is characterised by its excellent rib formtion. When used for bonding ULTRABOND TURF TAPE 100, pitches which meet FIFA standards may be obtained.
ULTRABOND TURF PU 2K: two-component, solvent and water-free polyurethane adhesive with very low emission level of volatile organic compounds (certified as EMICODE EC1 R) for bonding synthetic grass surfaces. It is particularly recommended for use at low temperatures and for those products who are allergic to epoxy or epoxy-polyurethane products.
ULTRABOND TURF PU 1K: one-component, polyurethane adhesive with very low emission level of volatile organic compounds (certified as EMICODE EC1 R) for bonding synthetic grass surfaces. Particularly recommended for those installer who are allergic to epoxy or epoxy-polyurethane products. It is particularly suitable for bonding at low temperatures.
This adhesive is a one-component ready-to-use product and does not require a catalyser. Therefore, it is easier to use and blending errors are avoided.
Mapei published a special brochure about the installation of synthetic grass. For application in special conditions, please read the products' technical data sheets which are available on the website www.mapei.com or contact Mapei Technical Service Department.


Positioning synthetic grass rolls


Laying the ULTRABOND TURF TAPE 100 jointing tape


Application of ULTRABOND TURF PU 1K on the jointing tape via extrusion from its aluminum package


Spreading the adhesive with a manual applicator

◄**Playing field – San Marino (Republic of San Marino)**
ULTRABOND TURF PU 1K was used to lay the field made of synthetic grass combined with natural grass.

Playing on Synthetic Grass

Sports arenas, public playing fields and recreation areas

The synthetic grass industry is in continuous development in terms of both quantity (a growing demand for sports arenas and public and private playing fields where it is laid) and quality.
Increasingly sophisticated, technologically advanced materials are used nowadays to create grass surfaces with extremely high performance characteristics suitable for a wide array of applications.
To get the best out of the characteristics typical of this kind of surface, the laying technique adopted and quality of the products employed are of primary importance.
And Mapei – which has always made the formulation of adhesives for laying resilient materials its traditional point of force – offers total reliability and collaborates with the most important manufacturers of synthetic grass in the world to develop the most efficient solutions for perfect, long-lasting laying. As usual, research and development makes all the difference, which is why Mapei may quite rightly claim to be "Technology you can build on" in this sector too.
These pages illustrate some of the most important installations carried out with Mapei products in Italy and abroad. RM

▲**Parma Calcio soccer club training ground – Parma (Italy)**
Synthetic grass on the training pitches was laid using ULTRABOND TURF PU 1K.

◄**Public spaces next to the Ara Pacis – Rome (Italy)**
Synthetic grass was laid in the outside areas next to this famous monument using ULTRABOND TURF PU 1K and ULTRABOND TURF EP 2K.

◄ "Da Radovia" sport complex – Braga (Portugal)
In this facility dedicated to several sports, synthetic grass was laid on the football pitch n. 3 with ULTRABOND TURF EP 2K.

▲ Playing field – Tama (Japan)
Synthetic grass was bonded with ULTRABOND TURF EP 2K.

◄ Misano Adriatico world championship circuit (Province of Rimini, Italy)
Synthetic grass was laid behind the kerbstones around the racetrack using ULTRABOND TURF PU 2K.

Mapei in Canada

A powerful presence which first began in 1976

1

Above. *Mapei Inc. has four manufacturing plants and one distribution centre.*
Photo 1. *Giorgio Squinzi, the CEO of the Mapei Group (right); Nick Di Tempora, the honorary president of Mapei Americas (centre page), and Luigi Di Geso, the general manager of Mapei Inc. and president of Mapei Americas during the 25th Anniversary celebrations of the Company's operations in Canada (see Realtà Mapei no 65).*

Mapei's contribution to the construction and modernization of sports facilities and infrastructures associated with the Vancouver Olympics is due to its lengthy experience as an Olympic supplier.
The Company has actually supplied products for constructing Olympic structures all over the world since Munich 1972, Montreal 1976, Moscow 1980, Barcelona 1992 Atlanta 1996, Sydney 2000, Athens 2004 up to Beijing 2008. It is also helping construct buildings for hosting the London Olympics in 2012 and the Sochi Winter Olympics in Russia in 2014. On the other hand, this very special working partnership can also be explained by the powerful bonds the Group enjoys in Canada. Mapei has indeed been operating in this country since 1976, the year when it supplied the products for installing the rubber surface of the athletics tracks and for renovating of the Olympic swimming pool for the Montreal Olympic Games.
Its first manufacturing plant in Canada opened in the industrial district of Laval, Quebec in 1978 and being the first one outside Italy, represented the Group's first step towards internationalization. It has continued to expand ever since and Mapei's Canadian structures were a bridgehead for successfully breaking onto the US market, where the Mapei Corporation was set up in Phoenix in 1983, before expanding first to Chicago and then to Florida with its offices in Deerfield Beach. Nowadays all its business operations in the Western hemisphere are managed by Mapei Americas, which incorporates 6 subsidiaries and 18 manufacturing plants in Canada, the United States, the Caribbean and Central-South America.
Additional Canadian manufacturing plants have been added on to the one in Laval through the years. Meanwhile, the plant in Laval has been extended several times and is presently comprised of administrative and sales offices, production facilities, a technical service department and the R&D laboratory.
A plant specializing in the manufacture of re-dispersible powders was set up in Maskinongé (Québec) in 1995. These powders are marketed by Vinavil and redistributed throughout all Mapei plants in America. Chembond Ltd. was purchased in 2001 with offices in Brampton (Ontario). This plant produces adhesives, admixtures and cementitious mortars. Although Mapei had already been operating in British Columbia since 1989 with a plant in the city of New Westminster, in 2002 a new plant was opened in Delta (not far from Vancouver) to manufacture systems for installing ceramics and natural stone, as well as powders for repairing concrete.
This plant has recently been extended and the new areas have obtained the LEED certification, as one can read in the following article.

Larger and greener

In the Mapei manufacturing plant in Delta (not far from Vancouver) the areas used for storage, offices and quality control laboratory were recently extended and will obtain the LEED certification

The Mapei manufacturing plant in Delta (British Columbia, Canada), located near Vancouver, was opened in 2001, after a move from the original production site on Annacis Island. As business volume in Western Canada increased over the years, the Canadian subsidiary of the Mapei Group Mapei Inc. has responded by enlarging this facility from 3.198 m^2 to 7309 m^2 and creating new areas for regional affairs, administration, logistics, storage and a quality control laboratory, as well as service rooms for the staff. A new branch of the MTI (the Mapei Technical Institute) was also added and dedicated to training activities.

Plans for the new plant were developed by architect Raffaele Greco of Greco Design & Construction, and the expansion work began in February 2009. The project was managed by Alex Manzi of Prism Construction, the general contractor for the job. Mapei also employed the services of Bjorn Richt, a LEED projects consultant, as the plant expansion became a candidate for LEED certification. Many Mapei concrete restoration products were used during the construction process. PLANIGROUT 755 grout was used to fill voids where the new tilt-up panels met the concrete slabs during the construction of walls of the newly expanded area. PLANIBOND JF was used to fill and repair control joints in the connections between the old and new buildings and for concrete repairs in the old shipping area. TILT FINISH, a finishing compound for concrete surfaces, was applied to exterior walls in the new structure to give a smooth, refined appearance to the building surface. Workers used PLANITOP X repair mortar to smooth out the steps on the staircase leading from the warehouse floor to the building's new administrative offices. TOPCEM PREMIX ready-to-use mortar was mixed with PLANICRETE AC acrylic latex admixture and used for exterior re-sloping of part of the driveway.

The same products were used to form mud beds on the suspended bridge floor of the second level of the new building.

After the screed was set in place in the interior, the floor surfaces were lined with MAPEGUARD 2 crack-isolation and sound-reduction sheet membrane.

Then, a variety of different Mapei mortars and grouts were used to apply a wide range of porcelain tiles in the interior and exterior of the new expansion.

In the administrative offices and open spaces on the first and second floors, porcelain tiles by Cooperativa Ceramica d'Imola were bonded with the KERABOND+ISOLASTIC (the latter is distributed in the Americas under

Photo 1. *Mapei Inc.'s plant at Delta (British Columbia) and a detail view of the recently extended areas.*

the name of KERALASTIC). This system was the one that originally opened up the Canadian market to the growth of ceramic tile as a flooring choice, because it could be used over a plywood substrate. The floors on both levels were then grouted with ULTRACOLOR PLUS fast-setting and drying grout in two different colour shades.

Large-size porcelain tiles from Cooperativa Ceramica d'Imola, with a slate-like appearance, were laid on the new building's front facade, using GRANIRAPID. This rapid-setting flexible adhesive allowed the exterior tiles to be installed rapidly and met the demanding needs of a freeze-thaw environment. The joints of these tiles were also grouted with ULTRACOLOR PLUS.

In the shower rooms MAPELASTIC AQUADEFENSE waterproofing and crack-isolation membrane was used to protect the inside surfaces of the showers in all locker rooms. The floors and walls of the locker rooms were covered with 40x60 cm porcelain ceramic tile using ULTRAFLEX LFT mortar for large-format tiles. The same adhesive was used to bond a ledge-stone type 5x10 cm mosaic tile by Cooperativa Ceramica d'Imola on the inside surfaces of the showers. Joints in both areas were grouted with KERACOLOR S grout in the gray shade.

In the quality control laboratory the installers set 40x60 cm porcelain tile from Iris Ceramiche using ULTRAFLEX 2 polymer based adhesive and grouted the joints with KERACOLOR S again in the gray color.

In the new 140 m² lunchroom, the installers laid even larger tiles, 60x60 cm porcelain tile from Iris Ceramiche. Because of the larger tile size, they used ULTRAFLEX LFT for bonding. KERACOLOR S in the gray shade was again used to grout the tiles.

Once the new expansion was complete, the quality control laboratory in the original building and the shipping offices were renovated and received a new finished floor surface that used one of Mapei's concrete restoration products, ULTRAPLAN M20 PLUS fast-setting, self-leveling concrete compound and finishing.

Thanks to the use of these innovative products, the Mapei manufacturing facility in Delta has new spaces available which will last a long time and ensure that operations are properly carried out in an attractive setting.

On the basis of the eco-sustainability standards and the saving of energy and water resources featured in the extension project, Mapei Inc. applied for LEED certification for the new areas; and this will be granted at the end of the certification process in the second half of 2010.

On May 3, 2010, an official opening ceremony of the extended plant was held in Delta. Several local authorities (including the Mayor of Delta, Ms Lois Jackson), representatives of the Italian Embassy, members of the Board of the Mapei Group and of the mother company Mapei SpA (among them Giorgio

Photos 2 and 3. *The warehouse and the quality control laboratory are two of the areas involved in the extension works.*
Photos 4 e 5. *A wing of the Mapei plant during the extension works and after their completion.*
Photo 6. *The Mayor of Delta Lois Jackson, the President of the Mapei Group Giorgio Squinzi and the President of Mapei Americas and Mapei Inc Luigi Di Geso cut the ribbon during the official opening ceremony after completion of the extension works at Mapei plant in Delta.*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Squinzi, Marco Squinzi, Roberto Boselli and Guido Trussardi), several members of Mapei Corp. (the US subsidiary of the Mapei Group) and Mapei Inc., as well as customers, project designers, representatives of local and technical press were invited.
Participants had the chance to listen to official welcome speeches, tour the manufacturing unit and enjoy the Italian-style banquet.

New LEED-certified Areas

LEED – which stands for Leadership in Energy and Environmental Design – is a voluntary, consensus-based nationally accepted standard for developing high-performance, sustainable or "green" buildings in the U.S.A and Canada. Developed by the U.S. Green Building Council (USGBC), LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state-of-the-art strategies that promote benefits for the environment, economy, health and community through sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.
Mapei has been leading its industry with environmentally friendly and sustainable products since the 1980s and is a strong supporter and promoter of the LEED certification program since its initial launch in 1993 in the USA and 2004 in Canada. LEED certification is the recognized standard for measuring building sustainability. That's the reason why Mapei, during the extension works at Delta, relied on a LEED Accredited Professional expert's help and applied for LEED certification for the new areas in its manufacturing facility.
The LEED green building rating system is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.
The LEED rating system offers four certification levels that correspond to the number of credits accrued in five different green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.
In Delta, the warehouse-office expansion has been designed to achieve 28 points, exceeding the 26 points necessary for LEED certification, in the following areas:
• Sustainable sites (5 pts.) – Some points were achieved by providing alternative transportation choices such as designated carpool parking, electric/hybrid car charging availability and bicycle racks along with showers and changing facilities. Additional points were achieved by reducing heat island effects through paving the roads and parking areas with concrete instead of asphalt and installing a white thermoplastic olefin (TPO) roofing membrane. These actions reduce the heat haze effect on the surrounding atmosphere.
• Water efficiency (5 pts.) – Potable water usage was reduced by capturing rainwater from the warehouse roof into a cistern. This water is used for irrigation and is also run through a series of pumps and filters for use in flushing toilets and urinals. Additionally, low flow plumbing fixtures and dual flush toilets were installed. The volume of potable water will be strongly reduced as a result of these initiatives.
• Energy and atmosphere (2 pts.) – The new facility uses no hydro-chloro-fluoro-carbon (HCFC) in its cool storage system, which is not allowed in Canada and USA because it contributes to ozone depletion. Two points were achieved by optimizing energy performance through enhanced insulation of exposed walls and floors, increased gas-fired boiler efficiency, and reduced lighting power consumption through use of daylight and occupancy sensors. It is anticipated Mapei will reduce its energy cost by 28% thanks to these initiatives.
• Materials and resources (6 pts.) – These points were achieved by diverting most of the generated construction waste from a landfill to a local waste recycling firm. Mapei also reduced its material costs for the project by 30% through the use of recycled materials such as fly ash used in concrete and recycled structural steel and rebar. To promote waste reduction during operations, recycling bins are located throughout the facility for glass, cans, paper, and cardboard.
• Indoor environmental quality (6 pts.) – Points were achieved during construction through the implementation of an Indoor Air Quality (IAQ) plan by the contractor and the use of low emitting materials such as the eco-friendly adhesives and sealants produced by Mapei. Perimeter and interior glass and windows were designed to provide daylight views for 75% of the workspaces. With the use of large windows and skylights in the warehouse, the bright natural light creates a striking contrast to traditional design.
• Innovation and design process (4 pts.) Innovation credits capture unique sustainability strategies. These have been applied for Mapei's use of material recycled content, regional material use and reduction in potable water use. One point was awarded due to the presence of a LEED Accredited Professional expert within the team that coordinated the extension works. All the documents and materials required for LEED certification were submitted to the Canadian Green Building Council (CaGBC), which will process all the information and award the formal certification in the second half of 2010.

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2010 Vancouver **Winter Olympics**

New cutting-edge eco-sustainable facilities with the help of Mapei

In comparison with the building boom which characterised the 2008 Beijing Olympics, both in terms of the amount of new constructions and the distinctiveness of the architectural designs (in terms of size and originality, it is worth mentioning, first and foremost, the Bird's Nest Stadium and Water Cube, which hosted the Olympic swimming pool), the Vancouver Games stood out for the lack of architectural clamour. In actual fact, most of the locations were actually existing stadiums or buildings which were extended or upgraded in terms of their facilities and utilities. Nevertheless, these Games also stood out for the fact that they received LEED (Leadership in Energy & Environmental Design, see the previous article) certification for most of the Olympic facilities, which allowed Vancouver to boast being one of the most eco-sustainable cities on earth.

In keeping with the tradition which has always seen the Company to the fore in terms of the contribution to the construction and restructuring of sports facilities and infrastructures for major sports events like the Olympic Games, Mapei once again made its own experience and cutting-edge technology available for the 2010 Vancouver Games.

All kinds of building projects were carried out using Mapei products and product systems (the following pages will provide an extensive overview of the buildings constructed and projects completed).

The building and installation companies focused on eco-sustainable products, as set down in the specifications for LEED certification, and Mapei, which has always been committed to researching and developing products capable of safeguarding the environment and the health of installers and end users, suggested using Green Innovation-labelled products whenever possible.

For some time now Mapei has considered eco-sustainability as a real must in building and has launched its

Thanks to the 2010 Olympic and Paralympic Games, the Canadian city can boast to be one of the most eco-sustainable cities in the world

FACTS AND FIGURES ABOUT THE VANCOUVER OLYMPICS

- 16 days of Olympic Games
- 10 days of Paralympic Games
- 7 sports for a total of 86 medals in the Olympic Games
- 5 sports for a total of 64 medals in the Paralympic Games
- 5500 athletes and officials at the Olympic Games
- 1350 athletes and officials at the Paralympic Games
- Over 80 countries taking part in the Olympic Games
- Over 40 countries taking part in the Paralympic Games
- 10,000 journalists in attendance
- 3 billion TV viewers worldwide

so-called Green Innovation concept, whose logo shows a green tree with the words "Green Innovation" beneath it. A central aspect to this enterprise is a partnership with the Green Building Council, which is in charge of the LEED system for classifying and certifying buildings based on a specific points-scoring system.
The use of over 150 Mapei products can help in obtaining LEED certification in four fields: content of recycled material; raw materials found locally; adhesives and sealants with low emissions of substances which are likely to be a health hazard to either people or the environment; indoor quality before occupancy.

Richmond Olympic Oval

Located 14 miles from downtown Vancouver, just across the Fraser River from the Vancouver International Airport, is the Richmond Olympic Oval. Due to its 47,526 m^2 net surface, this site is one of the most spectacular and impressive indoor venues for the 2010 Winter Games, housing a 400-meter indoor track where all speedskating competitions took place. As an exceptional model of green-building design and operation, the Oval has achieved LEED "Silver" green-building certification because of the following features: the 2-hectare clear span roof structure was built from wood salvaged from a pine beetle infestation of pine trees in British Columbia's interior; a storm water management system captures rainwater from the roof, to be used for toilet plumbing and irrigation; the Oval's construction uses non-toxic materials to ensure excellent indoor air quality including floor coverings, sealants and paints that result in minimal off-gassing.

Already the centerpiece of a major new urban waterfront neighborhood, after the Games the Richmond Olympic Oval was transformed into an international center of excellence for sports and wellness. Designed with flexibility in mind, the Oval will be used for various sport and community functions, providing a recreational legacy for generations to come. Built to meet or exceed Canadian accessibility standards, this incredible center served as a training and competition facility for many wheelchair sports including wheelchair rugby, wheelchair basketball and adaptive rowing.

Mapei played an integral role in helping to construct the Oval's speed-skating slab, upper ice deck, rowing pool tank, rowing pool deck and several sections of the building's concrete floors. The following products came into use: ULTRATOP (in its gray and natural gray colour shades) high-performance, quick-setting, self-levelling concrete topping was used for resurfacing the damaged slab on the main level both under the seating area and around the Oval's main area; PLANITOP 23 fast-setting, two-component, vertical and overhead repair mortar for repairing areas of the inner slab that butted up against the extremely cold Oval slab section; MAPECEM 102 medium-build, fast-setting mortar, for resloping

Photo 1. *The Richmond Olympic Oval ice track.*

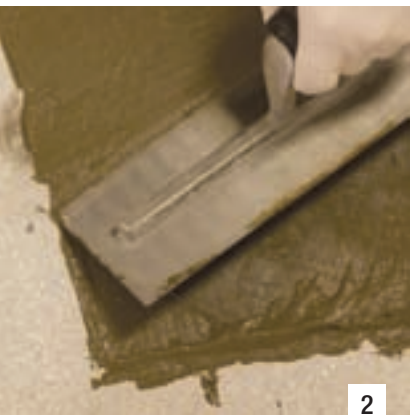
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Photo 2. *The substrate was levelled with PLANIPATCH before laying rubber coverings.*
Photo 3. *ULTRATOP (in its gray and natural gray colour shades) high-performance, quick-setting, self-levelling concrete topping was used for resurfacing the damaged slab on the main level both under the seating area and around the Oval's main area.*
Photo 4. *Rubber floor coverings were bonded with ULTRABOND G21.*
Photo 5. *NOVOPLAN EASY self-levelling compound was used for levelling the floor substrates before installing wooden floorings.*

the floor on the ice level at the top of the stairs leading to the Oval's inner section; ULTRATOP white high-performance, quick-setting, self-levelling concrete topping, tinted with a black oxide pigment, for creating a light gray concrete finish surface in the Oval's 418 m² entry; CONCRETE RENEW high-performance concrete resurfacer and MAPECEM QUICKPATCH high-performance, high-flow concrete patch, for resurfacing sections of the upper ice perimeter deck; MAPECEM 202 medium-bed, two-component, fast-setting mortar, for resloping the concrete slab in two bays where the machines to clean ice are stored.
NOVOPLAN EASY easy-preparation, self-levelling underlayment, for levelling the floor in the Oval's center before installing wooden flooring, where hardcourt sports like basketball, volleyball and badminton were played; ULTRAPLAN 1 PLUS quick-setting, self-levelling underlayment, for levelling several of the utility room floors before installing finish flooring; ULTRAPLAN M20 PLUS quick-setting, self-levelling concrete topping and underlayment, for resurfacing the bottom landing of the stairs, ground floor, south side and middle sections of the building; PLANIPATCH fast-setting, cementitious patching compound, for general patching repairs and substrate preparation before the installation of rubber flooring; MAPELASTIC all-climate, flexible, cementitious membrane, for waterproofing and protecting the decks and tanks of the rowing pool before setting tiles with KERABOND + ISOLASTIC (the latter is distributed in the Americas under the name of KERALASTIC) flexible system, KERAPOXY stain-resistant, 100%-solids epoxy mortar, for grouting tile joints on the decks of the rowing pool; ULTRABOND G21 premium, two-part urethane flooring adhesive, for installing Mondo rubber flooring throughout the Oval's fitness areas and dressing rooms; MAPEFINISH WET LOOK high-gloss, water-based acrylic sealer, for sealing the concrete floor of the main front entrance.

TECHNICAL DATA

Richmond Speed Skating Oval, Richmond (British Columbia, Canada)
Project Designer: Cannon Johnson Architecture

Period of the Intervention: 2006-2008
Intervention by Mapei: supplying products for concrete surface preparation, concrete patching and repair, resloping floors, levelling and resurfacing floors, sealing concrete floors, waterproofing pool decks and tanks, bonding tile on pool decks and tanks, installing rubber floorings
Client: City of Richmond
Works Directors: Robert Skrzyp, Brad Thompson, Al Hewitt
Contractors: Dominion Fairmile Construction, Beton Systems, Levelcrete Contracting, Futuristic Designs
Laying Companies: Greystone Tile & Stone Ltd.
Mapei Distributors: Brock White Universal, Fast Track Floors, Pacific Rim, Golden Flooring Accessories
Mapei Coordinators: Dave Randall, Clint Ruck, Luigi Federico – Mapei Inc. (Canada)

MAPEI PRODUCTS

The products mentioned in this article **(Concrete Renew, Kerapoxy, Kerabond+Isolastic - Isolastic is distributed in the Americas under the name of Keralastic - Mapecem 202, Mapecem 102, Mapefinish Wet Look, Mapecem Quickpatch, Mapelastic, Novoplan Easy, Planipatch, Planitop 23, Ultraplan 1 Plus, Ultraplan M20 Plus, Ultrabond G21, Ultratop)** are manufactured and distributed in the Americas by Mapei local subsidiary, Mapei Americas. For further information see the website www.mapei.com.

Vancouver Olympic/ Paralympic Centre

Designed to host the curling and wheelchair curling events while netting zero loss of green space, the Vancouver Olympic/Paralympic Centre was built to replace the well-used and aged community complex at Hillcrest/Nat Bailey Stadium Park. Adjacent to and built simultaneously as the curling arena is a massive aquatic center with both indoor and outdoor pools. Once the conversion to legacy mode was completed, this facility has been targeted for LEED "Gold" green-building certification.
Contributing factors for its certification include its smart site selection, full wheelchair accessibility and rainwater reuse.
In addition, the center utilizes waste heat reuse systems that capture heat from the refrigeration plant and reuse it to heat other building spaces, as well as domestic hot water for the facility. The curling venue will be transformed into a dynamic, multipurpose community recreation center that will include an ice hockey rink, six to eight sheets of curling ice, a full-size gymnasium, a library and an aquatic center, complete with indoor and outdoor pools and hot tubs.
Mapei products were used to bond tiles in the washrooms and showers in the curling arena, for repair and waterproofing work and for bonding large-format tile in the adjacent aquatic center.
MAPEFER 1K corrosion-inhibiting coating was used for reinforcing rebar in the walls of the main pool tank; PLANITOP 15 repair mortar for repairing and reforming walls in the pool's main tank; PLANITOP 23 two-component, vertical and overhead mortar for repairing walls and patching in the main tank; PLANITOP 25 flowable, two-component mortar for repairing drain cavities in the main pool tank; PLANICRETE AC acrylic latex admixture for enhancing performance of sand/cement mortar bed required for sloping to drain 4,645 m^2 in change rooms and decks; MAPELASTIC 315 flexible, cementitious waterproofing membrane for waterproofing the substrates of pool tanks, decks, shower floors and walls; PLANITOP X fast-setting horizontal, vertical and overhead mortar for fast-track localized patching repairs; MAPEGUARD SM crack-isolation and sound-reduction sheet membrane, for covering cracks in the main foyer's concrete substrate and protecting the entryway/hall corridor between the pool and curling rink; KERABOND + ISOLASTIC (the latter is distributed in the Americas under the name of KERALASTIC) for setting several hundreds of square meters of tile varying in size and composition, throughout the aquatic center's walls and floors as well as in the curling rink's washrooms and showers; ULTRACOLOR PLUS rapid-setting sanded grout for grouting all tile joints on the center's walls and floors as well as the curling rink's washrooms and showers.

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Photos 1 and 2. *The surfaces in the main pool have been repaired with PLANITOP 15, PLANITOP 23 and PLANITOP 25 repair mortars.*
Photo 3. *Reinforcement rods were treated with MAPEFER 1K.*

TECHINCAL DATA

Vancouver Olympic/Paralympic Centre, Vancouver (British Columbia, Canada)
Project Designers: Hughes Condon Marler and Metro Testing

Period of the Intervention: 2007-2009
Intervention by Mapei: supplying products for repairing the concrete substrates, waterproofing the pools surfaces, bonding ceramic tiles and grouting tile joints
Client: Vancouver Board of Parks and Recreation
Contractors: Stuart Olson Construction, Mardina Construction
Laying Company: Apex Tile & Granite
Laid Materials: ceramic tiles
Mapei Distributors: Daltile, VP Tile and Richform Construction Supply Co.
Mapei Coordinators: Dave Randall and Dave Hamilton, Mapei Inc. (Canada)

MAPEI PRODUCTS

The products mentioned in this article **(Mapeguard SM, Mapefer 1K, Mapelastic 315, Kerabond+Isolastic - Isolastic is distributed in the Americas under the name of Keralastic - Planitop 15, Planitop 23, Planitop 25, Planicrete AC, Planitop X, Ultracolor Plus)** are manufactured and distributed in Canada by Mapei local subsidiary, Mapei Inc.
For further information see the website www.mapei.com.

Olympic and Paralympic Village Vancouver

Photo 1. *The Olympic and Paralympic Village during the construction works.*

The Vancouver Olympic Committee chose extraordinary locations for athletes and officials to live and relax in, while enjoying the Winter Games. Centrally located on Vancouver's inner waterfront across from British Columbia Place Stadium, the newly constructed 1,100-unit Olympic and Paralympic Village offers accommodations that feature magnificent views of the downtown skyline and coastal mountains.

Demonstrating smart site selection, this project transformed a former industrial brownfield area into a showcase of sustainable living. Initiatives that include energy conservation, green roof design, creation of green space, water efficiency programs, car share vehicles, electric vehicle hookups and many more sustainable efforts allowed the Vancouver Olympic Village to recently earn LEED "Platinum" green-building certification - making it one of the highest-rated environmentally designed neighborhoods in Canada.

The Olympic and Paralympic Village Vancouver is the first phase of a leading model of sustainability known as Sout East False Creek (SEFC). Many of the buildings that make up this neighborhood are expected to earn individual LEED "Gold" and "Platinum" certifications. Mapei products were used for repairing concrete, self-leveling and waterproofing as well as for bonding tile and natural stone in the bathrooms, showers and balconies of several multi-residential buildings.

PRIMER L acrylic latex primer was used for improving the bond between the concrete substrate and self-levelling compound; NOVOPLAN 2 and NOVOPLAN EASY self-levelling compounds for levelling over 6 503 m^2 of concrete floors; PLANITOP X fast-setting repair mortar for general fast-track, concrete repairs; PLANIPATCH cementitious patching compound for localized flooring repairs; MAPECEM 101 thin-build, fast-setting mortar and PLANICRETE AC acrylic latex admixture for sloping the concrete decks; GRANIRAPID rapid-setting, flexible adhesive for bonding 1,115 m^2 of large-format porcelain tiles on all exterior balconies; ULTRACOLOR PLUS rapid-setting sanded mortar for grouting joints on exterior balconies; MAPELASTIC HPG flexible, acrylic based waterproofing and crack-isolation membrane for waterproofing substrates in the bathroom showers; ULTRAFLEX 2 and ULTRAFLEX LFT adhesives for bonding 9,290 m^2 of large-format porcelain tiles and natural stone slabs on bathroom floors and interior balconies; ULTRALITE MORTAR premium lightweight tile mortar, for setting 4,645 m^2 of large-format porcelain tile and natural stone on bathroom and shower walls; KERACOLOR S sanded mortar for grouting porcelain tile joints on interior applications; KERACOLOR U unsanded mortar, for grouting joints in natural stone coverings on interior applications.

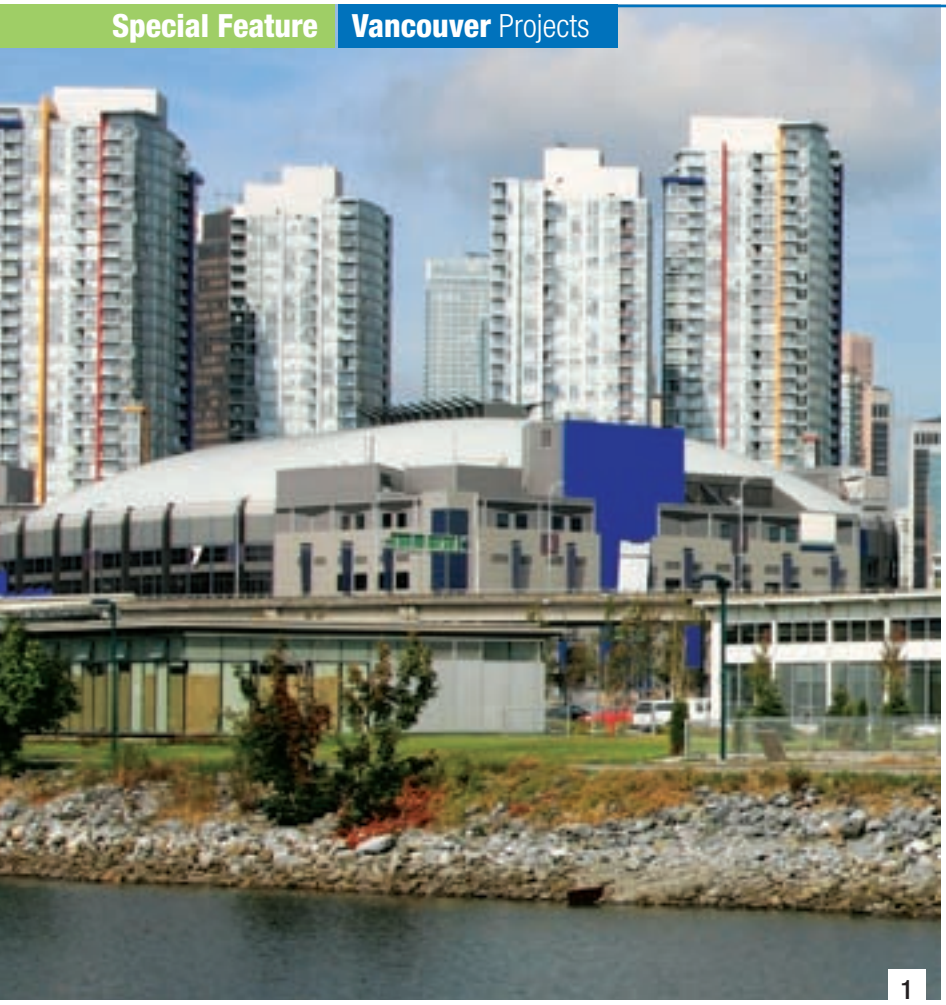
TECHINCAL DATA

Olympic and Paralympic Village Vancouver, Vancouver (British Columbia, Canada)
Project Designer: Morrison Hershfield

Period of the Intervention: 2007-2009
Intervention by Mapei: supplying products for repairing, levelling and waterproofing the substrates; for bonding ceramic tiles and natural stone slabs and grouting tile joints
Client: Millenium Southeast False Creek Properties
Works Directors: Jason Davids
Contractors: Metrocan Construction, Levelcrete Contracting, Tayrona Concrete, Femo Construction and MCD
Laying Company: Exclusive Floorcoverings
Laid Materials: ceramic tiles and natural stone slabs
Mapei Distributors: Richform, Brock White (Burnaby) and Pacific Rim Flooring
Mapei Coordinators: Dave Randall and Clint Ruck, Mapei Inc. (Canada)

MAPEI PRODUCTS

The products mentioned in this article **(Granirapid, Keracolor S, Keracolor U, Mapecem 101, Mapelastic HPG, Novoplan 2, Novoplan Easy, Primer L, Planitop X, Planipatch, Planicrete AC, Ultracolor Plus, Ultraflex 2, Ultraflex LFT, Ultralite Mortar)** are manufactured and distributed in the Americas by Mapei local subsidiary, Mapei Americas.
For further information see the website www.mapei.com.



Canada Hockey Place

In addition to being the home of the National Hockey League's Vancouver Canucks, Canada Hockey Place (that is, General Motors Place, temporarily renamed for the duration of the 2010 Winter Olympics) is one of the premier sports and entertainment facilities in North America. Conveniently nestled in downtown Vancouver, Canada Hockey Place has attracted the biggest names in show business and has welcomed more than 15-million visitors since opening in 1995. Rather than converting the facility to accommodate larger, international-size ice surfaces – which would have created an environmental impact – it was decided that men's and women's ice hockey competitions would take place on North American-size surfaces. This decision precluded any need to modify the existing ice sheet in preparation for the Winter Games. Once the Winter Games concluded, Canada Hockey Place returned to its original name, General Motors Place. It will continue to host over 100 national and international events each year.

As part of this venue's Olympic preparations, Mapei helped construct new locker rooms as well as a luxury clubhouse known as the "Best Buy Clubhouse". Ready-to-use TOPCEM PREMIX was used for the screeds on the ramps and for sloping all concrete locker room floors; MAPELASTIC AQUADEFENSE and REINFORCING FABRIC for waterproofing and providing anti-fracture capabilities to shower walls, the hot-tub area and all other areas exposed to water; ULTRAFLEX LFT adhesive for bonding ceramic and porcelain tiles on locker room walls and floors; KERAPOXY epoxy mortar for grouting joints in shower and hot-tub areas that were tiled with 2,5 x 2,5 cm mosaics; MAPECEM QUICKPATCH high-flow concrete patch, for repairing the clubhouse's concrete substrate; ULTRAPLAN M20 PLUS quick-setting, self-leveling concrete topping and underlayment, for levelling the clubhouse's concrete substrate; MAPEFINISH WET LOOK high-gloss water-based acrylic sealer, to enhance color and provide a superior abrasion and slip-resistant flooring finish.

Photo 1. *External view of the Canada Hockey Place.*
Photos 2 and 3. *Mosaics were grouted with KERAPOXY in showers and hot-tub areas.*

TECHNICAL DATA

Canada Hockey Place, Vancouver (British Columbia, Canada)
Year of the Intervention: 2009

Intervention by Mapei: supplying products for repairing, sealing, levelling and waterproofing the floor substrates; for bonding ceramic and porcelain tiles and mosaics and grouting joints
Client: General Motors Place, Vancouver
Contractors: OFC Construction Ltd, Futuristic Design
Laying Company: Comario Construction
Laid Materials: ceramic and porcelain tiles and mosaics
Mapei Distributors: Golden Flooring Accessories and Brock White (Universal Concrete)
Mapei Co-ordinators: Al Andreassen and Dave Randall, Mapei Inc. (Canada)

MAPEI PRODUCTS

The products mentioned in this article **(Kerapoxy, Mapecem Quickpatch, Mapelastic AquaDefense, Mapefinish Wet Look, Topcem Premix, Reinforcing Fabric, Ultraflex LFT, Ultraplan M20 Plus)** are manufactured and distributed in the Americas by Mapei local subsidiary, Mapei Americas. For further information see the website www.mapei.com.


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Photo 1. *External view of the Olympic Committee Headquarters.*
Photo 2. *ULTRABOND ECO 575 adhesive was used for bonding carpet base along the building's walls.*
Photos 3 and 4. *Before carpet, linoleum and wall base were installed, PLANIPATCH patching compound and PLANIPATCH PLUS latex additive were used for substrate preparation and patching repairs.*


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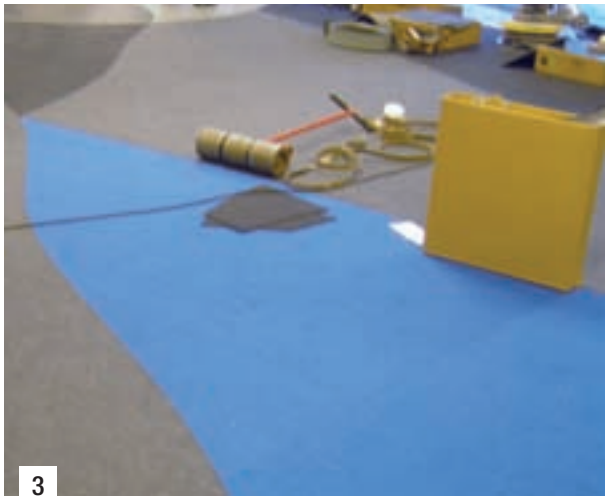
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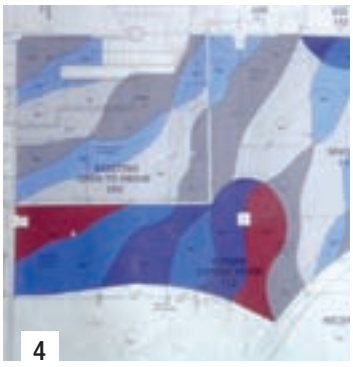
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Olympic Committee Headquarters

The Vancouver Olympic Committee (VANOC) Headquarters for the 2010 Winter Olympics, located in East Vancouver, includes two existing adjoining buildings that encompass two streets.
The location of this seven-story building and two-story neighbour was specifically chosen for its ability to house all Vancouver 2010 employees, as well as a multitude of its partners under one roof in an open configuration. Vancouver's sustainability commitments were kept front and center during the building's office space renovations. Awarded LEED "Gold" green-building certification, the building design allows full accessibility to those with disabilities and includes energy and water-saving systems, fixtures and appliances, low-VOC-emitting paints, sealants, adhesives and carpets, natural lighting, advanced recycling and waste collection. In addition, the buildings are close to public transportation and facilitate alternative transportation with car pool parking, bike storage, showers and changing room facilities.
After the Winter Games the Campus 2010 may become the headquarters for the Vancouver Police Department or may be utilized for other important civic roles.
On six floors of the taller building, Mapei contributed to prepare several hundred square meters of concrete substrate before carpet tile, linoleum and wall base were installed.
PLANIPATCH PLUS SYSTEM, comprising a professional cementitious patching compound (PLANIPATCH) and high-performance latex additive (PLANIPATCH PLUS), was used for general surface preparation and patching repairs; ULTRABOND ECO 575 adhesive for bonding carpet base along the building's walls.

TECHNICAL DATA

Vancouver Olympic Committee Headquarters, Vancouver (British Columbia, Canada)

Year of Intervention: 2006
Intervention by Mapei: supplying products for preparing the concrete substrates and for bonding carpet base along the building's walls.
Client: City of Vancouver
Works Director: Rick Wagner
Laying Company: Maxwell Floors
Laid Materials: carpet wall base
Mapei Distributor: Pacific Rim Flooring
Mapei Co-ordinator: Clint Ruck, Mapei Inc. (Canada)

MAPEI PRODUCTS

The products mentioned in this article **(Planipatch, Planipatch Plus, Ultrabond Eco 575)** are manufactured and distributed in the Americas by Mapei local subsidiary, Mapei Americas.
For further information see the website www.mapei.com.

Main Media Centre at Vancouver Convention Centre

Located on Vancouver's prime waterfront, during the Games the Vancouver Convention Centre housed the Main Media Centre and International Broadcast Centre, providing a common location with shared services for press and broadcasters.

In preparation for the Winter Olympics, the existing East Building was renovated to exceed world-class facility standards, while the West Building expansion tripled its size to 102,193 m^2. The Centre's iconic West Building has recently received LEED "Platinum" certification. Featuring floor-to-ceiling glass, the Centre's West Building is replete with "living-roof" composed of native plants. Additional eco-friendly features include a seawater heating and cooling system, a sophisticated water recovery program, facility-wide recycling program, optimal use of natural light, and a fish habitat preserve that surrounds the entire foundation.

This facility will continue to draw thousands of visitors to the most impressive convention center on earth. Mapei's contributed to concrete repair work on the building's interior floors and doorways as well as on exterior pathways, stairs and window frames. As well, Mapei provided adhesive solutions for glass tile mosaic installation on the building's lower level and for a sizable, large-format granite paver application in the Centre's East Building. MAPECEM 101 fast-setting mortar was used for repairing exterior concrete pathways; MAPECEM 102 for levelling concrete in the doorways of several rooms; PRIMER L for priming concrete slabs before self-levelling ULTRAPLAN 1 PLUS was applied for leveling large expanses in several rooms; MAPECEM QUICKPATCH high-flow concrete patch was used for repairing small problem areas; PLANITOP X repair mortar was used for quickly sculpting all exterior stairs; MAPECEM 202 two-component, fast-setting mortar for smoothing and levelling areas where large glass windows were set into frames; PLANIBOND EBA epoxy bonding agent and primer was used in conjunction with MAPECEM 202 and MAPECEM 102 to ensure a permanent bond; PLANICRETE AC admixture was used as a general bonding agent; MAPELASTIC 315 waterproofing membrane for ensuring protection from cracks to the substrates; GRANIRAPID for bonding 325 m^2 mosaic on the West Building's lower level; KERABOND + ISOLASTIC (the latter is distributed in the Americas under the name of KERALASTIC) system for bonding granite pavers on the East Building's exterior plaza; ULTRACOLOR PLUS rapid-setting grout for grouting the West Building's floor joints.

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Photos 1 and 2. *Granite pavers were laid on the East Building's exterior plaza with KERABOND + ISOLASTIC (ISOLASTIC is distributed in the Americas under the name of KERALASTIC).*

TECHINCAL DATA

Main Media Centre at Vancouver Convention Centre, Vancouver (British Columbia, Canada)

WEST BUILDING
Period of the Intervention: 2006-2009
Intervention by Mapei: supplying products for repairing internal and external concrete floor and stairs substrates, for bonding mosaic floorings and grouting the joints.
Client: Government of British Columbia
Contractors: PCL Construction, LT Concrete
Laying Company: Star Tile
Laid Materials: mosaic
Mapei Distributors: National Concrete Accessories, Brock White and City Tile
Mapei Co-ordinators: Dave Randall and Luigi Federico, Mapei Inc. (Canada)

EAST BUILDING
Designer: PWL Partnership
Year of the Intervention: 2009

Intervention by Mapei: supplying products for bonding granite pavers and grouting the joints
Client: Government of British Columbia
Main Contractor: Manley Construction
Laying Company: Robertson Floors Ltd
Laid Materials: granite pavers
Mapei Distributor: Golden Flooring Accessories
Mapei Co-ordinator: Luigi Federico, Mapei Inc. (Canada)

MAPEI PRODUCTS

The products mentioned in this article **(Mapelastic 315, Mapecem 101, Mapecem 102, Mapecem 202, Planicrete AC, Primer L, Ultraplan 1 Plus, Mapecem Quickpatch, Planitop X, Granirapid, Ultracolor Plus, Planibond EBA, Kerabond + Isolastic - Isolastic is distributed in the Americas under the name of Keralastic)** are manufactured and distributed in the Americas by Mapei local subsidiary, Mapei Americas. For further information see the website www.mapei.com.

Mapei at the Olympics

The Company excels at the 21st Winter Olympics in Vancouver

Internationalisation is one of the pillars on which Mapei bases its constant industrial growth. Other key elements in its corporate philosophy are specialisation, the research and development of technologically cutting-edge products and a personalised customer service.

This philosophy is concretely embodied thanks to such values as strong team spirit and a constant drive towards excellence: values which are naturally expressed in sport.

Being truly global also means being involved in those highly symbolic events successfully conveying values which, alone, can express the sense of an entire culture. Within the realm of sports, ever since ancient times the Olympic Games have managed to sum up a widely shared feeling that men and nations should come together to celebrate a kind of brotherhood, which is not just an abstract ideal but also a concrete principle, because it is based on action and the dogged determination of men and women striving to excel both for themselves and for the sake of the national community they represent.

And so, in accordance with the motto for the Olympic Games "citius, altius, fortius" (i.e. faster, higher, stronger), the Olympic flag depicts five interlocking rings on a white background: the colours chosen are those on every nation's flags, so combined together (white as a combination of all colours) they symbolise all countries, while the interlocking rings represent the universal Olympic spirit.

Mapei has always been synonymous with sport at the very highest level, both when it gets directly involved or takes part as a sponsor and when it is responsible for contributing to building the places where sport takes place.

Mapei products have helped construct lots of sports facilities all over the world. Its flower in the buttonhole are most certainly the works it has constructed for Olympic Games, starting with Munich in 1972, then Montréal in 1976, Barcelona in 1992, Atlanta 1996, Sydney in 2000 (see *Realtà Mapei International* no. 9) Salt Lake City in 2002 (*RMI* no.11), Athens 2004, Turin 2006 (*RMI* no. 20) and Beijing 2008 (*RMI* no. 26), right down to the recent Winter Olympics held in Vancouver in 2010 and the forthcoming Football World Cup in South Africa.

The 21st Winter Olympics drew to a close on 1st march after 16 days of competition in the Canadian city of Vancouver. The Games, which Jacques Rogge, President of the CIO (International Olympic Committee), described as "excellent and very friendly", had their closing ceremony at the British Columbia Place Stadium.

Sporting achievements aside, one Italian player that certainly did itself proud in Canada was Mapei whose products and highly qualified technicians helped construct all the various facilities where the Games were held. John Furlong, President of the Organising Committee (Vanoc), summed up these 16 days destined to change the face of the nation by saying that: "the time has now come to say farewell and thank you. And, perhaps, to momentarily compare Canada as it was before and Canada as it is now. I think we Canadians are stronger, more united, more in love with our country and more in harmony than ever. The Games have driven us to a higher level".

Before the flame of the Olympic torch was put out, the final act of the closing ceremony of the 21st Winter Olympic Games saw the Mayor of Vancouver, Gregor Robertson, hand over the Olympic flag to Anatoly Pakhomov, the Mayor of Sochi. The handing over ceremony was completed by a presentation during which the Russian city hosting the next Games to be held in four years time began to show its colours by "displaying", among other things, the ballet dancers from the Bolshoi and Mariinskij theatres. There is one thing of which we are certain: in four years time Mapei will, as is now traditional, be a key player once again. RM

Alpine skiing at the Olympics using the yo-yo technology!

A new training system developed by Mapei Sport for the Italian National Alpine Skiing Team

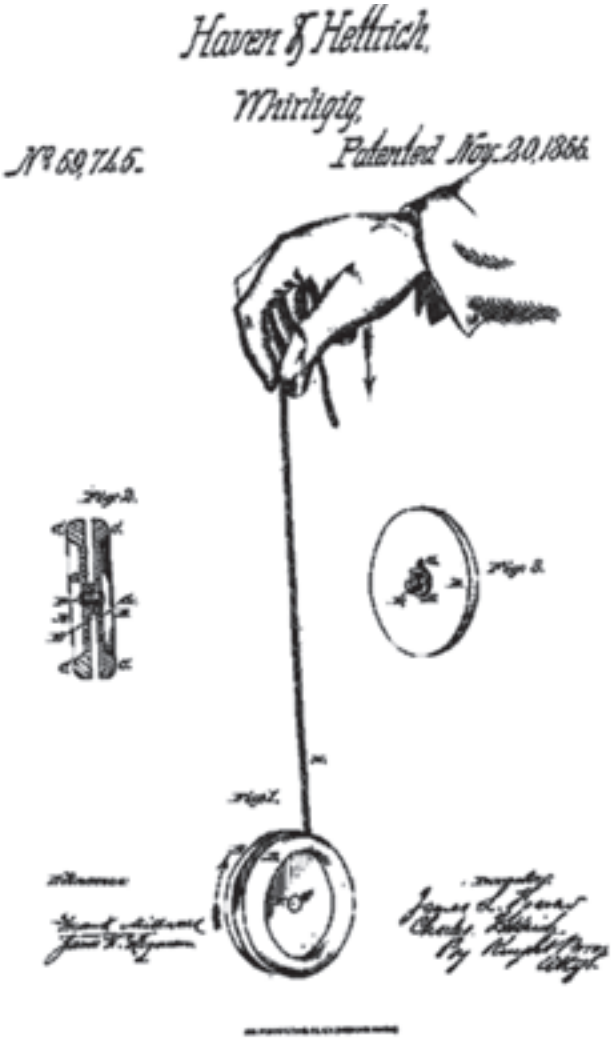
by Aldo Sassi, Mapei Sport

If somebody asked you what a yo-yo is, you would probably think of that toy we all played with when we were children.

You might be interested to learn that the toy in question actually has an American patent dated 1866 (the picture in the next page shows an illustration taken from the patent itself). So what has a yo-yo got to do with the training technology used by downhill skiers of the Italian national team? Plenty, in actual fact. Ask any of the Italian athletes what a yo-yo makes them think about and they certainly won't talk about the entertaining toy, but rather something much more demanding! So why is that? That's easy: because the physical training schedule of a number of our athletes on the Italian national ski team over the season prior to the 2010 Vancouver Olympics was supplemented by huge doses of yo-yoing. Does that sound funny? It probably does, but it was anything but relaxing, we can assure you of that.

The yo-yoing we are talking about actually draws on the same basic principle as the toy we are all so familiar with, but it is a very specific training technology, which has already been used by astronauts at NASA to keep fit during space missions. Instead of the traditional little wooden or plastic toy, it involves a large pulley connected to a platform set on the floor; a cable wrapped around the flywheel of the pulley is hooked around the athlete's waist and then unwinds as the athlete makes the flywheel rotate rapidly as they extend their legs from the squat position. This really takes it out of the athlete's legs!

But the hard part is still to come: when the athlete's legs are extended, the rope is completely unravelled from the



Photos by Mario Curti

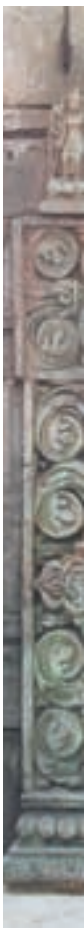
Right, above. *Giuliano Razzoli, gold medallist at Vancouver 2010, during the downhill race.*
Right, below: *Razzoli celebrating after winning.*
Above. *Picture taken from the yo-yo patent documents.*
Opposite. *Sequence from the yo-yo exercise carried out at the Mapei Sport centre.*

pin of the flywheel, so that the latter, which continues to rotate due to inertia, begins to rewind in the opposite direction (in the same way a yo-yo works), thereby pulling on the cable itself (and hence the athlete) in a downward direction. At this point the athlete is forced to resist the downward motion so that they are not "squashed" to the ground: a bit like the way skiers have to resist the downward force exerted on them as they go round a bend or land after a jump.
Using this machine, which works on the same principle as a yo-yo, an athlete can repeat the motion of bending and extending their legs several times in succession, which is what happens when skiing, and this generates peaks of force with every movement calculated - based on the tests carried out in Mapei Sport laboratory – as being equivalent to three times the athlete's body weight. This explains why a number of athletes from the Italian national ski teams, particularly the men (such as the Olympic champion Razzoli, along with Simoncelli, Staudacher, Heel, Moelgg and Schieppati) have started training with this piece of equipment, partly with the help of Sassuolo football team sponsored by Mapei. But what has Sassuolo got to do with it? It is a long story but, in a nutshell, Professor Roberto Sassi began using these yo-yo machines to train footballers when he was still on Claudio Ranieri's staff at Valencia football club in Spain.
Mapei Sport centre, which has been helping Roberto Sassi train footballers for years now, followed this experiment very closely, believing it might be useful to introduce this technology for training the footballers of the Sassuolo team. Dr. Ermanno Rampinini, together with the trainer Luca Morellini, began developing more and more specific training plans, achieving notable results not just as regards preventing injuries but also in improving the athletes' explosive strength.
Bearing in mind that Mapei Sport has been involved in assessment and methodological consultancy work for the physical training of the Italian national teams for almost a decade now and taking into account the positive experimentation at Sassuolo football club, the centre's staff managed to persuade the technical staff of the Italian national team, first and foremost the trainer Vittorio Micotti, to use this innovative training technology in preparation for the Olympics. This new idea really caught the eye of the Italian sports press (articles on the subject were published in *Gazzetta dello Sport* newspaper and *Tuttosport* magazine).
This motion study laboratory run by Dr. Andrea Morelli has developed special analysis techniques designed to assess right down to the most minute detail the characteristics of motion and forces in play in exercises using yo-yo machines, so that both skiers and footballers (obviously in this case the workloads and execution methods are different) can be better trained.
So once again Mapei research in sport (as is often the case with Mapei research in the realm of industry) has led to new technological solutions. It is no exaggeration to claim that Mapei is always one step ahead in every field!

Ramada Resort Aquaworld Complex

A Cambogian-style spa and wellness centre in Budapest

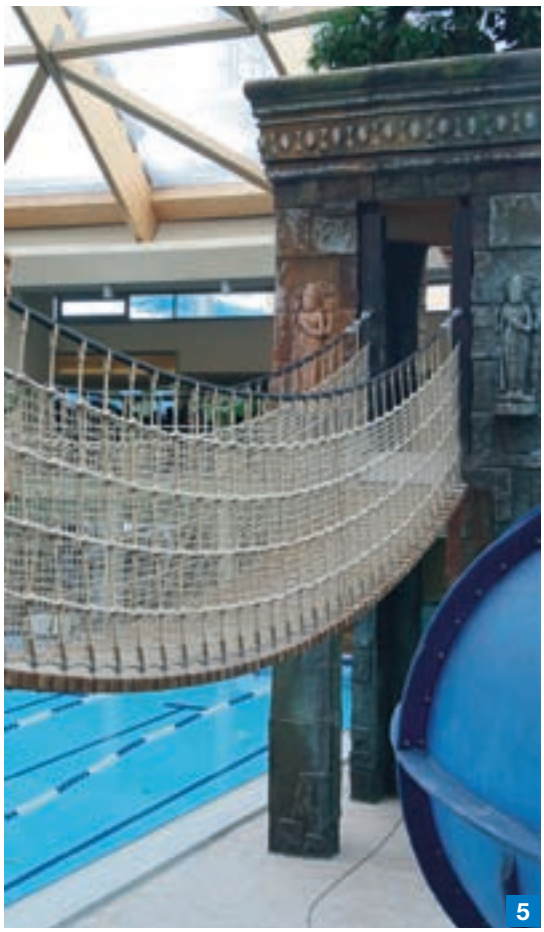
The Ramada Resort Aquaworld complex in Budapest is the largest hotel and covered amusement spa in Central Europe.
The establishment encompasses a total of 86,000 m^2. The huge building complex was designed by Grontmij Canor Kft., under management of András Ráth chief architect.
The idea of the client was to imitate a tropical beach and evoke the magic of



oriental culture.
The architects designed a building structure in perfect correspondence with this vision, and a seven-storey-high dome, 72 m in diameter.
The spherical segment-shaped dome was constructed with techniques developed in the space research. The fantasy of the interior designer reproduced the Cambogian temple of Angkorvat, a land of smiling sculptures in surroundings created with space-age technology.
With its unique atmosphere this scenery makes the visitor forget completely about the outside world but at the same time the huge (4,000 m^2) ruins area divide the pool area into several exciting spaces that cannot all be seen simultaneously.
The great noise common in similar amusement spas is reduced and largely eliminated by this setting.
The décor has several other essential functions, too: the slides branch off from the towers, the diving-board for jumpers is found here, as are a basking terrace and a solarium at the same time serving as a resting platform. Built-in-air technical appliances ensure that no pipelines disrupt the view.
The temple ruins are connected to the gallery and the family slide by suspension bridges. Several smaller and larger pools offering various forms of delight await guests in Aquaworld, the total surface of which surpasses 3,300 m^2.

Photo 1. Outside view of the Ramada Resort Aquaworld complex with the big dome covering the wellness area.

Photos 2, 3, 4 and 5. Under the dome the wellness area reproduces the Cambogian temple of Angkorvat and has several swimming pools in the lower section.



Installation in Special Settings
Mapei products were used in the sauna world located below a 180 m-long mountain stream and the wellness unit of Ramada Resort, the so-called "Silent Bath", as well as in the hotel and in the adjoining apartment wing.
The sauna world of Aquaworld awaits guests wanting to relax and freshen up in an environment shaped with great care and having a distinct oriental touch with aroma cabins, steam cabins, a wet and dry sauna, an ice-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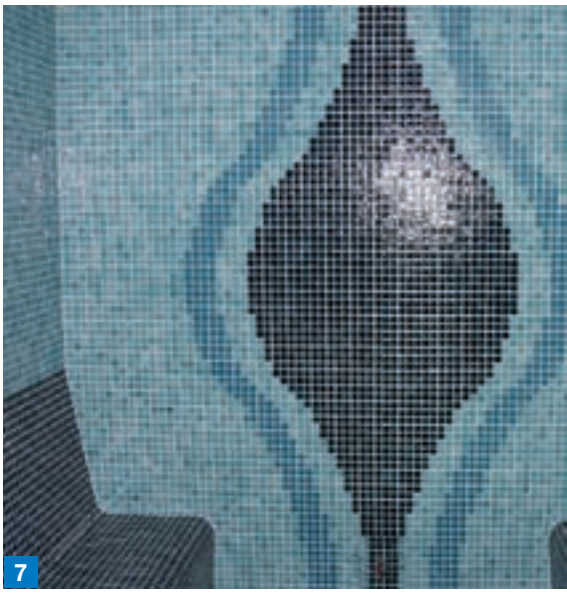
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Photos 6, 7 and 8. The spa and wellness areas sport colourful mosaic coverings.

Photo 9. In the Tepidarium area the benches seats have been waterproofed with MAPELASTIC and then covered with glass mosaics laid with KERABOND T + ISOLASTIC. Joints were grouted with KERAPOXY.

Photo 10. In the sauna natural stone slabs were installed on the walls with KERAFLEX while joints were grouted with ULTRACOLOR PLUS.

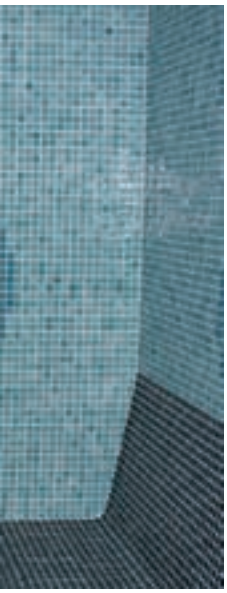
Photos 11 and 12. In the steam cabins substrates were waterproofed with MAPELASTIC and glass mosaics were bonded with KERABOND T + ISOLASTIC. Joints were grouted with ULTRACOLOR PLUS.

cave and a Kneip pool guaranteeing a thrilling effect. Ceramic tile coverings designed by interior designer Éva Horváth were installed with Mapei products in two steam cabins, the saunas, showering rooms and corridors.
In the steam cabins various shades of pink, green or yellow predominate. The plastered walls and the floor substrates were waterproofed with MAPELASTIC cementitious membrane in combination with MAPEBAND tape. MAPELASTIC membrane is supplied in pre-measured two-components which must be mixed together without adding water or other ingredients. The mortar is applied with a trowel onto perfectly clean and sound surfaces that have been previously dampened with water. MAPELASTIC provides a highly flexible, protective and waterproofing coating to concrete structures. After the waterproofing treatment, glass mosaics were bonded with a mixture of KERABOND T adhesive and ISOLASTIC latex additive (the latter improves deformability to satisfy class S1 requirements according to EN 12004). Joints between the tiles were grouted with ULTRACOLOR PLUS grout, whereas expansion joints and cracks were sealed with MAPESIL AC silicone sealant.
The Tepidarium equipped with heated benches invites guest to an aroma bath and relaxation. There are eight benches composed of Ytong aerated concrete blocks, equipped with heating cables and covered with glass mosaics in various shades of brown in the room. The Ytong seats of the benches were also covered with glass mosaics bonded by the tile-layers with the aid of KERABOND T + ISOLASTIC after waterproofing the substrates with MAPELASTIC.
Following the priming treatment of the substrates with PRIMER G, the porcelain tiles were bonded onto the plastered walls and the benches with a mix of KERABOND T + ISOLASTIC. The walls joints were grouted with ULTRACOLOR PLUS, while on the benches KERAPOXY was used, which is acid-resistant and guarantees that chemical cleaning of the benches does not harm the grout.
After treating with PRIMER G, the larger-sized porcelain tiles were bonded onto the floor substrate with KERAFLEX adhesive which provides good bonding strength; joints were grouted with ULTRACOLOR PLUS.
Glass mosaics were also laid on the plastered walls and floors of the

IN THE SPOTLIGHT

KERAPOXY
It is a reaction resin **(R)** grout **(G)** of class **RG** according to **EN 13888** and an improved **(2)** reaction resin adhesive **(R)** and slip resistant **(T)** of class **R2T** according to **EN 12004**.
It is ideal for indoor and outdoor grouting of ceramic tile and natural stone floors and walls.

ULTRACOLOR PLUS
It is a fast-setting and drying, high performance, anti-efflorescence, water-repellent mortar grout for joints from 2 to 20 mm, with DropEffect® and anti-mould with BioBlock® technology. It is classified as class **CG2** according to **EN 13888**.

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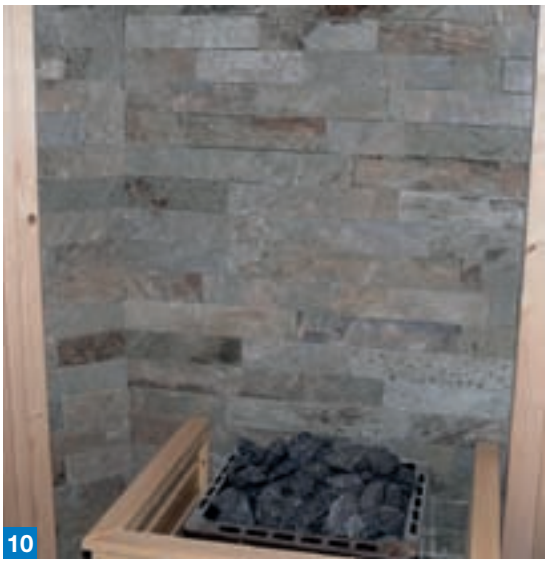
showers. Here, the same waterproofing materials and adhesives were used as in the steam cabins: MAPELASTIC, MAPEBAND and KERABOND T + ISOLASTIC; for the joints KERAPOXY epoxy grout was chosen.
In the showers and corridors the porcelain tiles of the floor substrates were bonded with ADESILEX P4 adhesive. The floors of the four saunas were covered with ceramic tiles, again laid with the aid of ADESILEX P4. Waterproofing of the floor substrates and plastered walls was accomplished with MAPELASTIC.
The natural stone covering of the walls was bonded with KERAFLEX high performance cementitious adhesive, with no vertical slip and extended open time. Joints were grouted with ULTRACOLOR PLUS.

The Role of Interior Design
Forming a single unit with the Water Empire but housed in a separate building arising from the spa level stands seven-storey-high Ramada Resort Budapest, an exclusive hotel with a total of 309 rooms and apartments: the rooms are actually 261, including 28 junior suites and ten suites. The two presidential suites provide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additional luxury, and specially constructed rooms ensure that the stay of physically disabled is as convenient as it can be. The two- and three-room apartments are in a separate wing connected to the main building by a subterranean corridor. The 48 apartments provide a homely feeling to guests staying for a longer time or with their family, with every advantage of the four-star service. Interior design and furnishings comply with the Ramada Resort brand specification. This can easily be seen in the choice of precious covering materials and professional installation products used in the wellness unit of the hotel.

In the apartment area the floors of rooms and corridors were covered with fitted carpets on an approximately 3,500–4,000 m^2 area. The floor substrate was primed using PRIMER G, levelling was done with NOVOPLAN 21, and bonding with ROLLCOLL adhesive. Cracks and holes in the floor were filled with PLANIPATCH mortar.

In the corridors and rooms of the 3rd,

IN THE SPOTLIGHT

NOVOPLAN 21

It is classified as **CT-C20-F7-$A2_{fl}$-s1** according to **EN 13813**. NOVOPLAN 21 is used for levelling and smoothing new or existing substrates and provides an underlayment for receiving PVC, linoleum, rubber, cork, textile and non-woven flooring in areas where a good resistance to loads and traffic in offices and public areas is required.

PLANIPATCH

It is a smooth, ultra fast setting thixotropic finishing mortar for horizontal or vertical surfaces. It is used for the repairing, levelling-off and smoothing up to a feather edge of interior floors, walls, steps and corners where quick hardening and drying are required.

It is classified as **CT-C35-F7-$A1_{fl}$** according to **EN 13813**.


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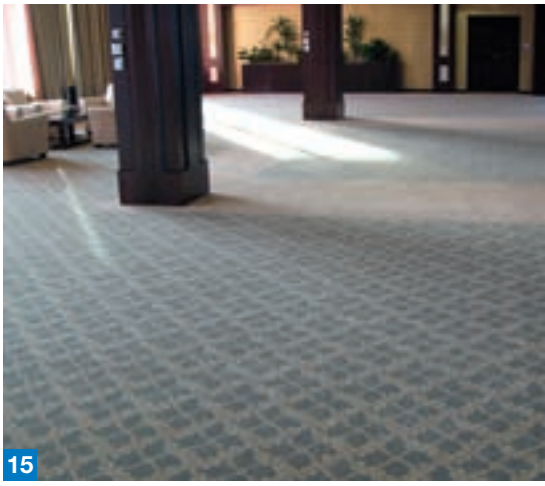
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Photo 13. In the bar area, NOVOPLAN 21 was used to level the substrate before applying the laminated flooring.

Photos 14, 15, 16 and 17.
In the Ramada Resort apartment area and corridors of several floors the textile flooring was laid with ROLLCOLL adhesive after levelling the substrate with NOVOPLAN 21.

4th, 5th, 6th and 7th floors the same kind of carpet was installed with the same materials and methods used in the apartment wing, even if levelling was not always necessary. In the offices on the second floor a wear-resistant bukle carpet was laid on the floors of the rooms, whereas the corridors floorings were covered with linoleum. PRIMER G, NOVOPLAN 21, PLANIPATCH and ROLLCOLL were used in this case as well.
On the floor substrates of the bar located on the first floor NOVOPLAN 21 was used for levelling before laying the laminated covering.
In the fitness centre 4 mm thick Grabo Sport PVC was installed by using ADESILEX V4 adhesive after levelling with NOVOPLAN 21. The floor covering material chosen for the restaurant area and the conference on the first floor is a custom-made 300g carpet, which was laid with ROLLCOLL after the substrate had been treated with NOVOPLAN 21.

This article was published by Mapei Kft. (the Hungarian subsidiary of the Mapei Group), which we would like to thank, on its in-house magazine Mapei Krónika, n. 23.

Photos were supplied by Sándor Bányai, Vanda Markovich and Aquaworld Hotel és Élményfürd Zrt., which we would like to thank.

TECHNICAL DATA

Ramada Resort - Aquaworld Complex, Budapest (Hungary)
Designer: Grontmij Canor Kft
Period of Construction: 2006-2008

Period of the Intervention: 2007-2008
Intervention by Mapei: supplying products for waterproofing substrates and laying glass mosaics and porcelain tiles in the steam cabins, the saunas, showering rooms and corridors of the sauna area; for treating the substrates, installing resilient and textile floorings in several rooms, corridors, and apartments of both hotel and the resort.
Client: Interestate Real Estate Co.
Works Director: arch. András Ráth
Interior Designer: Éva Horváth – Horváth Interior Design General Contractor Kft.
Contractor: Interestate Real Estate Co.
Laying Companies: Tempero Co., Mozaik '96 B&T Kft. for the ceramic and mosaic coverings; Temi Kft. for the resilient floorings.
Mapei Distributor: Tempero Co.
Mapei Co-ordinators: Csaba Németh, Attila Mátyus, Zoltán Hájos, László Herczig - Mapei Kft (Hungary)

Mapei Products: *the products mentioned in the article belong to the "Products for Ceramic Tiles and Stone Materials" and "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings". The technical data sheets are available at the web site: www.mapei.com. Mapei's adhesives for ceramics and stone materials conform to EN 12004 and have been awarded the CE mark in compliance with Annex ZA, standard EN 12004. Mapei grouts for ceramics and stone materials conform to EN 13888. Almost all the Mapei products for laying floors and walls are also GEV-certified and have been awarded the EMICODE EC1 ("very low emission level of volatile organic compounds") mark, awarded by GEV. Mapei levelling and smoothing compounds and pre-blended mortars for screeds conform to EN 13813 standard and have been awarded the CE mark in compliance with annex ZA, standard EN 13813. Mapei products for the protection and repair of concrete surfaces and structures have been awarded the CE mark in compliance with EN 1504 standards.*
Adesilex P4 (C2F, CE EN 12004, EC1 R): *high performance, rapid setting, full-contact cementitious adhesive for ceramic tiles and stone materials*
Adesilex V4: *universal adhesive in water dispersion for resilient coverings.*
Fugolastic: *liquid polymeric additive for Keracolor FF Flex, Keracolor GG and Keracolor SF.*
Isolastic: *flexible latex additive to be mixed with Kerabond T, Kerafloor and Adesilex P10.*
Kerabond T (C1T, CE EN 12004, EC1 R): *cementitious adhesive with no vertical slip for ceramic tiles.*
Keracolor FF Flex (CG2, EC1 R): *high performance cementitious grout, polymer modified, water-repellent with DropEffect®, for joints up to 6 mm.*
Keracolor GG (CG2, EC1 R): *high performance cementitious grout, polymer modified, for joints from 4 to 15 mm.*
Keraflex: (C2TE, CE EN 12004, EC1 R): *high performance, cementitious adhesive with extended open time and no vertical slip for ceramic tiles and stone materials*
Kerapoxy (R2T, RG, CE EN 12004): *two-component acid-resistant epoxy grout. Can also be used as an adhesive.*
Mapeband: *alkali-resistant rubber tape with felt for cementitious waterproofing system and liquid membranes.*
Mapelastic (CE EN 1504-2*, coating* ***(c)****, principles* ***PI****,* ***MC*** *and* ***IR):*** *two-component, flexible, cementitious mortar for waterproofing concrete, balconies, terraces, bathrooms and swimming pools.*
Mapesil AC: *solvent-free, acetic cross-linking, mildew-resistant silicone sealant, available in 26 colours and transparent.*
Novoplan 21 (CE EN 13813, CT-C20-F7, $A2_{fl}$-s1): *fast hardening self-levelling smoothing compound for thicknesses from 1 to 5 mm.*
Planipatch (CE EN 13813, CT-C35-F7, $A1_{fl}$, EC1): *smoothing, ultra-fast setting thixotropic cementitious levelling mortar for vertical and horizontal surfaces (thickness from 0 to 10 mm), with very low emission level of volatile organic compounds (VOC)*
Primer G (EC1): *synthetic-resin-based water dispersion primer with very low VOC content.*
Rollcoll: *rapid-setting universal adhesive in water dispersion for the installation of vinyl floor and wall coverings, for bonding textile wall and floor coverings with all types of backs.*
Ultracolor Plus (CG2, EC1): *fast setting and drying, high performance, anti-efflorescence polymer modified grout for joints from 2 to 20 mm. Water-repellent with DropEffect® and anti-mould with BioBlock® technology.*

Tiles manufacturers in focus

The sixteenth edition of the World Ceramic Tiles Manufacturers' Forum was held in Taipei (Taiwan) last November.
This edition was attended by representatives of ceramic tile manufacturers from Brazil, China, Germany, India, Indonesia, Italy, Japan, Spain, Taiwan and the United States, countries accounting for the vast majority of the total manufacturing output of wall and floor tiles worldwide. The main topics under discussion were global trends in consumption and production, the impact of the economic and financial crisis on this sector, and enduring technical and tariff barriers on trading. Even more important was the fact that the Forum focused on policies and tools connected with the environment and climate change.

WORLDWIDE SALES OF CERAMIC TILES

	2008 (mil. m²)	2009*	2010*
Total	8,556	-1.3%	3.7%
Western Europe	962	-18.8%	-5.9%
Italy	177	-18.8%	-2.0%
Spain	242	-35.6%	-17.3%
New EU countries	288	-8.6%	-3.0%
Other European countries (1)	531	-15.3%	-1.2%
North America	232	-18.5%	1.9%
Middle East and North Africa	747	2.3%	4.1%
South and Central America	1,043	-3.6%	2.0%
Brazil	611	-2.9%	4.1%
Asia	4,486	5.5%	6.5%
China	3,265	7.3%	7.6%
Others	268	-0.7%	2.7%

(1) Russia and Turkey included - Source: Confindustria Ceramica - Prometeia *2009: estimates - 2010: forecasts

Global Production Trends

Over the last few years world production has been constantly on the increase: estimates refer to a rise from 5.7 billion m² in 2001 to 8.2 m² in 2007. World production in 2008 reached 8.5 billion m² and this figure remained about the same in 2009. Whereas tiles sales are constantly on the increase in Asia, other regions, including Europe, Japan and the United States, suffered considerable drops in 2008, decreasing even further in 2009. China was the world's leading manufacturer in 2008 followed by Brazil, Italy and Spain.

Technical Barriers to Trading

Technical barriers on trading in the form of diverging regulations or outlandish tariffs have been frequently used in this sector to protect local industries. This state of affairs has not changed and is now even more damaging for industry during an economic downturn.

Coordinating Environmental Standards and Environmental Protection

Despite the tricky economic situation at the moment, industry is still managing to adapt to sudden changes in demand, mainly by means of innovation and the introduction of international standards. Most notably the members of the Forum discussed possible developments in the field of energy saving, the reduction of greenhouse gases, environmental labelling and green public tenders.
As the chairman of the Forum, Dieter Schäfer, confirmed in his closing speech, "it is extremely important that tiles manufacturers work together even more closely internationally to protect the environment and define technical regulations and barriers on trading".
The seventeenth edition of the Forum will be held in Jakarta (Indonesia) from Wednesday 30th June to Saturday 3rd July 2010. RM

ALFONSO PANZANI ELECTED PRESIDENT OF THE CET

Alfonso Panzani, a past President of Confindustria Ceramica (the Association of Italian Ceramic Tiles and Refractory Materials Manufacturers) and now the head of the Gruppo Ceramiche Ricchetti, was elected President for the three-year period from 2010-2012 at the latest meeting of the CET - European Federation of Ceramic Tile Manufacturing Associations - in recognition for what he has achieved.
Alfonso Panzani, aged 57 and married with three children, who graduated in business studies and economics from Modena University, was first elected to be a member of the Board of Directors of Assopiastrelle in 1986 and was President for the period from 2005-2009 when the Association was renamed Confindustria Ceramica, grouping together all the Italian manufacturers of ceramic tiles, refractory materials, ceramics for sanitary purposes, earthenware and technical ceramics. Ever since it was first established he has been the President of Gas Intensive (an inter-sectoral consortium for buying methane gas) while in the past he was also a member of the Board of Directors of Cer-Energia - a company for renewable energy - and Cofim Real Estate Agency, as well as a committee member of the CFI, a Confindustria (the Confederation of Italian industries) organism encompassing associations in charge of organising trade fair events.
Gruppo Ceramiche Ricchetti, the first Italian ceramics industry to be quoted on the stock exchange in 1995, is a multinational company which ended the 2009 financial year with a turnover of 195 million euros. It has 15 manufacturing plants in Italy, Sweden, Finland, Germany and Portugal and employs a total of 1950 staff.

Ufemat international conference

Synergic strategies between manufacturers and distributors in Europe

"Rebuilding Confidence" is the significant title the 51st Ufemat Conference (European Association of National Builder's Merchant Associations and Manufacturers) held in Milan from 19th to 20th June 2009. Approximately 75 people took part from all leading European nations, discussing such issues as the relationship between distributors and manufacturing companies, market management and European regulations. After the opening address by the President of Ufemat, Géraud Spire, the Secretary General, Marnix Van Hoe, the President of Federcomated (the Italian Federation of Cement, Bricks and Building Materials Traders), Giuseppe Freri, and the President of Confcommercio (the Italian General Confederation of Enterprises, Professional Occupations and Self Employment), Carluccio Sangalli, the first day's proceedings focused on the issue of developing a working partnership between production and distribution, considered to be a key factor in expanding the industry. Joint business operations will actually not only allow distributors to grow, but also help manufacturers in terms of how their corporate message could be widely publicised through specialist training courses and public operations.

In the event, Ernesto Erali, Mapei's Sales Manager for Italy, emphasised the crucial role of distributors, Mapei's preferential business partners, who need to be able to actively manage the market. Hence the numerous Mapei enterprises aimed at enhancing and developing distributors: professional training, sales point installations, implementation of promotional-advertising ideas.

The second day's proceedings of the conference concentrated on European-oriented issues. Libero Ravailoi and Jean Pierre Jacobs outlined the various operations undertaken by Cepmc (European Confederation of Producers of Building Materials).

Left. The poster for the forthcoming Ufemat conference to be held in Venice in October 2010.

Below. A moment from the 2009 Ufemat conference.

This association groups together 19 national associations of manufacturers and 35 European-wide organisations. It carries out important representational work with leading community institutions. Jacobs notably underlined "the prospects connected with labelling and developments of regulations in the field of the environmental and energy sustainability of buildings and building materials". In relation to these matters, a careful outline was given of the proposal to revise the European Union Construction Products Directive (CPR) in relation to the Energy Performance Directive for Buildings, aimed at introducing a universal technical language for certifying building products.

Discussions then moved on to regulations governing wooden packaging: Alberto Decarlis, a member of the Italian Wood-Cork Service Consortium, outlined the main contents of the Fao Ispm-15 regulation (International Standard for Phytosanitary Measures No.15), recently reviewed in order to minimise the risk of transmitting biological agents between nations through wooden packaging. At the present time, 80% of packaging and protection systems used for commercial transport purposes are made of wood and, according to the new regulations, they must be suitably treated and labelled.

The Ufemat conference concluded with a trip to the Mapei manufacturing plant in Robbiano di Mediglia (near Milan) and the new headquarters of Gatti Legnami in Milan, a fine example of innovative wood distribution operations. This company recently invested in building, well aware of and concerned about environmental issues. Values widely shared by Mapei, which does business with Gatti Legnami.

The next Ufemat conference, "The Building Industry 2010-2020: what will happen?", will be taking place in Venice from 7th and 10th October 2010. Mapei will be there to take up the challenge. So farewell until Venice!

Mapei grouts and flexible joints

Functionality and colour for a technologically-advanced line

Thanks to all the effort put into research work, Mapei has perfected a range of technically-advanced coloured products for tile joints which includes grouts, sealants and complementary products.

Coloured Grouts:
a complete range of products for indoor and outdoor grouting applications, for floor and wall materials in all types of ceramic, terracotta, stone material and glass mosaic coverings. There are two types available: cementitious and epoxy-based grouts. Thanks to their technical characteristics, the cementitious grouts are particularly suitable for grouting tile joints in swimming pools, bathrooms, kitchens and on external façades, balconies and terraces. They are also suitable for grouting tile joints in supermarkets, restaurants, airports,

public areas and floors in industrial environments. The epoxy grouts, on the other hand, are particularly suitable where a high level of hygiene and resistance to chemicals is required.

Flexible Joints:
a range of sealants which is the fruit of the Company's constant research aimed at introducing high quality products, which are easy to apply, quick and safe. The range includes one-and two-component acrylic, silicone and polyurethane sealants.

Complementary Products:
to complete the range of products designed specifically for coloured tile joints, Mapei also has an acid-based cleaning solution for ceramic tiles and a polymeric varnish to refresh the colour of cementitious tile joints.

Mapei coloured grouts stand out on the international market thanks to the following characteristics:

BioBlock®:
This technology blocks various types of mould from forming and proliferating on the surface of the grout in humid conditions.

DropEffect®:
This technology, based on the use of special hydrophobic additives, allows grouting mortars characterized by high water-repellent properties to be created, making them less prone to dirtiness. They have excellent durability.

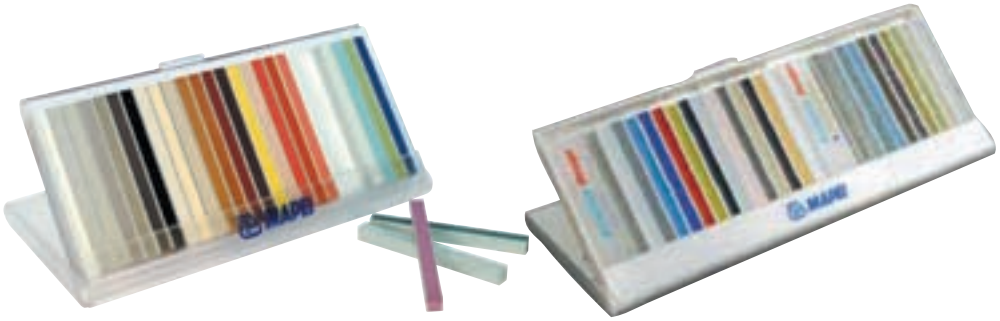
Flexibility:
Mapei cementitious grouting mortars, which are modified by adding special polymers, are particularly flexible and suitable for all types of flooring and covering materials.
All Mapei grouts conform to the European Standard EN 13888 for grouting mortars.

Mapei has a series of aids available to help choose from the range of coloured products.

Above: the "Coloured Grouts and Flexible Joints" brochure's front cover.

Left: a coloured fan with all the 26 available standard Coloured Grouts and the KERAPOXY DESIGN colours, together with a template to lay over the joint to have a clear idea of how the joint will look.

Right: a special display stand for points of sales contains real samples of the various colours from the KERAPOXY DESIGN range (base colours and mixed with MAPEGLITTER) from the KERAPOXY, ULTRACOLOR PLUS, KERACOLOR FF, KERACOLOR GG and MAPESIL AC lines.



Below, left: a folder with samples made using the Mapei Coloured Grouts, a tool to see the final effect KERAPOXY, ULTRACOLOR PLUS, KERACOLOR FF, KERACOLOR GG and MAPESIL AC.
Below, right: a box with 25 sticks decorated with KERAPOXY DESIGN: 8 sticks with the KERAPOXY DESIGN base colours, 8 with base colours mixed with 6% MAPEGLITTER Silver and 8 with base colours mixed with 6% MAPEGLITTER Light Gold.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Norm-compliant grouts for joints

Advantages of the international standards

by Stefano Carrà and Vittorio Riunno***

Up until the 1990's, the situation of international standards for the products used to apply ceramic tiles and natural stone was extremely complicated and chaotic.
In fact, every European and non-European country had its own set of standards issued by the local national institute. This situation obviously presented serious problems for companies with a vocation for international business, such as Mapei.
Certifying each product in different countries would involve considerable costs, and considerable research resources had to be dedicated to reproduce the various national test conditions in Mapei laboratories.
Also, the various national standards were often so reciprocally contradictory that it would have been necessary to adapt the formulations and products in every country order to satisfy the minimum requirements for each standard.
Moreover, at the beginning of the 1980's, many national standards were already obsolete and no longer adequate to the latest application techniques and the new types of coverings which were becoming popular during that period. In order to address this situation, in 1989 the CEN, the European Standards Committee, formed a dedicated technical group with the aim of developing a series of standards for tile adhesives and grouts. Mapei has always embraced an extremely proactive position within this group over the years, as demonstrated by the fact that Giorgio Squinzi, CEO of the Mapei Group, personally committed himself to the group's activities as its Chairman.
Up until now, the technical group has held a total of 44 meetings and in 2001 issued the EN 12004 standard describing the specifications and requirements for tiling adhesives, and in 2002 the EN 13888 standard which focuses on the specifications and requirements for grouts.
The standards were then revised and reissued in 2007 and 2009. After the positive results of the European example, a group was formed within the structure of the 189 committee of the ISO (International Standards Organisation) dedicated to create standards for ceramic tiles.
Mapei held a key position also in this activity, with Neil McMurdie, Director of Research & Development for Mapei Americas, working as group coordinator. In this case, the fruit of this working group was the publication of the ISO 13007 standard which is divided into 4 parts:
- ISO 13007 - 1: terms, definitions and specifications for adhesives;
- ISO 13007 - 2: test methods for adhesives;
- ISO 13007 - 3: terms, definitions and specifications for grouts;
- ISO 13007 - 4: test methods for grouts.

ISO 13007 - 1 and ISO 13007 - 3 were published in December 2004, and ISO 13007 - 2 and ISO 13007 - 4 were published in September 2005.
The ISO standards were then approved and published by various national institutes in the following countries:
1. The member states of the European Union
2. Canada
3. Turkey
4. Korea
5. Malaysia
6. United States
7. China
8. Australia
9. Vietnam
10. Gulf Cooperation Countries: Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates and the Sultanate of Oman
11. Singapore
12. Sri Lanka
13. Botswana
14. South Africa


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Advantages of the ISO Standards

The advantages deriving from using products on site which comply to ISO standards are obvious and immediate. Firstly, the classifications defined by the standards offer a clear identification of the properties of products so that they may then be selected according to their specified application and avoid the possibility of being replaced by other products with lower characteristics. Also, the practice of classifying products has undoubtedly led to a more clear definition of the quality of products on the market.

Classification requirements and their relative testing methods were chosen using simplicity and repeatability as the main criteria. Furthermore, they represent characteristics which really reflect the most critical application problems of the product.

We will now demonstrate how the use of classified cementitious grouts solves the most common application problems met on site. In the standards, cementitious grouts are defined as CG and are divided into two main classes, CG1 and CG2. These are the normal and improved classes respectively, and are followed by three special classes: F for fast products, A for products with high abrasion resistance and W for products with low water absorption.

Table 1 summarises the criteria for classifying grouts. A typical class CG1 grout may be considered sufficient for installing ceramic or porcelain coverings which are not subject to excessive temperature and humidity variations in residential and commercial environments.

On the other hand, in areas subject to high levels of humidity for long periods and thermal shock or intense traffic, typical of highly intense commercial and industrial environments, a class CG2 grout is recommended.

The supplementary class F is used when the installation has to be carried out quickly, such as in the case of shops in shopping centres.

Class A is required when the area is subject to intense foot or trolley traffic when in service such as in supermarkets, or if there is a continuous flow of water, typical of fountains.

W class products, on the other hand, are recommended when the installation is subjected to continuous immersion in water, such as tiling in fountains and swimming pools.

Photo 1 illustrates typical problems which may occur if the grout used is not resistant enough to abrasion to perform as required, and in these cases even cleaning equipment may cause deterioration of the product, or may even completely remove it.

In the test carried out as described by the standard (photo 2), a 10x10 cm sample of the product is subjected to a continuous, constant flow of spheres of abrasive material. At the end of the test, the weight loss is measured.

Photo 3 illustrates a product which is suitable for grouting tiles in a covering subject to a continuous flow of water with a continuous abrasive action.

Photo 4, on the other hand, shows cracks which may form in a grout which has shrunk too much.

The test carried out as described in the standard (photo 5) measures the movement of a 4x1x16 cm test sample after 28 days of curing.

On the other hand, a suitable product may also be used for a tile work which have grouted joints of various widths incorporated in its design (photo 6).

Photo 7 shows how a product with insufficient mechanical strength may break if it has to bear an excessive load, such as that of a car.

The tests are carried out after 28 days for normal products and after 24 hours for fast products and include compressive and flexural strength tests on 4x4x16 cm test samples (photo 8).

Table 1

	CG1	CG2
Flexural strength	> 2,5 N/mm² after 28 days (in standard conditions and after freeze-thaw cycles)	
Compressive strength	> 15 N/mm² after 28 days (in standard conditions and after freeze-thaw cycles)	
Shrinkage	< 3 mm/m	
Rapid setting	Flexural strength Compressive strength	>2,5 N/mm² after 24 hours >15 N/mm² after 24 hours
Abrasion resistance	< 2000 mm³	< 1000 mm³
Water absorption	< 5 g (after 30 min) < 10 g (after 240 min)	< 2 g (after 30 min) < 5 g (after 240 min)


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Suitable products may also be used without any particular problem for floors subject to particularly heavy traffic (picture 9).
Excessive water absorption by grout may have a disastrous effect on the entire tiled surface if it is continuously immersed in water, causing complete detachment.
The standard includes a test which estimates the amount of water a product absorbs by measuring the amount of capillary rising damp: samples cured for 28 days are partially immersed in water and their weight increase after 30 minutes and 4 hours of immersion is measured (photo 10).
Photo 11 shows how products with low water absorption may be successfully applied, even in critical conditions, such as when laying mosaic tile covering in swimming pools.
Grouts manufactured by Mapei,such as KERACOLOR FF for joints up to 6 mm wide, KERACOLOR GG for joints from 4 to 15 mm wide and ULTRACOLOR PLUS for joints from 2 to 20 mm wide, are all classified as CG2 and, as such, are guaranteed for use in particularly critical building site conditions, such as those described above.
ULTRACOLOR PLUS, beside being classified as CG2, is also classified as F, and, consequently, it is ideal for installations on wall and floor coverings which need to be put back into service quickly. It guarantees that the grouted floorings can be set back to foot traffic time after 3 hours.

DropEffect® and BioBlock® Technology

Amongst the added characteristics of Mapei grouts which are not covered by current standards, which guarantee that they are stable in colour and easy to clean, there is the so-called DropEffect® technology, for creating grouted joints which are particularly water repellent: thanks to this technology, liquids deposited on the surface are not absorbed but remain on the surface in the form of droplets, and in this way joints are much easier to clean. In damp environments on the other hand, BioBlock® technology hinders the formation and proliferation of various types of mould on the surface of grouted joints, which not only causes an unappealing effect on the tile work, but also has a negative effect on indoor pollution levels (photo 12).

Special Efflorescence-immune Binders

ULTRACOLOR PLUS also has a chemical composition guaranteeing that it does not produce efflorescence, which represents one of the most undesir-


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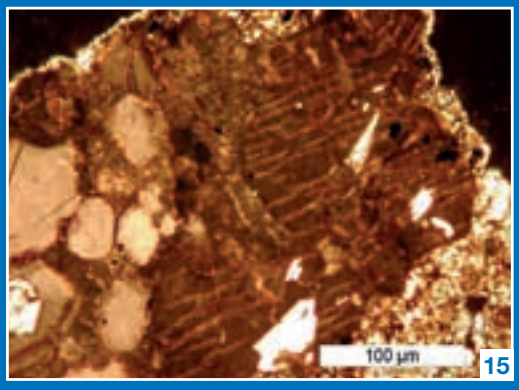

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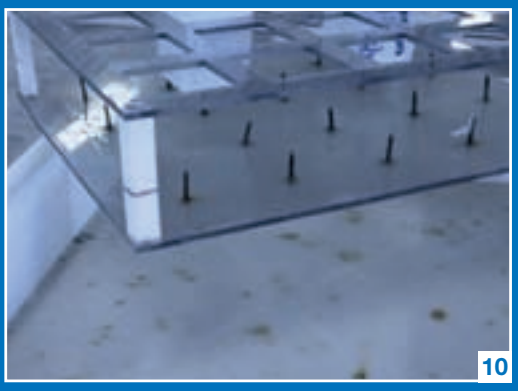
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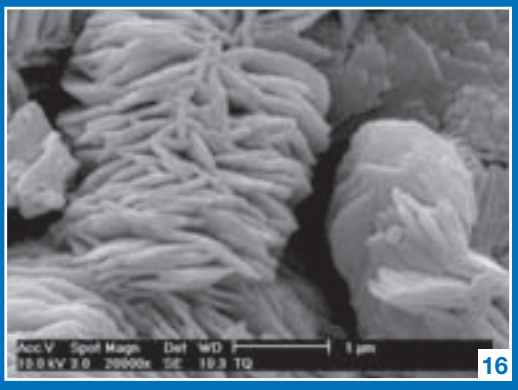
able defects on ceramic coverings and which may form on both internal and external facades (photo 13).
Photo 14 shows the surface of a product with efflorescence.
The classic white streaks and spots are typical of formulations based on the use of Portland cement as a binder. If a thin section of the grout is analysed through an electronic microscope, the type of chemical composition which forms the efflorescence (due to the reaction between carbon dioxide contained in the atmosphere and calcium hydroxide produced by hydration of the cement) may be identified on the surface of the product. In picture 15 efflorescence is represented by the thin white superficial line.
Further experimental support into the morphologic and chemical study of the efflorescence may be made using an electronic scanning microscope, an instrument which can produce highly magnified images (up to 800,000x magnification) of the surface of the product and estimate the exact chemical composition of the surface.
Picture 16 shows the images taken using this technique, and we may observe that the efflorescence is formed by numerous groups of flat crystals which, upon analysis, are formed by calcium carbonate.
The binder in ULTRACOLOR PLUS does not contain Portland cement, that is, the source of carbonate, which makes the product completely immune from the formation of efflorescence.
The sample illustrated in photo 17 is made of ULTRACOLOR PLUS treated with the same method as the sample in picture 16, but in this case the surface is completely free of streaks.
ULTRACOLOR PLUS, therefore, is an ideal product for colour stability (photo 18).
The aesthetic stability guaranteed by this product obviously does not compromise the performance characteristics described in the standards, as confirmed by its CG2 classification.
ULTRACOLOR PLUS, therefore, is a grout which offers the highest guarantee on the building site, avoids problems due to mechanical and thermal stresses, anti-aesthetic effects due to instability of the colour and is nowadays a product with unique characteristics which has no equal on the market.

**Head of the cementitious adhesives laboratory, Mapei SpA R&D Centre*
***Supervisor for the Mapei Group formulations and test methods worldwide for ceramic tiles and setting materials around the world*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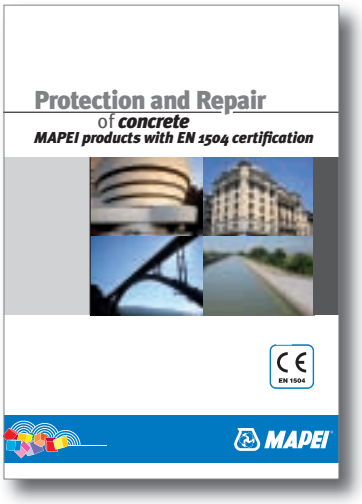
EN 1504

New standards for the protection and repair of concrete



Mapei has been certifying its "Products and Systems for Protecting and Repairing Concrete Structures" since January 2008, even though the use of the CE symbol according to EN 1504 European standard has only been made obligatory since January 2009.
Mapei has always been committed to the research and development of high-quality and high-performance products with the best application procedures on site.
The certification of Mapei products according to this standard is just the last step of the Company's committed work.
The objective of the new EN 1504 European standard is to identify, classify and define the minimum quality standards of products and systems according to the principles and methods for protecting and repairing concrete structures.
The aim of this European standard, therefore, is to regulate interventions carried out on concrete structures, to establish a uniform discipline and to supply clearer guidelines so that durable repair and protection work may be carried out perfectly to guarantee the full satisfaction of those who commission such work.
From an economical point of view, the field addressed by the new regulation is particularly significant. Estimates state that in Europe more than 50% of the budget set aside each year for the construction sector is spent on repair and restoration work on existing structures, buildings and installations.
As infrastructures become older and budget cuts and more stringent spending restrictions for new constructions are imposed, this sum is destined to grow even more.
Renovation work on damaged reinforced concrete structures, therefore, has quite rightly become an important part of this wide-reaching field and the CE symbol represents a guarantee to users that the product is suitable for its intended use and that it possesses the requisites required by current norms.
There are numerous causes for the damage of a concrete structure, and repair work on such structures is a highly specialised activity which requires the use of a highly-skilled, qualified workforce for each single phase of the process. Up until now there has never been a common European standard which disciplined these activities and a number of interventions were mere cosmetic or surface repairs with only a short life span, which did not get down

CERTIFIED MAPEI PRODUCTS

EN 1504-2: Surface Protection Systems for Concrete

Product	Principle
Antipluviol S	PI, MC and IR - hydrophobing impregnation (H)
Colorite Beton	PI, MC and IR - coating (C)
Colorite Performance	PI, MC and IR - coating (C)
Elastocolor Paint	PI, MC and IR - coating (C)
Elastocolor Rasante	PI, MC and IR - coating (C)
Elastocolor Rasante SF	PI, MC and IR - coating (C)
Elastocolor Waterproof	PI, MC and IR - coating (C)
Idrosilex Pronto	MC and IR - coating (C)
Idrosilex Pronto RPF	MC and IR - coating (C)
Mapecoat I 24	PI, MC, IR, PR and RC - coating (C)
Mapefinish	MC and IR - coating (C)
Mapelastic	PI, MC and IR - coating (C)
Mapelastic Foundation	PI, MC and IR - coating (C)
Mapelastic Smart	PI, MC and IR - coating (C)
Monofinish	MC and IR - coating (C)
Planitop 100	MC and IR - coating (C)
Planitop 200	MC and IR - coating (C)
Planitop 207	MC and IR - coating (C)
Planitop HDM	MC and IR - coating (C)

MC (moisture control)

IR (increase in resistivity by limiting moisture content)

PI (protection against the risk of penetration)

PR (physical resistance/surface improvement

EN 1504-3: Structural and Non-Structural Repair

Product	Class	Type of mortar
Mapegrout BM	R4	PCC
Mapegrout Hi-Flow	R4	CC
Mapegrout Hi-Flow GF	R4	CC
Mapegrout Hi-Flow TI 20 and Fibre R60	R4	CC
Mapegrout Easy Flow	R4	CC
Mapegrout Easy Flow GF	R4	CC
Mapegrout FMR and Fibre FF	R4	CC
Mapegrout Gunite	R4	CC
Mapegrout SV	R4	CC
Mapegrout SV Fiber e Fibre R38	R4	CC
Mapegrout SV T	R4	CC
Mapegrout T60	R4	CC
Mapegrout Thixotropic	R4	PCC
Idrosilex Pronto RPG	R3	PCC
Mapegrout Fast-Set	R3	PCC
Mapegrout T40	R3	PCC
Planitop 400	R3	CC
Planitop 430	R3	CC
Idrosilex Pronto RPF	R2	PCC
Mapefinish	R2	PCC
Monofinish	R2	PCC
Planitop HDM	R2	PCC
Planitop HDM Maxi	R2	PCC

to the root of the problem. Which is why certain standard procedures which define the interventions needed to be certified in order to regulate them.
And this is exactly what the EN 1504 does: indicates the procedures and characteristics of products used for repair, maintenance and protection work on concrete structures.
The main aim of the standard is to supply a valid instrument to optimise repair operations, to help overcome an all too common simplistic approach based on the false belief that the problem may be solved by "simply" eliminating damaged material and replacing it with any type of repair mortar.
EN 1504 standard is divided into 10 parts, and specify the requirements for identification, performance (including durability), product safety and various working aspects. They are extremely valid and useful for planning and optimising repair interventions.

- EN 1504-9 establishes the main principles for choosing and applying products and systems;
- EN 1504-1 provides the most significant definitions;
- EN 1504-2-3-4-5-6-7 define the categories of products and systems and prescribe their minimum requirements for CE certification;
- EN 1504-8 specifies the requirements for FPC (Factory Production Control) quality control and conformity assessment;

EN 1504-4: Structural Bonding

Adesilex PG1
Adesilex PG1 Rapido
Adesilex PG2
Adesilex PG4
Eporip

EN 1504-5: Concrete Injection

Epojet
Epojet LV

EN 1504-6: Anchoring Mortar

Mapefill
Mapefill R
Planigrout 300

EN 1504-7: Reinforcement Corrosion Protection

Mapefer
Mapefer 1K

- EN 1504-10 discusses problems regarding the installation/application of products and quality control of the work carried out.

A recent Mapei publication on this subject ("Protection and Repair of Concrete - Mapei Products with EN 1504 Certification") describes the main issues of this standard.
In these pages one can see the certified Mapei products.

Ultralite S1

Contains more than 30% recycled material

GREEN INNOVATION BY MAPEI

Application

MAXI YIELD +60% COMPARED WITH STANDARD MAPEI CEMENTITIOUS ADHESIVES

One component, lightweight cementitious adhesive with Low Dust Technology.

The special Technology used to manufacture **Ultralite S1** gives it a low density, a characteristic which offers two main advantages:

- **Higher yield: yield is approximately 60% higher compared with standard Mapei cementitious adhesives**
- **Lower weight (15 kg) compared with common cementitious adhesives (25 kg)**

furthermore:

- 90% less dust during mixing, application and usage compared with standard Mapei cementitious adhesives
- Excellent capacity of accommodating deformation in the substrate
- Perfect bonding to all materials normally used in the building industry

Ultralite Technology™

Low Dust

EN 12004 C2TE S1 MAPEI

CE EN 12004

www.mapei.com

MAPEI®

ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

Batimat 2009

Mapei's eco-sustainable solutions on show at the Building Industry Expo in Paris

In spite of the difficult economic climate, the 27th edition of Batimat, the International Building Industry Expo held in Paris from the 2nd to the 7th of November 2009, ended with the organisers being generally satisfied with the outcome. There were more than 380,000 visitors to the Expo, a drop of 15% compared with the 2007 edition, but the lower number of visitors was compensated for by the quality of the new contacts and business carried out amongst the Parisian display stands, which indicate that things seem to be looking up following the gloomy economical situation over the last year.

In spite of the drop, the presence of foreign visitors represented 16% of the total. Apart from a high number of European visitors, there was also a strong presence from the African nations (especially Morocco, Tunisia and Algeria), Brazil and Russia, the guest nation of honour.

The main themes of this edition of Batimat were restoration work and eco-sustainable development, the main subject at the international "Architecture and Sustainable Development" conference, during which internationally famous architects discussed topics such as the energy efficiency of buildings and eco-sustainable restoration work. Also, the innovation and design contests "Concours de l'Innovation" and "Trophées du Design" chose and presented to the public 47 products which are particularly important for their characteristics of technological innovation or novel design.

On the subject of eco-sustainable systems, once again Mapei demonstrated its constant commitment to the environment, with more than 150 products which comply with LEED (Leadership in Energy and Environmental Design) standards and a number of solutions which have been awarded the EMICODE EC1 certification (products with an extremely low emission level of volatile organic compounds) awarded by GEV (Gemeinschaft Emissionskontrollierter Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.).

In its display area covering more than 300 m^2, Mapei presented numerous technical solutions, a guarantee of efficiency, reliability and safety.

The following specific topics were well illustrated:

- renovation of floors and the preparation of substrates;
- laying resilient covering materials and parquet;
- laying ceramic tiles in commercial areas;
- laying thin tiles;
- laying tiles on heated floors;
- high-performance grouts;
- structural strengthening by the application of carbon fibre plates and sheets;
- protecting and repairing concrete;
- urban planning;
- admixtures for concrete and underground works.

Amongst the Mapei solutions presented at Batimat, the Low Dust range of products which give off an extremely low amount of dust stood out in particular, such as ULTRALITE S1 one-component, deformable cementitious adhesive with no vertical slip, extended open time, extremely high yield and easy to apply by trowel. This product is particularly suitable for ceramic, stone and thin porcelain tiles. The fruit of Mapei's intense research activity, ULTRALITE S1 is a concrete example of the Company's commitment to improve on-site working conditions.

At Batimat, Mapei also presented ULTRABOND ECO 380, a synthetic polymer-based adhesive in water dispersion with an extremely low emission level of volatile organic compounds (VOC) used for laying vinyl floors. ULTRABOND 380 is solvent-free and is supplied in paste form which is easy to spread, characterised by its quick, high initial bond and long open time.

The topic of the repair of structures damaged by the corrosion of steel was also on show with the presentation of the MAPESHIELD range, an active protection system based on the use of pure zinc anodes, which may be used for both restoration work and on new constructions against the problem of corrosion. MAPESHIELD anodes may be used on most reinforced concrete and metal structures.

ULTRAPLAN R was yet another star of the show at the Paris Expo, which is the French version of ULTRAPLAN ultra fast-hardening, self-levelling smoothing and levelling compound with an extremely low emission level of volatile organic compounds.

And finally, the new super-plasticising admixtures for concrete: DYNAMON SX34 for concrete with good pumping properties and no segregation or bleeding and the DYNAMON NRG 100/150/1010/1020 range of high-performance superplasticizers for pre-cast concrete elements, used with concrete with an accelerated development of mechanical strength.

The solutions proposed at Batimat complete the products offered by Mapei to tackle all the various phases on site, and be sure to have the best technical results, the best working conditions and a high level of eco-sustainability.

The next edition of Batimat will be held in Paris from the 7th to the 12th of November 2011.

In these pictures three examples of casting fluid concrete.

1

The advantages of S4 fluid concrete

The European standard EN 206-1 defines consistency classes of concrete according to the amount of slump measured using an Abrams cone: the higher the consistency class, the more fluid the concrete. The following table shows a summary of the various classes.

Consistency class according to EN 206-1

	Slump in mm
S1	10 - 40
S2	50 - 90
S3	100 - 150
S4	130 - 210
S5	≥ 220

There are various advantages deriving from the use of fluid concrete:

- **Increase in Final Quality of the Work:** thanks to its better installation characteristics, the use of fluid concrete allows better quality to be achieved, characterised by a more even colour and a considerable reduction in the formation of bubbles. Also, it has better compacting properties which makes it form stronger, more compact concrete which is more durable and less sensitive to ageing caused by pollution.
- **Increase in Site Profit Margins:** thanks to optimised installation (quicker and cheaper) and lower costs for smoothing and levelling off the surface and for eliminating problems.
- **Increase in Safety and Lower Impact of Sites on the Environment:** the reduction or elimination of vibrations reduces noise levels and their impact on site workers (hearing problems and health problems due to vibration).

To get the best out of this type of concrete and fully appreciate its numerous advantages, it is important that its use is integrated early on during the planning phase of the site. It is also necessary to order the concrete correctly, specifying that S4 consistency is required. The site workers must also be instructed about the concrete to avoid vibrating it excessively and unnecessarily. And finally,

as with all types of concrete, it is good practice to apply a suitable product on the horizontal surfaces to avoid the water evaporating. With MAPECURE E and MAPECURE S curing compounds, Mapei proposes technically efficient solutions.
Mapei's range of plasticizers and superplasticizers allow building companies to offer fluid, self-compacting concrete with good performance in terms of fluidity and strength, but which is not particularly sensitive to the inevitable variations of the characteristics of the ingredients. For example, DYNAMON SR3, which may be used with concrete containing "difficult" ingredients such as ground granules or recycled water.
The Mapei technical-commercial managers are available to supply customers with personalised technical assistance.

This article was taken from "Mapei & Vous", n. 27, the in-house magazine published by Mapei France, the French subsidiary of the Mapei Group, whom we would like to thank.

ADDING WATER: EXPECT THE UNEXPECTED!

It may be very tempting to make concrete more fluid by simply adding water to concrete which is not particularly fluid. The end result may initially appear to be the same, and so savings may be made on the amount of concrete required.
However, the consequences are often catastrophic because excess water is the cause of most problems encountered in concrete structures. It is not possible to list all the possible consequences, but these are the most important ones:

- A high risk of segregation.
  This may provoke the formation of gravel clusters, water rising up along the sides of the formwork and the formation of a layer of laitance on the upper part of the formwork, which also varies in thickness. When casting horizontally, cracks may form along with a film of slurry which will compromise the bond of successive coating products.
- An increase in the porosity of the concrete. The material will therefore be more sensitive to aggression from external agents and will be less durable. Its strength will be considerably lower and the concrete cast may not comply with the specifications and the calculations carried out for dimensioning purposes.

The cost of all these problems may be extremely high. And in times of crisis, a lack of quality may be extremely costly!

IN THE SPOTLIGHT

DYNAMON SR3

It is a superplasticizer based on modified acrylic polymer for ready mix concrete with low water-cement ratio, extremely high mechanical strengths and long slump retention. DYNAMON SR3 belongs to the new revolutionary Mapei DYNAMON SR system based on DPP (Designed Performance Polymer) technology; a new chemical process that can model the admixture's properties in relation to the specific performances required for concrete.

Concretes manufactured with DYNAMON SR3 have a high level of workability (consistency class **S4** or **S5**, according to **EN 206-1**), and are consequently easy to apply when fresh. At the same time they offer excellent mechanical performances when hardened. DYNAMON SR3 is particularly suitable for ready mix concrete and wherever there is the need for a strong water reduction, along with relatively high mechanical strengths at early age with different consistency classes and with long slump retention. It is particularly suitable for manufacturing normal to high quality concrete with a cement factor higher than 300 kg/m^3. Its performances make it particularly suitable for manufacturing self-compacting concretes since DYNAMON SR3 can ensure high workability and, at the same time, it does not reduce the concrete's mechanical strengths at early age.

Filling concrete

Two building sites in France put to use a typical application of this type of material using original technical solutions proposed by Mapei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Filling concrete and mortar have been used in France since the beginning of the 1990's and are poured in cavities by simply tilting the discharge pipe from a cement truck mixer without using any other particular material. These fillers do not need to be compacted or vibrated.
Within a few hours their load-bearing properties are sufficient to be put into service and they may also be dug out again. They may also be used to fill narrow trenches where raceways have been installed and where correct compacting of conventional filler materials is impossible. And lastly, these products help to avoid the problem of noise created during compacting operations and the storage of materials on site.
There are also spun filling materials available. Their fluidity is obtained by adding a large amount of water and are compacted by the water evaporating off when they are poured into formwork. Filler materials which have not been spun are made more fluid by adding special admixtures. Their load-bearing capacity is guaranteed by the cement setting and hardening.

Filling Trenches in Motorway Road-Works

To increase safety levels, a crash-barrier was installed on the French A75 motorway between Clermont-Ferrand and Issoire in the Auvergne region.
Excavation work was carried out to form the ditches where the crash-barrier was to be installed.
Because of certain technical requirements (a quick, safe intervention was required without interrupting the flow of traffic) and economical restraints imposed by the site, it was necessary to use trench concrete.
MAPEPLAST PT2 was selected for the concrete to fill the ditches, an air-entraining admixture which allows the entrainment of micro air bubbles, designed in particular for the production of stabilised mortar and filler concrete.
Fabrice Lapie, the technical-commercial manager for Mapei admixtures in Auvergne, proposed reliable, cost-cutting solutions with logistics advantages to a number of technical problems.
For this particular site, MAPEPLAST PT2 was added directly to the concrete in the concrete plant, located approximately 30 minutes away along the motorway.
The first batch of 4,000 m^3 was laid in May and June and the second batch was cast in September.

This article was taken from "Mapei & Vous", n. 27, the in-house magazine published by Mapei France, the French subsidiary of the Mapei Group, whom we would like to thank.

TECHNICAL DATA

A75 motorway section between Clermont-Ferrand and Issoire, Auvergne region (France)

Period of the Intervention:
May-September 2009
Intervention by Mapei: supplying products for filling the excavations along the motorway

Client: APRR, Asnières-sur-Seine (France)
Works Director: Patrick Chautant, Aximum (France)
Contractor: Aximum
Concrete Supplier: Les Bétons Vicat BGC
Mapei Co-ordinator: Fabrice Lapie, Mapei France SA

Photos 1, 2 and 3. Various phases of filling the trenches on the A75 motorway in France.

Photos 4 and 5. Operations to bury the optical fibre below the River Rau du Panariol.

Laying the Underground Optical Fibre Network

Mapei worked together with the Mariotto building company, part of the Vicat group, to produce a filler concrete for burying an optical fibre network below the River Rau du Panariol which flows from the River Aussonelle (near to Toulouse) into Lake Aussone.

The first step was to dry the river bed before digging the trench for the optical fibres. Because of the fragility of the buried optical fibres, it was not possible to use a conventional filler compacted mechanically. Also, because the banks of the river were difficult to reach, the filler had to be cast by pumping.

As a general rule, to guarantee that concrete and mortar have good pumping characteristics, a large quantity of fine aggregates are is added. Due to economic restraints, however, this solution was not possible so concrete with a low dosage of binders was used.

Marc Gérony-Candau, technical-commercial manager for Mapei for the South-West of France, proposed the use of MAPEPLAST PMX for both the starter slurry in the pump and the filling concrete.

MAPEPLAST PMX is a liquid admixture used to make concrete and mortar with a low amount of fine aggregates easier to pump. The dose used in this case was 1.5 litres per m^3 of concrete.

DYNAMON SR3 acrylic-based admixture was also added to the filler concrete to increase its fluidity without adding water. In this case, the concrete had good cohesion properties and no segregation occurred, in spite of the pumping pressure. This super-plasticiser, which enables the mixing water to be considerably reduced, allows concrete with a much lower water/cement ratio to be mixed while maintaining an extremely long workability time, even in hot climates.

TECHNICAL DATA

Laying fiber-optical grid under the Aussonnelle river, Midi-Pyrénées region (France)

Period of Intervention: May 2008
Intervention by Mapei: supplying products for preparing and applying a liquid filling concrete
Contractor: Exedra
Concrete Supplier: Mariotto (Vicat Group)
Mapei Co-ordinator: Marc Gérony-Candau, Mapei France SA

Mapei Products: *the products mentioned in this article belong to the "Admixtures for Concrete" range. The technical data sheets are available at the web site: www.mapei.com. Mapei plasticizers and superplasticizers for mortars and concrete have been awarded the CE mark in compliance with standard EN 934-2 and EN 932-4.*

Dynamon SR3 (CE EN 934-2, T11.1-11.2): *acrylic-based superplasticiser for ready-mix concrete with low water/cement ratio, extremely high mechanical strengths and long slump retention.*
Mapeplast PMX: *admixture for enhancing the pumpability of concrete.*
Mapeplast PT2 (CE EN 934-2, T5): *air-entraining agent for concrete and cementitious mortars.*

IN THE SPOTLIGHT

MAPEPLAST PT2

It is an air-entraining admixture for concrete and mortars exposed to freeze-thaw cycles. It can be used effectively for producing durable concrete exposed to temperature changes around 0°C; for lean concrete mixes (with cement factor lower than 250 kg/m^3) lacking fine aggregates, to be pumped; for concrete with lightweight aggregates, to improve cohesiveness of the mix, workability and placeability; for preparation of renders and masonry mortars, to improve thixotropy, plasticity, and bonding, as well as resistance to freeze-thaw cycles when applied to exteriors in cold weather. It can find application in hydraulic structures such as dams, canals, swimming pools, and reservoirs exposed to cold weather; paving, floor slabs, tunnels, parking-lots exposed to rain and cold weather; lightweight structural concrete panels and underlayments, etc.; for insulating and thixotropic mortars.

Production of mortar and concrete containing MAPEPLAST PT2 is undoubtedly more important in the light of European standard **EN 206-1** which specifies entrainment of a certain amount of air volume in concrete mixes for structures exposed to freezing and thawing. This admixture should be used in conjunction with a plasticising admixture such as MAPEPLAST, or MAPEMIX versatile admixtures or MAPEFLUID or DYNAMON superplasticising admixtures, depending on the performance level required.

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©Solomon R. Guggenheim Foundation, a photo from the CameraphotoEpoche archives donated by the Cassa di Risparmio di Venezia bank in 2005

Peggy Guggenheim Collection

Repair, restoration and maintenance of one of Venice's most renowned museums

The Peggy Guggenheim Collection looks out over the Grand Canal in Venice and is housed in what was originally meant to be Palazzo Venier dei Leoni.

Once inside the museum, visitors are particularly impressed by the private art collection owned by Peggy Guggenheim, ex-wife of the painter Max Ernst and nephew of the American tycoon Solomon R. Guggenheim. In fact in the museum, which also used to be the private residence of Peggy Guggenheim, there is a smaller, more concentrated collection compared with those on show in the other Guggenheim museums located in various parts of the world, but the works exhibited here represent movements such as United States modernism and Italian futurism, as well as works from other movements such as cubism, surrealism and abstract expressionism by famous artists such as Picasso, Dalì, Magritte, Brâncu i and Pollock.

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The History of the Collection and Its Home

In 1949 Peggy Guggenheim bought Palazzo Venier, and up until 1979, the year of her death, it was her wish that, once a week, a large part of the building was opened to the general public. The home of the museum, Palazzo Venier dei Leoni, was never fully completed and was commonly known as "the unfinished palace". Construction work started in 1748 upon a design by the architect Lorenzo Boschetti, who had also designed the Church of San Barnaba. The original projects drawn

up by the architect envisaged a magnificent five-storey palace characterised by a classic façade to contrast Palazzo Corner (which is situated directly opposite) extending from the banks of the Grand Canal to the foundations along Rio delle Torreselle. Building work had only just started when work was abruptly interrupted. The real reason is unknown, maybe it was due to a lack of funds or, according to rumours going round at the time in Venice, because of opposition from the powerful Corner family which did not look too kindly on a palace which overshadowed theirs in terms of magnificence and sheer size. The only remaining parts are the basement and the mezzanine floor with the stone façade on the Grand Canal.


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In 1980, just a few months after her death, the Peggy Guggenheim Collection was inaugurated under the guidance of the Solomon R. Guggenheim Foundation to which Peggy Guggenheim had donated both the palace and the collection. The Foundation was created in 1937 by her uncle to administer his own museum, which since 1959 has been housed in the famous spiral building designed by the architect Frank Lloyd Wright in New York. This building was lately renovated using Mapei products (see *Realtà Mapei International* n. 27).

From "Home" to Museum

The Foundation opened the collection almost immediately to the general public and prepared a programme to create exhibition areas and all the necessary support services which are indispensable in order to keep a museum running successfully. The programme for the various interventions carried out over the years has had to respect both a tight budget and the opening times of the museum, and so all work has been specifically targeted, functional and distributed over a long period of time. In fact, since 2000 there has been a more organic programme to recompose the area which had been set aside for the construction of Palazzo Venier dei Leoni, thanks to the director of the collection Prof. Philip Rylands, in collaboration with the Ugo and Olga Levi Foundation, which donated the area required to expand the museum.

The project includes a new entrance, extending the exhibition area around the terrace and along the foundations, moving the Collection's administration department to the last floor of the building on Rio delle Torreselle (the subject of this article), rationalising and upgrading the plant equipment required to keep the complex running and reorganising the routes through the museum for the employees and visiting public to enable the maximum flexibility possible when organising exhibitions.

The paths on the outside of the build-

Photo 1. Peggy Guggenheim in the dining room of Palazzo Venier dei Leoni. Hanging on the wall from left to right, "Dynamism of a Speeding Horse + Houses" by Umberto Boccioni (1914-15, the Peggy Guggenheim Collection) and "Woman with Animals (Madame Raymond Duchamp-Villon)" by Albert Gleizes (1914, the Peggy Guggenheim Collection), Venice 1960's.

Photo 2. "The Great Solar Symphony" painted by Corneille in 1964 and housed in the Peggy Guggenheim Collection.

Photo 3. In the aerial photograph, the main entrance facing the Grand Canal can be seen to the right, while to the left there is the entrance to the museum and bookshop on Rio delle Torreselle.

Photo 4. A view of Palazzo Venier dei Leoni from the Grand Canal.


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Photo by Andrea Sarti/CAST1466 - ©Peggy Guggenheim Collection

ing between the various gardens set at different levels have also been redesigned and connected together with elevators for handicapped visitors.
The project has followed the same criteria which characterised previous extension work: group together the various units of the building and garden areas with only small interventions and carry out substantial maintenance work on the more damaged parts for a complete repair and restoration project.
The current status is that the project is complete and the feedback has been very positive.
The original appearance of the complex has remained unchanged and the system of connections between the various units, public and private areas, garden areas and residential areas are clearly defined and indicated.


5

Analysis of the Restoration Project
Restoration of the two main façades, one overlooking Grand Canal and the other on Rio delle Torreselle (which is also where the entrance to the museum may be found), carried out thanks to the support of Mapei, was one of the last main interventions on this project. Apart from the specific products which were required for this part of the project, surveys and an in-depth analysis of the various materials were also carried out by Mapei technicians and the Mapei R&D laboratories.
On the main façade facing the Grand Canal (approx. 460 m^2), there are two main features which characterise the prospect: the façade with white limestone ashlars and the terrace at the same level as Grand Canal with a balustrade composed of small pillars and an Istria stone parapet with an insert in the centre of the cast-iron railings.
The most difficult choice to be made from an aesthetic point of view was, without a doubt, whether to eliminate the ivy which, for more than 20 years, had been a characteristic feature of the façade on the Grand Canal, and which wound its way up the two central pillars on the façade. The decision was taken together with the management of the museum to remove the ivy in order to reduce the damage it was causing to the pillars and, above all, to highlight the "unfinished" appearance of the palace, which today is still one of its main architectural features.
The stone surface of the façade, including the lions heads and the other distinctive decorative elements, were in a poor state of conservation.
The white compact limestone ashlars had been grouted together using cementitious mortar.
This type of mortar has a strong attraction for moisture which increases the proliferation of mildew and mould. The

LABORATORY ANALYSIS BEFORE THE RESTORATION WORK

A small sample of marmorino Venetian render taken from the main façade of the Guggenheim Museum in Venice was handed over to the Mapei laboratory to verify if any form of protective treatment had been applied on the surface.

Morphologic Analysis
The following macropictures illustrates the sample analysed in the laboratory.

PHOTO 1. A drop of water was placed on the surface of the sample and its behaviour was observed to verify whether a water-repellent treatment had been applied on the surface.
In the following images, the water front is still partially visible. This behaviour could not be caused by a water-repellent effect on the surface of the render, but rather by the absorption probably being slowed down due to the low porosity of the surface of the sample.

PHOTOS 2 and 3. The sample was then observed using an electron microscope in low-vacuum mode to carry out a more in-depth analysis of the phenomenon.
The following image was taken at a low level of magnification and shows the whole of the surface.
The lack of macro-porosity on the surface is clearly visible.

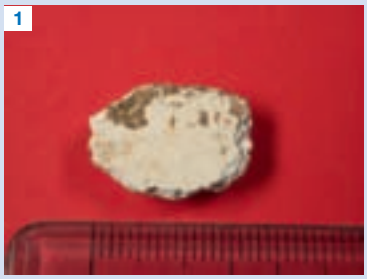
PHOTO 4. The following image was taken at a higher level of magnification and shows porosity in the order of ~ 5 µm: the surface of the render is more cohesive, homogenoeus and "closed".

PHOTO 5. The cohesive, closed surface of the render justifies the slow absorption of the water observed previously.
An EDS spectrum was collected to assess the elements present on the surface.
The EDS analysis revealed the presence of Ca, C, O and Si.

Chemical Analysis
The sample was chemically characterised using XRD,TGA and FT-IR analysis.

XRD. The diffraction pattern shows that the main peaks are of calcium carbonate.

TGA. TGA analysis quantified the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first step was to carry out a targeted cleaning operation on the surfaces damaged by mould and mildew by brushing on SILANCOLOR CLEANER PLUS. This product is a water-based anti-mould and anti-algae solution which is part of the SILANCOLOR PLUS coating system, a complete, high-efficiency cycle specifically tested for protecting the surface of masonry work, composed of a balanced mixture of wide-spectrum, durable admixtures.
After a few days, the entire stone facing wall was thoroughly cleaned with demineralised water to eliminate all the dirt, salts and neutralised vegetation from the surface.

After the cleaning phase, all the mortar grout was removed by hand with small chisels and nylon brushes to a depth of at least 2 cm where possible, to guarantee a good, durable bond for the new grout.
Once cleaned, the layers between each of the ashlars were washed by spraying them with distilled water to lower the level of salts from the old cementitious mortar, and then grouted with a mixture composed of powdered Istria or Botticino limestone bound with NHL (Natural Hydraulic Lime). This mixture was then blended with water containing a small amount of LATEX PLUS latex additive. The joints were grouted

Photo 5. An image of the façade during the maintenance work.

Photos 6 and 7. Firstly, the algae and mildew were removed from the stone ashlars by brushing on SILANCOLOR CLEANER PLUS. After a few days, the entire stone facing wall was carefully and thoroughly cleaned with water to eliminate the surface dirt, salts and areas damaged by the ivy.
The smaller photograph shows a detail of the state of deterioration of the stone ashlars.


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percentage of $CaCO_3$ = 89.7%. The remaining 10.3% may be attributed to the presence of amorphous silica used as a filler (confirmed by the presence of Si by the EDS analysis).

FT-IR. FT-IR analysis confirmed the previous analysis, that the main component is calcium carbonate.
FT-IR analysis was also used to verify if the calcium carbonate was due to lime carbonation or if it was crystalline carbonate.
The analysis is based on the ratio between peaks *v*4 and *v*2.
The closer the ratio to 2, the higher the crystalline carbonate, therefore not deriving from carbonatation of the lime.
In this case, the ratio between the peaks indicated is equal to 2.2, which therefore indicates mainly crystalline carbonate. In other words, the calcium carbonate present as a filler in the sample analysed in the laboratory is higher compared with the carbonate deriving from lime carbonatation (binder). The analysis confirmed the data obtained by XRD and TGA analysis.


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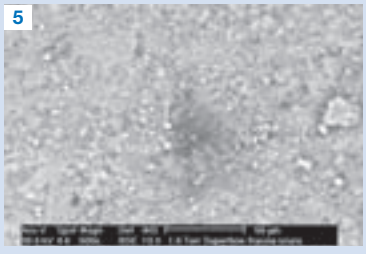
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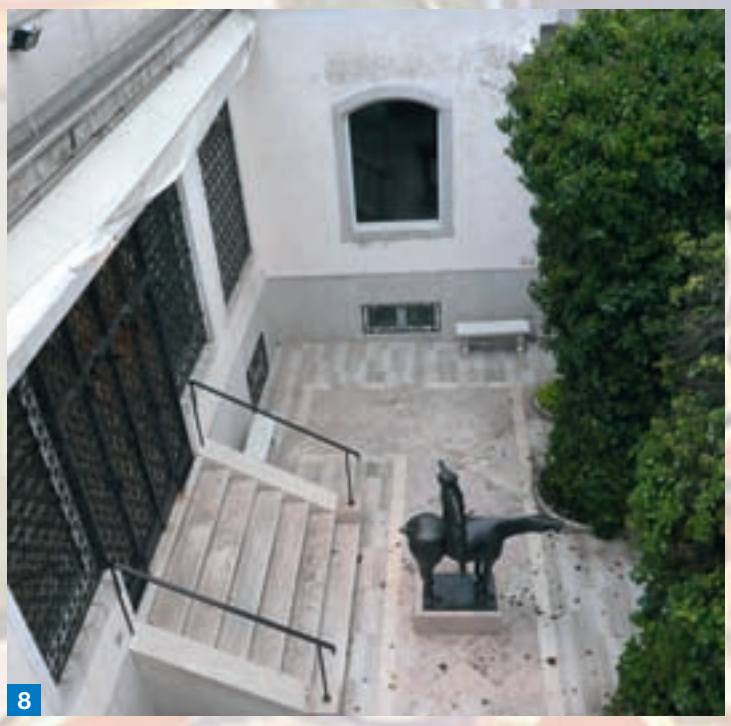
Conclusions
The sample analysed in the Mapei laboratory was characterised chemically and morphologically.
From a chemical point of view, the portion analysed was composed mainly of calcium carbonate, deriving from both the filler and lime carbonatation.
The lime, the binder used for the system, was completely carbonatated: in fact, no peaks in the calcium were observed by either XRD analysis or FT-IR analysis.
By observing the behaviour of a drop of water placed on the surface of the render, no water-repellent effect was observed, although absorption of the water by the sample of render was slowed down.
This phenomenon may be attributed to the absence of macro-porosity on the surface of the render.
ESEM analysis confirmed the homogeneity and cohesiveness of the surface, with only the occasional pores with a diameter of approximately 5 m.
All the analyses carried out excluded the presence of a protective treatment on the surface. The Mapei laboratory declared, therefore, that there were no contraindications to a treatment cycle with silicate-based products on the portion of façade examined, which was representative of the whole façade.



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Photos 8 and 9. On the Marino Marini terrace, the marmorino Venetian render was initially treated with SILANCOLOR CLEANER PLUS, then the surface was carefully and thoroughly cleaned and the small cracks were sealed. After removing the old finishing layer, SILANCOLOR BASE COAT coloured silicon resin based base paint was applied on the surface followed by three coats of SILEXCOLOR MARMORINO.

a little at a time to avoid problems of shrinkage in the thicker areas. The joints were filled until they were flush with the surface of the stone, otherwise there would be the risk of water collecting in the joints.
A similar operation was carried out on the baluster on the Grand Canal where, to guarantee a higher level of safety for the numerous visitors to the museum, some of the stone elements, apart from being bonded with ADESILEX PG1 thixotropic epoxy adhesive, were also anchored in place using stainless steel elements.
The last step was to restore the cast-iron railings below the baluster mentioned above. Two of the railings were in a very poor condition and were beyond repair, while three were missing and had been temporarily replaced with wooden railings carved to shape similar to the original ones. Using the best preserved railings as a model, a new iron mould was made for the ones to be replaced.
The other 13 were removed and repaired by light sand-blasting. The more inaccessible areas were scraped by hand and the smaller damaged elements were either replaced or repaired.
The last step was to paint the railings in a colour similar to the original.
On the right-hand side of the façade, there was a small area of cementitious render which had been recently repaired. This was cleaned and, since it was well-bonded to the underlying wall, it was smoothed over with a 2 mm thick layer of white PLANITOP 200 to make it strong and to blend in with the rest of the façade.
Lastly, on the upper part of the Marino Marini terrace, between the lower terrace overlooking the Grand Canal and the display halls in the museum, there was a layer of marmorino Venetian render which had been applied recently. This was treated with SILANCOLOR

IN THE SPOTLIGHT

MAPE-ANTIQUE MC

It is a premixed light-coloured cement-free powder mortar based on special hydraulic binders with pozzolanic action, natural sand, special additives and synthetic fibres developed according to a formula in the Mapei R&D Laboratories.

After mixing MAPE-ANTIQUE MC with water in a mixer, it forms a sulphate-resistant plastic-thixotropic consistency mortar that is easily workable on both vertical surfaces and ceilings.
Mortars prepared with MAPE-ANTIQUE MC are very similar to the old mortars based on lime, pozzolan-lime or hydraulic lime originally used in the construction of period buildings in terms of colour, mechanical strength, modulus of elasticity and porosity. Compared to the original mortars, however, MAPE-ANTIQUE MC-based repair mortars feature a durability that makes them virtually indestructible in the face of natural aggressions: rain, rising damp, cracks caused by plastic shrinkage, alkali-aggregate reaction and attack by the sulphate salts that are often present in masonries.
Despite their intrinsic porosity and "mechanical delicacy", MAPE-ANTIQUE MC-based mortars are physically and chemically insensitive to aggressive attacks.

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Photo 10. An image of the façade on Rio delle Torreselle before the restoration and maintenance work. The smaller photograph illustrates the level of deterioration of the masonry.

Photo 11. After completely removing the old render, a layer of MAPE-ANTIQUE RINZAFFO was applied. The masonry work was then evened out with MAPE-ANTIQUE MC de-humidifying mortar. The façade was then finished by treating it with SILEXCOLOR PRIMER and, once completely dry, 0.7 mm SILEXCOLOR TONACHINO was applied on the surface in two different colours and in white on the stringcourse.

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CLEANER PLUS, followed by a thorough cleaning of the surface and sealing of the cracks with lime mortar. This operation was only carried out after taking and analysing various samples of the render to check the composition of the material and its compatibility with the product proposed by Mapei. See the report of the analysis in the previous pages.
The surface was then treated with SILANCOLOR BASE COAT coloured primer paint in water dispersion, which also acts to even out and fill surface defects. This product is made from modified potassium silicates in water dispersion, micro-granular quartz and selected aggregates.
Once applied, this product evens out the absorption of substrates and gives a better bond for successive painting cycles and coatings. The colour of the SILANCOLOR BASE COAT was chosen directly by the designer and was very similar to the colour of the final coating. Several layers of SILEXCOLOR MARMORINO silicate-based mineral paste were then applied (again special care was taken by the works director when choosing the colour so that it was as similar as possible to the original). Apart from its high permeability, this product is also used when an attractive antique finish, typical of marbles is required.Thanks to is content of silicates, it forms a single body with the substrate without modifying its vapour permeability or its resistance to adverse weather conditions. Three coats of SILEXCOLOR MARMORINO were applied at a distance of at least 24 hours between each coat, and each single coat was sanded down with fine sandpaper.

Maintenance of the Façade on Rio delle Torreselle

The façade of the buildings, which face n° 704 in the Dorsoduro district, on Rio delle Torreselle was a particularly important intervention for Mapei. The buildings are located at the back of Palazzo Venier dei Leoni where the restoration work described in the previous paragraphs was carried out, and were characterised by two different yet complementary colours typical of the Venice landscape. In this area, there are the entrances to both the Peggy Guggenheim Collection (which was in the pavilion until 2003 and then moved to this location a few years ago) and the museum shop, one of two sales points which the museum has opened where visitors may buy momentos and souvenirs dedicated to Peggy Guggenheim and art of the 1900's.
The façade of the buildings had damaged over the years and the original render had become crumbly. To bring the masonry back to its original splendour and, at the same time, resistant to chemical aggression by salts car-

Mapei Products: *the products mentioned in this article belong to the "Building Speciality Line" range. The technical data sheets are available at the web site: www.mapei.com. Mapei products for the protection and repair of concrete surfaces and structures have been awarded the CE mark in compliance with EN 1504 standards. Mapei mortars for renders have been awarded the CE mark in compliance with EN 998-1 standard.*
Adesilex PG1(CE EN 1504-4): *two-component thixotropic epoxy adhesive for structural bonding.*
Latex Plus: *latex admixture inducing elasticity to be mixed with Nivorapid for increased deformability and improved adhesion on difficult surfaces.*
Mape-Antique MC (CE EN 998-1 type GP, cat. CS II): *pre-packed, cement-free, Eco-Pozzolan-based, light coloured dehumidifying mortar for the restoration of damp stone, brick and tuff masonry.*
Mape-Antique Rinzaffo (CE EN 998-1 type GP, CS IV): *cement-free pre-packed, Eco-Pozzolan-based, light-coloured "salt-resistant" mortar or scratch-coat to be applied before creating dehumidifying renders with Mape-Antique MC, Mape-Antique CC and Mape-Antique LC on stone, tuff and brick substrates.*
Planitop 200 (CE EN 1504-2*, coating* ***(c)****, principles,* ***MC*** *and* ***IR, CE EN 998-1 type GP, CS IV):*** *one-component cementitious mortar for interior and exterior smoothing of rough surfaces and finishing walls.*
Silancolor Base Coat: *coloured, modified potassium-silicate based primer paint in water dispersion with high filling properties for evening out surfaces, according to DIN 18363 standard.*
Silancolor Cleaner Plus: *water-based, anti-algae and anti-mould solution for cleaning surfaces damaged by micro-organisms before painting using the Silancolor Plus protection system.*
Silexcolor Marmorino: *trowelable highly decorative, fine finished vapour-permeable, silicate mineral paste coating, for interior and exterior applications, according to DIN 18363 standard.*
Silexcolor Primer: *modified potassium silicate-based primer, specific for levelling the absorption of the substrate and improving the adherence of Silexcolor Paint, Silexcolor Tonachino and Silexcolor Marmorino.*
Silexcolor Tonachino 0.7: *modified potassium silicate-based mineral coating in paste form for internal and external application, according to DIN 18363 standard.*

TECHNICAL DATA

Peggy Guggenheim Collection, Venice (Italy)
Designer: Lorenzo Boschetti (18th century)
Year of Construction: 1748

Year of the Intervention: 2009
Intervention by Mapei: supplying products for restoring and repairing the building façades on the Grand Canal and on the Rio delle Torreselle channel
Designers and Works Directors: Clemente and Giacomo di Thiene from Studio Architetti di Thiene (Venice)
Client: Solomon R. Guggenheim Foundation
Contractors: for the main facade's restoration: Impresa Lithos, Venice; for the repair of the iron elements: Fabbri Veronese, Vicenza; for demolishing and rebuilding the renders on the Rio delle Torreselle side: Impresa Edile Minto Francesco & C, Venice
Mapei Distributor: Boscolo Bielo Ivano, Venice
Mapei Co-ordinators: Pasquale Zaffaroni, Davide Bandera, Paolo Sala, Alessandro Presotto, Silvano Maestrelli, Orlando Sas, Mapei SpA (Italy)

TOGETHER FOR ART

Photo by Andrea Sarti/CAST1466

Apart from the building and art collection left by Peggy Guggenheim, the Solomon R. Guggenheim Foundation also administers the Solomon R. Guggenheim Museum on the Fifth Avenue in New York, the Guggenheim Museum in Bilbao and the Deutsche Guggenheim in Berlin.
This "group" of museums is one of the most popular cultural institutions at an international level and counts almost three million visitors from all around the world each year.
For the Foundation, making its experience and knowledge available for the most sensitive and well-informed business and industrial circles is part and parcel of its cultural and social objectives. Which is why, over the years, they have selected a group of companies to form the "Intrapresae Collezione Guggenheim" with which they have established a relation of reciprocal cultural collaboration.
Mapei is also part of this group, built on the bond which the Company has always had with the world of art and culture, by contributing to the building and restoration of important architectural structures, organising important artistic and musical events and sponsoring prestigious cultural bodies and institutions. Mapei's support of the Guggenheim Foundation was consolidated in 2008 following its contribution for the restoration of the prestigious Solomon R. Guggenheim Museum in New York, designed by Frank Lloyd Wright in 1956 (for further information see *Realtà Mapei International* issue n° 27/ January 2009). 2009 was the year of the restoration work on the Peggy Guggenheim Museum's main façade overlooking the Grand Canal and the façade which looks out on Rio delle Torreselle (the subject of this article).
The photo at the top of the page shows, from left to right, Paul Schwartzbaum and Philip Rylands, respectively the chief curator and director of the Peggy Guggenheim Collection.

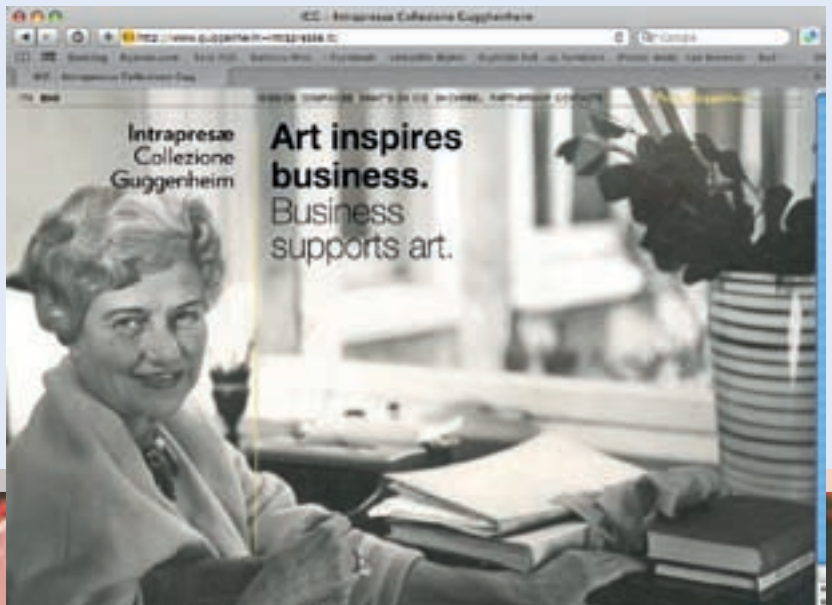

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Photo 12. The Mapei team passing in front of the restored Palazzo Venier dei Leoni during the last Historic Boat-race in Venice.

HISTORIC BOAT-RACE

Records of boat-races along the canals of Venice date back to the 13th century, and along with the increase in prestige and commercial and military power of Venice, they became a source of pride for the city. After the fall of the "Serenissima" Republic of Venice in 1797, all public celebrations in the city including the Historic Boat-race were abolished, although it was then restored in 1841 during the dominion of the Austrian Empire. The Historic Boat-race is held on the first Sunday in September along the Grand Canal and includes a procession with the participants dressed in period costumes and a series of races divided into various categories: gondolas with 4 oarsmen, the "maciarele" series for boys up to the age of 12 years and up to the age of 14 years, a race for smaller children in traditional "pupparini" row-boats with two oars, the championship mini-gondola race and the ladies race in "mascarete" row-boats with two oars. And in the ladies event, in their first race and wearing the Mapei colours, Gabriella Lazzari and Chiara Curto arrived fifth in the last edition of the race.

ried into the walls by capillary rising damp, the Mapei Technical Service Department recommended applying the MAPE-ANTIQUE cycle.

The first operation was to remove around 500 m^2 of the remaining render, which was mostly damaged, from the surface of the façade. The masonry was patched up to integrate the missing parts and make it flat and even.

This operation was carried out with MAPE-ANTIQUE MC pre-blended dehumidifying mortar.

The restoration work then continued by hydro-washing the surface followed by the application of a layer approximately 5 mm thick of MAPE-ANTIQUE RINZAFFO. This mortar is particularly recommended for restoring old buildings made from stone, tuff and bricks, including those of historical interest, which have been damaged by high levels of salt, such as sulphates, chlorides and nitrates. High levels of chlorides were found in these particular walls.

The layer of render was formed by applying MAPE-ANTIQUE MC at a thickness of 20-25 mm. When mixed with water this product forms a render which is highly permeable to vapour so that it progressively "discharges" the rising damp from the foundations. Thanks to the micro-pores in the layer of render, stress caused by the crystallisation of salts inside the pores is eliminated when using this product.

After a couple of weeks the façade was treated with SILEXCOLOR PRIMER, which contains potassium silicate in water dispersion, to even out the absorption of the successive coating. This product penetrates deep down into the wall and ensures an excellent bond of the finishing coat by promoting the silicatisation process.

Once the SILEXCOLOR PRIMER was completely dry, the façade was treated with 0.7 mm grain size SILEXCOLOR TONACHINO mineral coating which, when dry, forms a single body with the substrate without particularly modifying its permeability. On the façade on Rio delle Torreselle, two different colours of SILEXCOLOR TONACHINO were used to match the original colours applied, while a white colour was used for the stringcourse. RM

HE WILL ALWAYS BE WITH US

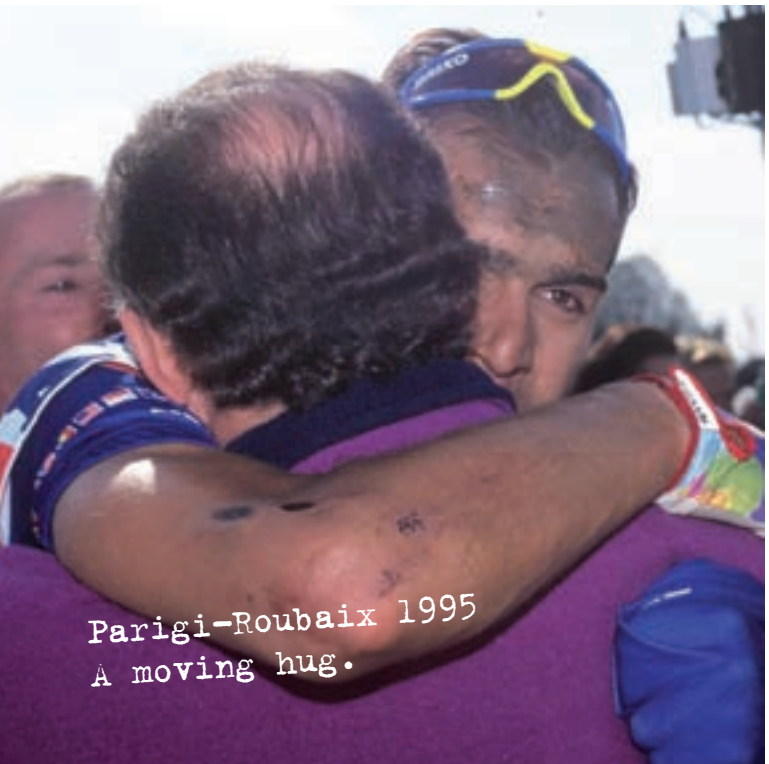
By **Giorgio Squinzi**

Tuesday, 29th June 1993. A date conjuring up thousands of memories. That was the day when my Mapei team really began to take shape. I had just taken over Marco Giovanetti's team, Eldor, and my wife Adriana and I were spending the summer "shopping". The team needed strengthening, we had to give shape to our project. Our first appointment was in Tuscany at Mario Cipollini's home. I was with Adriana and my friend Ercole Baldini, the man who got us involved in cycling just before the Tour of Italy, actually saving a team which was about to close down ahead of schedule. Rino Civardi, who at that time was the head of Mapei's export department and has always been a great cycling fan, was also with us. The first meeting was at Mario Cipollini 's house. Two hours later we were at Franco Ballerini's house. We did not need to say much, we understood each other at first sight. A few months earlier Franco had lost out to Gilbert Duclos-Lassalle in a photo finish in the Paris-Roubaix race. His disappointment over that loss was still tangible. The same applied to me. I had watched the race on TV and suffered with him. I really liked the way he rode but appreciated him even more for the way he behaved at the end of an unlucky race he lost by centimetres. I immediately liked his polite and respectful manners, which translated into determination, clear-thinking, burning desire and tactical intelligence when he was on his bike. Ballerini was certainly one of my favourite cyclists, but I was really fond of Franco as a person. Everybody liked Franco. He was talented, well-prepared, intelligent and full of charisma: rare qualities.

We got on immediately and had a great understanding. Even though he eventually joined Beppe Saronni at the Lampre team, he decided to come back to his "family" to wear the Mapei jersey for "one final lap of the track". He came back after three years and it was as if we had never been apart, because even though Franco had been in a different team, he still maintained a very special relationship with my family and also with the Company. We spoke to each other at least once a week. When he was thinking about ending his competitive career, we spoke to each other and decided to race together again. Right until he rode "his" Roubaix for the final time. I always admired Franco, so much so that my wife and I did not hesitate to offer him a job in the team. I could see the future in him. I wanted his face to represent Mapei around the world. That is why I offered him a job in public relations. I can now say that that was just the first step towards making him the team manager. For me that would have been his natural vocation. But, as it turned out, Giancarlo Ceruti, who at that time was the President of the Italian cycling Federation, offered him the job of head coach of the national team. It was a tough decision for us, but it was a great opportunity for Franco and so, for his good, we decided to let him go. Needless to say we still remained on excellent terms. I will never forget his weekly phone calls. Those good luck rituals before the World Championships and his phone calls right in the middle of the world championship race, just before crossing the line when Alessandro Ballan won the "World Championships" in Varese. Cycling up Mount Stelvio on Mapei Day. The unforgettable one in 2004: freezing cold, ice, rain and my complete exhaustion. He patiently stayed by my side in danger of getting frostbite in its hands. And seeing his handsome and kind face light up when Veronica, my daughter, drove up alongside him to offer him a pair of gloves.

He was charismatic and truly popular. I still remember back in 2001 when Franco literally won over the President of the Banca Popolare di Sondrio, Piero Melazzini, during a cycling event organised with this bank just after he had retired from competition. At a certain point Mr Melazzini said to him: "Excuse me, Franco, shouldn't you be working for me?". And I very often used to remind him: "Franco, if it doesn't work out with the Federation, don't worry, there will always be a job for you at Mapei". And I was not just saying that, it was what I really believed and still do: Franco had what it takes to manage men and people with politeness and firmness. He could get people to listen to him without shouting, he could lead people without giving orders.

In cycle races, just like life, he liked to gradually accelerate. No sudden sprints or rapid changes of pace. He used to think, assess the situation and then strike at just the right moment in a way very few people could. He was polite, loyal and unusually sensitive. I can remember his rather anxious phone calls about the illness his little son Matteo was suffering from, but also the joy when he recovered. His pride of having a son like Gianmarco, who was an excellent and promising footballer. And his visits to the Company every year just before Christmas to wish us well. Once again this year he turned up right on time and as affable as ever. He even brought me one of his two Roubaix trophies. That piece of porphyry stone symbolising the Queen of all races, which for me does not just stand for a great race won by a cyclist I love, it actually symbolises somebody I consider to be a king among men. That trophy is now proudly on display in my office. It is a dry, arid and heavy piece of stone, just like the injustice of having lost him.



Parigi-Roubaix 1995
A moving hug.

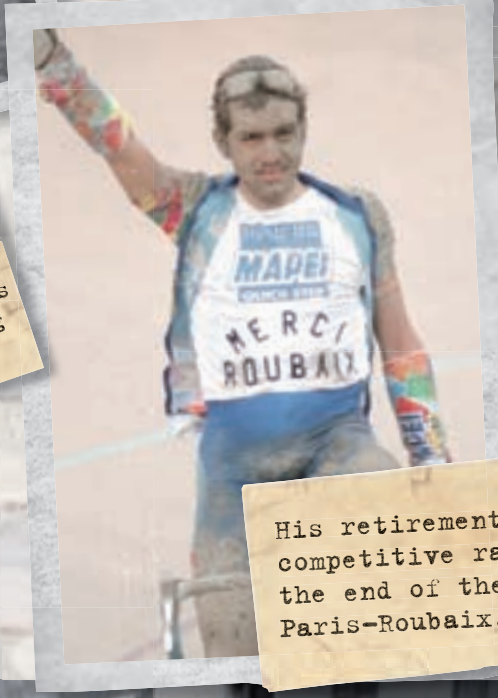
This article was taken from the Italian Magazine TuttoBici.
Our thanks go to the chief editor, Pier Augusto Stagi.

The photograph was given to us courtesy of the magazine Bicisport.
We would like to thank the chief editor, Sergio Neri.

His first races wearing the Mapei jersey. Franco Ballerini talks to Valdemaro Bartolozzi before taking on the 1994 Paris-Roubaix, relying on his considerable experience as a sport director for these races in Belgium.

His first eagerly awaited porphyry trophy won in 1995.

His famous victory at the 1998 Paris-Roubaix.



His retirement from competitive racing at the end of the 2001 Paris-Roubaix.

Reaching the finishing line together with Giorgio Squinzi and a group of famous old Mapei team riders during Mapei Day in 2007.

Mapei Day 2009 in Bormio
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