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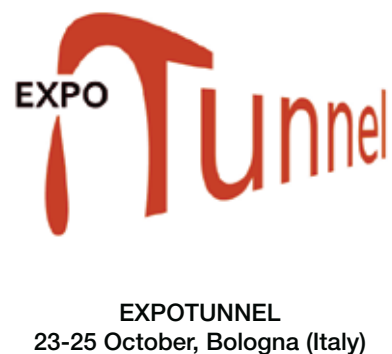
ISSUE 48



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SUMMARY

SPECIAL FEATURE AMERICAS

MARKET

- 2 The American construction market

TEAMWORK

- 5 Mapei's strategy for the Americas
6 Mapei plants in the Americas
11 Supersizing a plant

PROJECTS

- 21 A luxury apartment in Yaletown
24 Metro Bank in Douglasville
29 RSC recycling plant in Montréal

TRADE FAIRS

- 14 World of Concrete
15 Surfaces
16 Coverings

NEWS

- 32 Salone del Mobile
33 Milano Design Week
38 Music amidst the skyscrapers, waiting for the Expo
64 The 36th ICMA Conference

PROJECTS

LAYING CERAMICS AND APPLYING WALL COATINGS

- 34 A room in the garden

CONCRETE REPAIR

- 44 Sfalassà viaduct

LAYING TEXTILE AND RESILIENT MATERIALS

- 48 Palace of Justice in Halle

LAYING CERAMICS AND STONE MATERIALS

- 54 Le Bailliage Hotel in Salers

LAYING CERAMICS AND STONE MATERIAL

- 58 Elite Village Millennium Park

MARKET

- 68 The 39th Annual FEP Conference

PRODUCT SPOTLIGHT

- 52 Grout selection
62 Fast-setting products

RESEARCH

- 65 Innovation in the materials for the building products

ART AND CULTURE

- 42 Civil passion on stage at Noh'ma theatre in Milan
70 Mapei again working with Peggy Guggenheim Collection

CURIOSITY

- 74 Ceramic and its supporting player

SPORT DIVISION

- 76 Black and green: the colours of those who never give up
79 Sassuolo is "Made in Italy"

PRODUCT SPOTLIGHT

Keraflex line p. 19; Mapefloor System & Ultratop System p. 20; MapeWrap System p. 28; Eco Prim Grip p. 51; Products for screeds p. 69; Mapelastic p. 73; Mapelastic Aquadefense back cover; Grout Selection inside back cover

IN THE SPOTLIGHT

Mapei FRP System p. 30; Ultracolor Plus p. 37; Mapegrout Easy Flow p. 46; Mapelastic Guard p. 47; Ultrabond Eco V4 SP p. 50; Keraflex Maxi S1 p. 55; Mapelastic p. 60



For further information see
www.mapei.com and www.mapei.it



COVER STORY. Sassuolo will be again playing in Serie A. Sassuolo, the Italian football team sponsored by Mapei, successfully struggled to avoid relegation and celebrated staying up in the top division of Italian football.

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The AMERICAN construction market

The real estate market is growing all over the continent

The real estate market is growing all over the continent, albeit with a different impact depending on which area is taken into consideration. Let's take a more detailed look.

United States

The USA economy, in spite of the difficult first quarter of 2014, should pick up in the rest of the year and most analysts forecast a GDP growth rate around 3% for the 2014-2015 period.

In particular, the real estate sector is enjoying a strong recovery, which can be seen by the growth in average house prices (almost +10% in 2013) and the large number of projects literally at the site stage.

In 2013 the United States economy and construction market continued to expand.

The recovery in the **residential sector**, which started in 2012, continued through the whole of 2013. Investments in building projects (public and private, residential and non-residential) were more than 898 billion dollars (627 billion in the private sector and 271 billion in the public sector), a growth of 4.8% compared with 2012. 923,000 projects have been executed in the residential sector, the



highest number since 2007, an increase of 18.3% compared with the previous year. Investments in residential building projects came mainly from the private sector and increased by 17%. Non-residential projects, on the other hand, fell by 1.5%. The number of detached houses built amounted to 618,000 units (+15.4%), while the number of semi-detached and town-houses accounted for 306,000 (+24.6%). 428,000 new homes were sold in 2013, an increase of 16.4% compared with 2012.

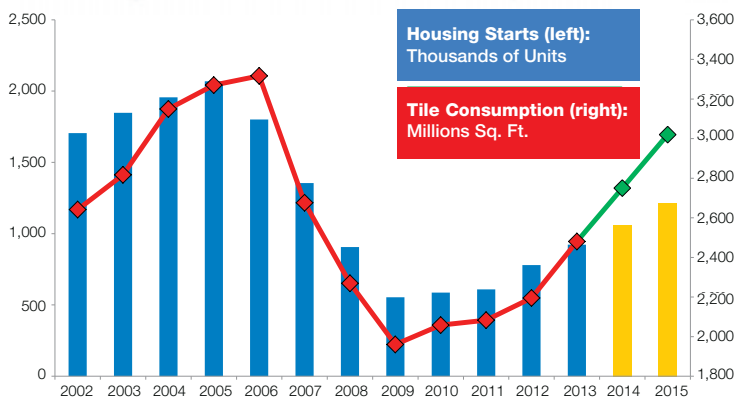
The number of new residential building sites (housing starts), which in previous years had reached unprecedented levels before dropping to 478,000 units in 2006, was 923,000 in 2013, and large margins for growth are forecast for 2014. Sales of existing homes, on the other hand, reached 5.09 million units (+9% compared with 2012), the best result since 2006.

In 2013 investments in residential renovation work were around 130 billion dollars (+3% compared with 2012) and further, rapid growth is expected in 2014.

In the first three months of 2014 the construction sector, as with the USA economy in general, slowed down because of the particularly bad winter in the northern part of the country and in parts of the south-eastern states, and the heavy rainfall in the north-west. The slowdown in investments is thought to be only a temporary event, and analysts believe that in 2014 the residential building sector (including both new buildings and renovation work) and the private non-residential building sector will continue to grow, while there is a less rosy outlook for the public non-residential sector. Double-figure growth is forecast for investments in single family homes, residential complexes and commercial buildings.

The United States **ceramics market** has reaped the benefits of the recovery in the residential sector. In 2013 there was a growth in the consumption of tiles of almost 14% compared with 2012, a continuation of the growth

HOUSING STARTS AND U.S. TILE CONSUMPTION



The graph shows the evolution of new constructions in the United States and its close correlation with the national ceramics consumption, and forecasts quite high growth of both values for the two-year period 2014-2015.

Source: U.S. Department of Commerce and Donato Grosser & Associates Ltd.



Canada

The macro-economic climate in Canada is also positive and, according to a survey carried out by the Bank of Canada, most companies now have a more positive outlook as far as the coming months are concerned, they are planning to take on new employees and they have said that there was an increase in sales and orders last year. 42,900 new jobs were created in March, bringing the level of unemployment down from 7% to 6.9%. The real estate sector is also in full growth and the forecast increase in house prices is 2.2% in 2014 and 1% in 2015. Consumption of tiles reached 38.6 million m² in 2013, an increase of 1.2% compared with 2012. The growth in this sector has undoubtedly been more moderate compared with the United States, and this figure can be partly explained by the fact that the recession in Canada was never as serious as in the USA and that, in 2012, the consumption of tiles had already reached the same level as before the economic crisis.

Mexico

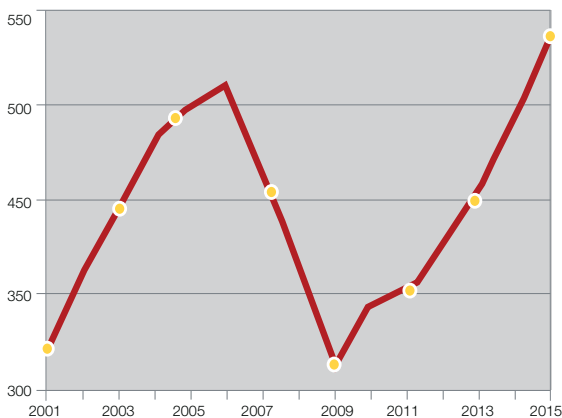
After recording moderate growth in 2013, the Mexican economy should develop at a sustained rate for the next two years, and the estimated growth in GDP for this period is an average of more than 3%. The construction sector (and the residential sector in particular) should benefit from the improved macro-economic picture. The ceramics market, worth an estimated 184 million m², was basically stagnant in 2013, but a net recovery is expected for the period 2014-2015 when the annual growth in consumption is expected to be around 6%.

South America

The South America area recorded an increase in GDP of 2.7% for 2013 and similar average growth is expected for the period 2014-2015. The level of economic development in Brazil reached 2.3%, but even better results were achieved by Argentina (+4.3%), Chile and Peru (both

trend that has been ongoing since 2010. For 2014 further growth in the demand for tiles has been forecast, albeit lower than before (+6%). Analysts believe that there is a correlation in the consumption of ceramics in the USA with new residential buildings accounting for 29%, renovation of residential buildings for 41% and the construction and renovation of non-residential buildings for 30%. The main driving force behind the growth in the ceramics sector will be the development in the market for new residential buildings. There are good prospects, therefore, for manufacturers of tiles and construction materials, as well as for distributors and construction companies.

CONSUMPTION OF TILES (millions of square metres) IN THE NAFTA COUNTRIES



The graph shows the trend in the ceramics market in the NAFTA countries (United States, Canada and Mexico) and highlights how, since 2010, the recovery in the United States has influenced consumption figures in the entire NAFTA area.

Source: Confindustria Ceramica.

CERAMIC TILE CONSUMPTION BY SECTOR IN THE USA

SECTOR	2006	2011	2012	2013	2014P
New Residential Construction	40%	20%	24%	27%	29%
Residential Remodeling	29%	43%	41%	41%	41%
Non-residential Construction and Remodeling	31%	37%	35%	32%	30%
TOTAL	100%	100%	100%	100%	100%

The table illustrates the split for the consumption of ceramics in the United States over recent years and the forecast for 2014.

Source: Donato Grosser & Associates Ltd.



Sao Paulo Stadium in Brasil. Brasil's construction market is the most promising one in South America.

countries had an increase in GDP of between 4% and 5%). Venezuela did not do as well as the others, with GDP increasing by just 1%.

The South American construction market overall recorded a growth rate of almost 4%, continuing and improving on the previous year's positive trend (+2.5%). Positive growth is also forecast for the two-year period 2014-2015.

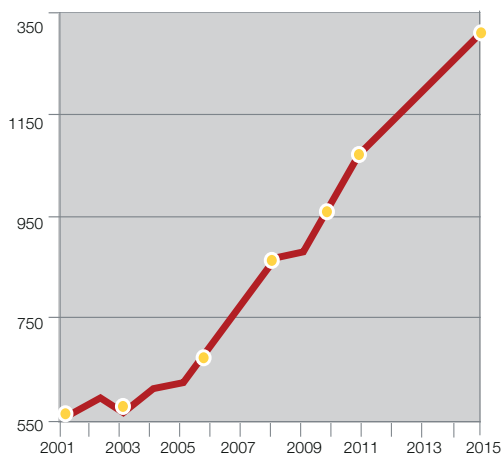
Brazil took the lion's share in this area with around 170 billion Euros invested in the building sector, thanks also to the projects for the 2014 World Cup Finals and the 2016 Olympic Games, as well as the dynamic role of the

residential sector. For the two-year period 2014-2015 the estimated average annual growth will be between 4% and 5% for the ceramics market. This should confirm the positive trend for 2013 (more than 4%), when the total consumption amounted to almost 890 million m².

Argentina had a growth in investments in the building industry for 2013, thanks particularly to the development of the residential sector. The consumption of tiles was around 67 million m² and for the period 2014-2015 the average annual increase is expected to be a little less than 3%. The results for **Colombia**, **Chile** and **Peru** were just as encouraging: the growth in these markets was around 5% or a little higher. In **Colombia** more than 60 million m² tiles were sold in 2013, an increase of 4.7% compared with 2012, while for the two-year period 2014-2015 the estimated growth will be around 5%. In **Chile** the ceramics market closed 2013 with an increase in consumption of over 4%, equal to more than 34 million m², and a growth of around 5.0% is forecast for the next two-year period. In **Peru** lower volumes in the consumption of ceramics (more than 24 million m²) have, however, led to an increase of more than 9% in the market for 2013 and an increase of around 6% is expected for the period 2014-2015.

The less fortunate macro-economic situation in **Venezuela**, due to social disorder and political instability, have had a negative influence on the construction sector in this country, with 2013 closing with a fall of almost 2% in the consumption of ceramic tiles, equal to 43 million m². The forecast for the next two-year period, however, is for a recovery of more than 2%.

CONSUMPTION OF TILES (millions of square metres) IN SOUTH AMERICA



The graph shows how the overall consumption of ceramics (1.2 billion m²) in 2013 in South America followed a trend of constant, sustained growth lasting many years.

Source: *Confindustria Ceramica*.

This article was written with the help of Francesco Doria, Mapei Market Research Manager.

Mapei's strategy for the Americas

A growing market described by Luigi di Geso, President and CEO of Mapei Americas

Because cold weather across the U.S. put the brakes on economic growth during the first quarter of 2014, Mapei Corp. (the Group's US subsidiary) sales – as well as industry sales across the board - were growing at a lower rate than budgeted; but the company's revenues are still above last year. Going forward, the outlook is strong. There is pent-up business that will open up in the second quarter of the year. Our customer, both contractors and distributors, are very optimistic that the remaining three quarters of 2014 will show increased revenues.

Mapei is going to support the market with new products, new market entries and new acquisitions to reach its growth goals in 2014 and beyond. The Tile and Stone Installation Systems, Floor Covering Installation Systems and Wood Flooring Installation Systems categories in Mapei Americas' portfolio are still strong and growing at a steady rate.

Mapei has begun providing products for underground construction, a new category for us in the Americas. We are receiving active support from our colleagues at Mapei SpA in Italy and around the world as we enter this market in the Americas. As the construction industry is flexing its muscles and preparing for a new round of project developments, Mapei also stands poised to supply customers with products and services that will meet their needs now and in the future. Mapei Americas is advancing product knowledge in our traditional categories and opening up new markets that will contribute to our continuing growth.

A new subsidiary

On May 7, 2014, Mapei Americas has entered the admixture business in the United States with the strategic acquisition of General Resource Technology, Inc (GRT). We will be expanding GRT's footprint east and west from its base in the Central United States. Strategic plans include future expansion north into Canada and south into Mexico as well. GRT will also supply Mapei Americas with a number of raw materials for products in our other categories, leading to vertical strengthening of our supply chain.

Family-owned since it was founded in 1993, General Resource Technology markets concrete admixtures and auxiliary products for the concrete industry in the central United States. The company's products are routinely used to produce high-performance concrete mixes that are called upon to perform in all weather conditions. As our global Underground Tunneling Technology division expands, GRT will provide an important source of highly specialized products for this market as well.



Luigi Di Geso
President and CEO of Mapei Americas



LEFT. Luigi Di Geso shakes hands with Travis Collins, GRT's General Manager, on the day of Mapei Corp's acquisition of GRT.



Mapei first landed in the Americas (in Quebec, Canada)

in 1976, the year when it supplied products for constructing and restructuring facilities designed to host the Montréal Olympic Games. Shortly afterwards, in 1978, the Group opened its first manufacturing plant in Canada in the city of Laval, as a first step in a process of internationalising the company that has never stopped since then. Mapei Corporation was established in 1983, the US subsidiary in charge of the Group's operations on the American continent whose headquarters are based in Deerfield Beach in Florida (in the photo). Year after the year the company has gradually spread further and further across the Americas, opening up new manufacturing plants, creating new subsidiaries in different nations (as well as Mapei Corp. in the USA and Mapei Inc. in Canada, other subsidiaries like Mapei Argentina, Mapei de Venezuela, Mapei Construction Chemicals Panama S. A. and, most recently, Mapei de Mexico and Mapei Brasil have also been set up), constructing Research & Development Laboratories (1 in Laval in Canada, 2 in Deerfield Beach and 1 in Dalton, USA), and setting up a highly efficient commercial and distribution network capable of meeting the needs of customers all over the continent.

These pages provide a brief overview of Mapei's manufacturing plants in the Americas without describing the Group's operations in Mexico, Panama, Brazil and Argentina (●) which are directly managed by the mother company Mapei SpA.



LAVAL (QUEBEC)

BRIEF HISTORY

- **1978:** opening of the plant
- **1999:** additional reactor in the polymer plant
- **2005:** most recent expansion took place in the warehouse and shipping area

Plant size: 13,657 m²

The plant in Laval is Mapei's Canadian head office with R&D, Human Resources, Finance, Technical Services, Sales (Quebec), Customer Service and Marketing located there



MASKINONGÉ (QUEBEC)

BRIEF HISTORY

- **1995:** opening of the plant
- **1985:** addition of a spray-dryer plant

Plant size: 743 m²



DELTA (BRITISH COLUMBIA)

BRIEF HISTORY

- **1988:** plant start-up in New Westminster
- **2001:** plant moved to a 716 m² facility in Delta
- **2009:** plant expanded to 7,432 m²
- **2009:** when the plant was expanded, the new warehouse and offices were built to LEED standards

Plant size: 7,432 m²



BRAMPTON (ONTARIO)

BRIEF HISTORY

- **2001:** opening of the plant
- **2014:** increasing demand throughout Eastern Canada prompted the decision to relocate from leased facilities at 2130 Williams Parkway E. to an expanded, wholly owned Mapei property at 95 Walker Drive (about 4 km to the southeast). See the next article in this issue of the magazine

Plant size: 13,000 m²



TEMPE (ARIZONA)

BRIEF HISTORY:

- **1983:** opening of the plant
- First Mapei plant in the United States
- Mapei was Eagle Manufacturing Award winner in 2011
- Member of OSHA's Safety and Health Achievement Recognition Program (SHARP). Only 21 companies in the state of Arizona have been admitted to date and Mapei is the only company in the program that is involved in industrial manufacturing

Plant size: 2,880 m²



SOUTH RIVER (NEW JERSEY)

BRIEF HISTORY

- **1967:** the South River plant was originally built by then-owner L & M-Surco
- **1989:** Mapei's acquisition of the plant
- **2014:** marks 25 years that the South River plant has been operated by Mapei.
- A brand-new 21,368 m² plant will be opening in Logan Township (New Jersey) very shortly; this plant will supply all Mapei products to service customers in the North-eastern United States

Plant size: 1,115 m²



GARLAND (TEXAS)

BRIEF HISTORY

- **1994:** plant opened with production of powders for Tile & Stone Installation Systems
- **1994-1988:** housed Mapei Americas headquarters
- **1999:** added production of adhesives for textile and resilient materials and Kerapoxy
- **2003:** added an urethane production line
- **2008:** expanded the warehouse
- **2009:** added a plastic packaging line
- **2013:** first plant to introduce the UltraCare line
- **2014:** first plant in the Americas to introduce the Ultracoat line

Plant size: 14,864 m²



WEST CHICAGO (ILLINOIS)

BRIEF HISTORY

- **1996:** opening of the plant
- **1989-1996:** the West Chicago plant was first located in Elk Grove Village
- **1996:** the plant was moved to 530 Industrial Drive
- **2003:** the 1600 Western Drive building was purchased
- **2006:** the new polymer plant was added
- **2012:** the 430 Industrial Drive building was purchased

Plant size: the complex includes: a 18,023 m² manufacturing plant; a 7,246 m² warehouse; a 11,055 m² warehouse with Mapei Technical Institute



FORT LAUDERDALE (FLORIDA)

BRIEF HISTORY

- **1997:** opening of the plant
- **1999-2001:** the headquarters for Mapei Corporation were located in the Fort Lauderdale plant
- **2008:** plastic packaging equipment was installed
- **2012:** plant won the Florida Manufacturers Association's "Manufacturer of the Year Award."

Plant size: 8,454 m²



FREDERICKSBURG (VIRGINIA)

BRIEF HISTORY

- **1996:** opening of the plant
- **2008:** installed plastic packaging unit in December, with the first bag coming off the line January 8, 2009
- **2013:** began operating 24 hours a day.

Plant size: 5,760 m²



SAN BERNARDINO (CALIFORNIA)

BRIEF HISTORY

- **2004:** opening of the plant
- **2004:** Mapei became a corporate citizen in San Bernardino with opening ceremonies that included dignitaries from local and state government.
- **2008:** switched to a new production line to package materials in plastic bags

Plant size: 11,706 m²



DALTON (GEORGIA)

BRIEF HISTORY

- **2009:** Mapei acquired the APAC facility
- **2010:** Mapei purchased a second building
- **2010:** the R&D Center of Excellence for SBR (styrene-butadiene-rubber) and acrylic adhesives was located in this building

Plant size: over 11,000 m² (two buildings)



EAGAN (MINNESOTA)

General Resource Technology, Inc (GRT)

BRIEF HISTORY

- **1993:** The company was founded
- **2014:** Mapei acquired GRT

In the company's two production sites, which are located in Eagan, Minnesota (in the photo) and St. Louis, Missouri, concrete admixtures and auxiliary products are produced for the concrete industry in the central United States. Mapei expects to expand the GRT footprint east and west in the United States and eventually north into Canada and south into Mexico

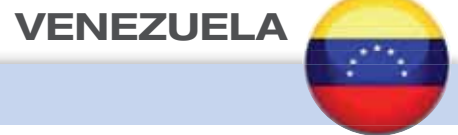


DORADO

BRIEF HISTORY

- **1974:** Mapei starts distributing products in Puerto Rico
- **1993:** Mapei Caribe Inc is founded with production first in Vega Alta and later in San Juan
- **1998:** a manufacturing plant was built in Dorado
- **2006:** the plant was remodeled completely after a fire

Plant size: 1,765 m²



CAGUA

BRIEF HISTORY

- **1996:** opening of the plant
- **1995:** started business in 1995 with a 150 m² warehouse and four employees
- **1996:** the production plant was built in Cagua, Aragua
- **1998:** purchase of extra land
- **1999:** installation of new silos
- **2001:** new commercial office in Caracas
- **2011 and 2012:** additions and enhancements to the production facility

Plant size: 756 m²

Supersizing a plant

The new Mapei manufacturing plant in Brampton (Ontario, Canada) is much bigger and more efficient

PHOTO 1. The new Mapei manufacturing plant in Brampton (Canada) has a tower, which is the second tallest in the worldwide Mapei Group, and can be seen as far away as 25–30 km.

Communities grow, and their needs for construction and renovation grow along with them. Wherever there are homes being built, malls being constructed, commercial areas being developed and public spaces being erected, Mapei is part of that growing world. In Canada, the company lately expanded to a new manufacturing plant in Brampton.

New operation expands Canadian production

One of the newest manufacturing facilities in the “World of Mapei” is the Brampton production plant in Ontario (Canada).

Increasing demand throughout Eastern Canada prompted the decision to relocate from leased facilities at 2130 Williams Parkway E. to an expanded, wholly owned Mapei property at 95 Walker Drive (about 4 km to the southeast). The lease on the older facility was assumed by Mapei when the company acquired Chembond in 2001. The production layout was set up to manufacture primarily liquid adhesives for textile and resilient floor and wall covering installation. With the move to the new plant, products for ceramic and stone installation systems (TSIS) and concrete restoration systems (CRS) were



SPECIAL FEATURE AMERICAS TEAMWORK

PHOTO 2. In comparison with the previous Mapei plant in Brampton, the warehousing space was enlarged.

PHOTO 3. In the production area large and small silos feed raw materials into the batching process.

PHOTO 4. The new plastic packaging equipment makes for a much cleaner environment in the plant, reducing dust in the packaging and warehousing areas and ensuring more protection for the products on the building sites.



the first focus of production operations in Brampton. First into production were the adhesives and grouts used by professional installers to lay ceramics and stone materials. “After the existing TSIS formulas and equipment were qualified for use at the new plant, we gradually began adding products for the CRS line,” said Jim MacNeil, the Brampton Plant Manager. “Of note is the production of ULTRAPLAN 1 PLUS, a levelling compound that had previously been manufactured at our sister plant in Fredericksburg, Virginia (USA). There is a very large demand for the self-levelling products in Ontario construction. As soon as we were able to manufacture ULTRAPLAN 1 PLUS here at the Brampton plant, we experienced a huge savings in freight costs.”

Ideal location for Mapei and its employees

Ontario Highway 407, a major toll road in the area, stretches across northern Toronto and runs right by the new Mapei plant, generating a lot of brand exposure due to the plant’s sign. When the building’s sign was raised, people driving by on 407 called to learn more about Mapei. The plant has generated some great conversations, and community members are excited about the new ad-

dition to the area. The plant tower, which is the second tallest in the worldwide Mapei Group, can be seen as far away as 25 km to the west and 30 miles to the east. When Mapei moved from its old location to the new plant, the entire staff from Williams Parkway moved to Walker Drive as well. Following Mapei’s policy of more than 75 years, no layoffs took place. The turnover rate of Brampton employees was only 2.5% in 2013, including the temporary employees involved in the physical move and the retirement of one employee. The new plant is fully automated. Mixers, packaging equipment and palletizers are all new, and everyone is busy becoming efficient at using them. The physical plant nearly doubled its floor space in the move. Whereas Mapei occupied about 7,500 m² at the former plant, the new operation now occupies over 12,000 m².

The main features of the plant include

a huge mixer, silos, packaging equipment. The packaging machines are changing packaging over to recyclable plastic from the former lined paper bags that take longer to decompose in landfills. The new plastic packaging makes for a much cleaner environment in the plant, reducing dust in the packaging and warehousing areas. When US Ministry of Labour representatives came to inspect the Brampton plant, both inspectors were highly impressed by the facility’s cleanliness. One inspector commented: “These people work for employers who really care about their employees.”

Large and small silos feed raw materials into the batching process. The increased building space and manufacturing capacity have resulted in steadily increasing production, allowing Mapei to efficiently manufacture for large on-site jobs in the Toronto area.

When the existing building at 95 Walker





3

Drive was renovated, numerous improvements were made:

- As with all Mapei manufacturing facilities, there is a **Quality Control laboratory** on the premises to ensure the quality and workability of raw materials and finished products. The QC areas added new testing equipment, and an environmental system for enhanced temperature and humidity control was installed. ULTRAFLEX LFT gray mortar (which is manufactured and distributed in Canada by Mapei Inc.) was used to bond new ceramic tiles in the lab, and ULTRACOLOR PLUS grout was used for grouting joints.
- The **Mapei Technical Institute (MTI)**, where installers and distributors are trained in the use of Mapei products, was enlarged to accommodate a classroom as well as a training space under the mezzanine. The training space and an area in front of the QC lab were im-

- proved with the use of PRIMER L acrylic latex primer and ULTRAPLAN M20 PLUS self-leveling underlayment, which are both manufactured and distributed in Canada by Mapei Inc. On the floorings of the MTI classroom ceramic tiles were laid with ULTRAFLEX LFT and ULTRACOLOR PLUS.
- Scales were added to the exterior of the shipping area for measurement at entry and exit of transportation trucks, and the **shipping and warehousing space was enlarged.**
- **The areas for customer service and sales on the second floor were enlarged,** and a small conference room was added for customer meetings. The ceramic tiles in this area were laid using ULTRAFLEX LFT and ULTRACOLOR PLUS.
- **Office space was also increased.** In the shipping office area, vinyl tiles were installed using ULTRABOND ECO



4

711 adhesive and the cove base was installed with ULTRABOND ECO 575 wall-base adhesive (both products are manufactured and distributed in Canada by Mapei Inc.).

Many other Mapei products were used in the renovation of the Brampton plant. In the public restrooms, new ceramic tiles were laid over existing tiles, so the installers used ECO PRIM GRIP primer to preclude the need to rip out the old tiles. ULTRAFLEX LFT was used to bond ceramic tiles on walls and floors, and KERAPOXY was used for grouting joints in the restrooms.

MAPECEM QUICKPATCH (which is also manufactured and distributed in Canada by Mapei Inc.) was used in any areas where small concrete repairs were needed.

The most interesting parts of the building renovation were the first-floor lobby and conference room, and the stairs leading to the second floor. After MAPECEM 202 was used to repair the floor surface, it was coated with PLANIBOND EBA bonding agent (both products are manufactured and distributed in Canada by Mapei Inc.). Then, members of Mapei's own Technical Services team used ULTRATOP gray self-leveling mortar to produce a flat surface throughout the lobby and conference room. Integral colors were added to white ULTRATOP to form swirling patterns and the Mapei logo within the gray surface. The stairs were coated with a mixture of PLANICRETE UA admixture (which is manufactured and distributed in Canada by Mapei Inc.) and ULTRACOLOR PLUS grout to form a sturdy skid-resistant topping. When all the renovations and the tower construction were finished, the dedicated employees of the Brampton plant had a new home. MacNeil congratulated everyone by saying, "We want to thank all our colleagues in the plant and those who helped us make 95 Walker Drive such a great success!"



7

PHOTO 5. In the first-floor lobby and conference room ULTRATOP gray self-leveling mortar was used to produce a flat surface. Integral colors were added to white ULTRATOP to form swirling patterns and the Mapei logo within the gray surface.

PHOTO 6. The Mapei Technical Institute, where installers and distributors are trained in the use of Mapei products, was enlarged in the new plant.

PHOTO 7. The new plant's Quality Control laboratory ensures the quality and workability of raw materials and finished products.

World of Concrete

So much interest for Mapei products at the North American event dedicated to concrete



THE MAPEI STAND DESIGNED FOR WOC 2014 was decorated with drawings by the Italian artist Carlo Stanga to illustrate building sites located all around the world where the company's products have been employed.



A MAPEI DEMO TEAM MEMBER explained various surfaces in the Mapefloor system.

20th-24th January – LAS VEGAS

This year's World of Concrete exhibition, the traditional North American event dedicated to products, technology, machinery, equipment and training courses for the concrete industry, marked its fortieth anniversary. The event, held from the 20th to the 24th of January at the Las Vegas Convention Centre, attracted more than 1,250 exhibitors over a display area of 53000 m².

As always, Mapei was present this year at WOC with a highly original stand: drawings by the Italian artist Carlo Stanga were on display to illustrate building sites located all around the world where the company's products have been employed for construction, renovation and repair work. The stand attracted the attention of numerous visitors, thanks also to the display of high technology solutions developed by Mapei for the American market and put under the spotlight for this event:

- The **MAPEFLOOR parking deck system** for heavy pedestrian and vehicular traffic. This new system is specially formulated for interior and exterior concrete surfaces that require waterproofing, flexibility, and high resistance to wear and abrasion.
- **PLANITOP 11 SCC** self-consolidating concrete mix with a corrosion inhibitor. PLANITOP 11 SCC can be used for full-depth structural concrete repairs in above-, below- and on-grade applications. It is ideal for structural repairs to tunnels, bridges, dams, parking garages, balcony edges and columns.



MAPEI DEMO TEAM SHOWED the audience how to use systems for concrete repair.

- **ULTRATOP PC** polishable, self-leveling concrete topping. Suitable for both interior and exterior use, ULTRATOP PC has been engineered to provide a thin resurfacing material that is very dense, hard and durable, with the ability to hold a brilliant polish. Mapei customers took time out of their busy itineraries one afternoon to stop by the Mapei booth and enjoy the VIP hospitality event. During Mapei's annual press conference, Luigi Di Geso, President and CEO of Mapei Americas, talked with the media about the new look and what it means to the company and its customers.

Surfaces

Mapei stood out for its white booth and innovative products at the North American fair dedicated to floorings



The Mapei 2014 stand stood out for its white colour.

27th-30th January – LAS VEGAS

The curtain went down on the 2014 edition of Surfaces, the North American event dedicated to the world of flooring, in an atmosphere of renewed enthusiasm. From the 27th to the 30th of January, 706 companies exhibited innovative products and services over a display area of around 33,000 m² in the Mandalay Bay Convention Center in Las Vegas. A 7% increase in the number of exhibitors compared with 2013 bodes well for a future of growth and economic recovery for the sector. There were exhibitors and visitors from 90 different countries, with Italy, Germany, Spain, China, Canada and Mexico particularly well represented. The first thing people noticed about the Mapei booth at Surfaces was the “whiteness” of everything. What they were seeing was the new “World of Mapei” branding, showing a white background on which colorful images portray architectural illustrations of many places where the Company has become a part of people’s daily lives. The second thing that visitors noticed was the new applied-sample presentations. Everyone highly approved of the waist-high displays, which gave a horizontal view of the various layers involved in floor covering and tile/stone installations. Large posters that rose above the applied samples explained the Mapei products in use along with their features and benefits. During the Mapei press conference, the business managers for the various flooring installation categories introduced to the press the new products being exhibited at the show and distributed on

the American market:

- **FLEXCOLOR CQ** next-generation, ready-to-use grout.
- Mapei has extended its support of the ceramic and stone installation systems market with the introduction of two “**SHOWER -PERFECT**” installation kits. These systems focus on tub-to-shower conversions, with the inclusion of a linear drain assembly.
- Mapei is adding another branch to its growing family tree of wood-flooring products with the introduction in the American market of the full line of **ULTRACOAT** wood-floor finishing materials, plus products for maintenance of floors treated with those materials. All the new products were demonstrated and exhibited throughout the three days of the trade show by the Mapei demo team.

Mapei technicians also gave numerous presentations at the parallel event StonExpo/Marmomacc during the conference portion of the expo. The subjects of these presentations ranged from the problems associated with repair of concrete floors, to the latest advances in the trend toward installation of ultra large-format thin-tile panels.

Mapei demo team was involved in a series of hourly talks and demonstrations of products.



Mapei exhibited new products in horizontal sample displays.





Mapei was again present at this year's edition of Coverings with a booth displaying a number of solutions developed for the American market.

Coverings 2014

Posters, slabs and crowded demonstrations: Mapei's communication tools for the North-American trade fair devoted to ceramics

According to show officials, Coverings, the North-American trade fair devoted to the ceramic industry, saw attendance numbers rise when the show returned to Las Vegas in April 2014, to celebrate its 25th anniversary. More than 22,500 industry professionals came to Coverings, a bump of 3% from last year and 22% from 2011. Key attendee segments that saw an increase included distributors, retailers and contractors/installers. "Our attendance and exhibitor numbers truly indicate an improvement to the health and vitality of the ceramic and stone industry in North America," said Karin Fendrich, Coverings show director.

Mapei at Coverings 2014

"The 2014 Coverings expo was a very positive venue for Mapei," said Steven Day, Operational Marketing Manager for Mapei Corp. (the US subsidiary of the Group). "We made new relationships and renewed old relationships. In the Mapei booth we featured our core products (adhesives, grouts, waterproofers and products for surface preparation), as well as our new SHOW-ERPERFECT shower/bath retrofit system and our ULTRACARE finishing and care products for stone and ceramics."

Beside the main one, Mapei also had a secondary booth focused on live demonstrations showing its latest product offerings. The company also participated in the NTCA (National Tile Contractor Association) /TCNA (Tile Council of North America) installation stage demonstrations, supporting the industry associations.

The use of Mapei products was highlighted using slabs and displays.



Mapei also featured an industry-first at this year's show, a secondary booth focused on live demonstrations showing the company's latest product offerings such as ECO PRIM GRIP, MAPELASTIC AQUADEFENSE and solutions specially developed for the American market: ULTRACARE, SHOWERPERFECT, FLEXCOLOR CQ. Mapei technicians established a visitor-friendly approach and performed custom demonstrations tailored to groups who stopped by with questions about specific products and how they worked. Therefore, "MAPEI LIVE" booth was one of the biggest hits on the exhibitor floor.

Mapei also participated each day in the NTCA (National Tile Contractor Association) /TCNA (Tile Council of North America) installation stage demonstrations, supporting the industry asso-

ciations. During these demonstrations, the MAPEI Demo Team featured ULTRALITE MORTAR PRO, SHOWERPERFECT and FLEXCOLOR CQ.

Mapei technicians also met four groups of contractors who toured the booths at Coverings, speaking about the same products, which were again highlighted during the Coverings Press Tour sponsored by TCNA.

Mapei solutions were also present at Coverings 2014 in Piazza Italia, a 280 m² space organized by Confindustria Ceramica (the Association of Italian ceramic tiles and refractory materials manufacturers). Several Italian manufacturers provided ceramic tiles for its completion and Mapei supplied innovative products to install them.

2014 CERAMICS OF ITALY TILE COMPETITION WINNERS



1



2



This is an awards program sponsored by Confindustria Ceramica to promote the excellence in the use of Italian ceramic tiles abroad

The buildings works at the Morgan Hall (Temple University) and at the Mother Baby Center included the use of Mapei products.

RESIDENTIAL ARCHITECTURE

1. Winner

Project: 355 Mansfield in Los Angeles (California, USA)

Designer: D.I Group + Adeet Madan

Honorable Mentions

Project: Chabra Residence in Port Washington (New York, USA)

Designer: Narofsky Architecture

Project: Isla de Fuego in Cancún (Mexico)

Designer: Mario Bolivar Study of Architecture and Design

COMMERCIAL ARCHITECTURE

2. Winner

Project: Plaza of the Americas in Dallas (Texas, USA)

Designer: Corgan Associates

Honorable Mentions

Project: Luxottica Headquarters in Port Washington (New York, USA)

Designer: Mojo Stumer Associates

Project: Frenchman's Reef & Morning Star Marriott Beach Resort in St. Thomas (Virgin Islands, USA)

Designer: Leo A Daly

INSTITUTIONAL ARCHITECTURE

3. Winner

Project: Morgan Hall at Temple University in Philadelphia (Pennsylvania, USA)



3



Designer: MGA Partners

Honorable Mentions

Project: Paul H. Cocker Architecture Gallery at Ryerson University in Toronto (Ontario, Canada)

Designer: Gow Hastings Architects, Inc.

4. Project: the Mother Baby Center at Abbott Northwestern Hospital and Children's Hospitals & Clinics in Minneapolis (Minnesota, USA)

Designer: HDR Architecture

Awardees, which were announced at Coverings on April 30, 2014, received 4000 US dollars and a trip to Bologna (Italy) to attend Cersaie trade fair on September 2014 as part of a VIP design/media delegation.



4





The courtyard, designed by Jonathon Anderson from the University of Nevada, had porcelain tiles around the fireplace and an intricate pattern of ceramic tiles on the walls. ULTRAFLEX LFT was used to bond the tiles while KERACOLOR S was used for grouting the joints.



Installation & Design Showcase

Once again, one of the special events organised to coincide with this year's Coverings exhibition was the "Installation Design Showcase", which was particularly appreciated by the general public. The event, which this year marked its 5th edition, saw designers, installers and manufacturers of ceramics and stone, as well as manufacturers of products and solutions used for their installation, working together to create four highly attractive, accessible surroundings: an indoor courtyard, a bar, a retail space and a sustainable and accessible bathroom. In two of the spaces (the courtyard and bathroom), ceramic tiles and stone slabs were installed using innovative technology and products supplied by Mapei.

The **indoor courtyard** was designed by Jonathon Anderson, Assistant Professor of Architecture at the University of Nevada. The space, with its clean, monochromatic and contemporary lines, utilised materials that evoked nature. Large-size, thin porcelain tiles were used to create a fireplace, and to increase the technical complexity and vivacity of the space, the walls were

covered with ceramic tiles in a particularly intricate pattern. The wall and floor tiles and the tiles around the fireplace were bonded with ULTRAFLEX LFT adhesive and the joints were grouted with KERACOLOR S (both products are manufactured and distributed on the North American market by Mapei Corp.).

Daniel Huard, on the other hand, based his idea for the **bathroom** on sustainability and universal accessibility. The project was sponsored by Ceramics of Italy (a trademark created by the association of Italian ceramics industry, Confindustria Ceramica, to promote Italian ceramics on overseas markets), and included the use of tiles made by various Italian companies (Sicis, Lea, Imola, Ceramiche Caesar and Fioranese), again bonded with ULTRAFLEX LFT with joints grouted with KERACOLOR S. Numerous visitors took great interest in watching the large-size, thin ceramic tiles and mosaic being installed.

For the entire duration of the exhibition the Installation Design Showcase spaces were open to the public so that they could see at first-hand how they were created, as was the presentation of the designers and installers who answered questions and went into more detail on how the spaces had been designed and executed. A specialised technician from Mapei Corp. was also on hand for the entire duration of the event to give more detailed information to architects, installers and the general public about the use and characteristics of the Mapei products employed on this occasion.

The bathroom, designed by Daniel Huard, included ceramic tiles from various Italian companies which were also laid with ULTRAFLEX LFT and KERACOLOR S.





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Product info



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A luxury apartment in Yaletown

Mapei's Ultratop brought the elegance of decorative concrete to a penthouse in Vancouver

As mentioned by BCPassport (BCPassport.com/shopping/yaletown), Yaletown district in Vancouver (Canada) got its name in the 19th century when the Canadian Pacific Railroad moved its rail yards and repair facilities from Yale, in the Fraser River canyon (about 200 km east of Vancouver), to the new Yaletown on the north shore of False Creek. Known to many as Vancouver's little Soho, Yaletown has experienced a revival in the past several years to emerge as downtown's trendiest residential neighborhood for urban professionals. Impeccably hip, Yaletown is brimming with quality restaurants, boutiques, and galleries. It is a neighborhood where

everyone goes to see-and-be-seen. It retains the red brick charm of its history as a 19th century rail yard. Warehouses have been converted into lofts, and railway loading docks now serve as patio space for martini bars.

A designer's luxury home

Occupying a prime spot at the south end of Yaletown is Aquarius Mews II, part of a collection of four high-rise buildings surrounding a scenic courtyard. The building houses a fitness center with an indoor pool, Jacuzzi and sauna room. Stepping out the front door of the condo lobby, residents step right into all that Yaletown has

to offer. And if the condo inhabitants tire of the urban scene, they can turn around for a view of the marina and yacht harbor across Marinaside Crescent. Completed in 1999 as the second building in the group, Aquarius Mews II is located at 198 Aquarius Mews. It rises 33 stories and houses 184 units. One of the penthouse suites on the 28th floor recently got a new owner and an innovative facelift. After the closing, the owner - an interior designer

PHOTO 1. A luxury apartment was recently renovated in the Yaletown district of Vancouver using Mapei products for cementitious floorings.



– immediately gutted the unit and began searching for a fresh new look. With regard to the floor, sound protection was critical. In addition, the owner wanted an organic concrete-looking floor with radiant-floor heating, making the project a considerable challenge. The system solution that Mapei created had never been tried with the company’s products yet proved quite successful. A cork sound mat was used over the concrete slab, and was covered with 6-mil thick polyethylene layer to provide a separation slip sheet. Expanded metal lath was placed on the slab, providing a grid for the heating pipes to be strapped to and producing reinforcement for the mud bed. The contractor, Artisans in Concrete, used TOPCEM PREMIX mortar mixed with PLANICRETE AC liquid-latex admixture. Both products are manufactured and distributed on the Canadian market by Mapei Inc. Under the leadership of project manager Anton Vogt, the crew added stainless-steel fiber into the mix for added stability. Workers divided up the rooms into grids using high-density foam. Foam

strips were bolted to the slab and acted as screed rails for the mud bed. TOPCEM PREMIX, due to its special formulation, could be mixed on the small patio deck, and the mud bed took two days to install. Next, the TOPCEM PREMIX mud bed was allowed to cure for two days before the overlay application. Workers applied PRIMER E (which is manufactured and distributed on the Canadian market by Mapei Inc.) with broadcast sand over the entire floor area of the condo unit, including the kitchen, hallways, bathrooms, closets and bedrooms. ULTRATOP WHITE (which is manufactured and distributed on the Canadian market by Mapei Inc.) was then installed over the primer on the following day. Specifically designed for applications where a distinctive and creative floor is desired, ULTRATOP WHITE is a self-leveling, self-drying topping, based on High-Hydrated Cement Technology (HCT), that is specially formulated for fast-track resurfacing and construction of interior horizontal wear surfaces. It provides the ultimate palette for designing unique and artistic floors, and it offers an unlim-

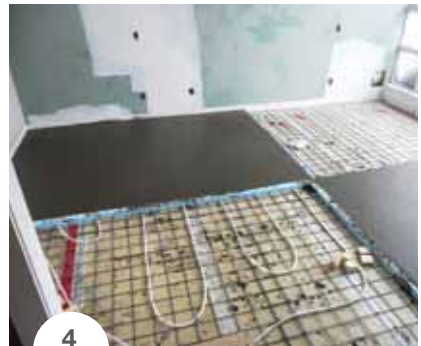


PHOTO 2. The cementitious flooring made with ULTRATOP WHITE added elegance to the penthouse apartment at 198 Aquarius Mews in Vancouver.
PHOTOS 3, 4 and 5. The floor screed was built using TOPCEM PREMIX, PLANICRETE and stainless steel fibers. It was laid over a radiant heating system.



PHOTOS 6, 7 and 8. The materials for substrate preparation were mixed on the penthouse patio. The TOPCEM PREMIX mud bed was allowed to cure for two days, and then ULTRATOP WHITE was laid on the floor substrates in the kitchen, dining-room, corridors and bathrooms.

PHOTO 9. A view of the penthouse floor after completion of the works.

ited range of effects when mixed with integral colorants and materials such as glass, aggregates and metals. ULTRATOP WHITE also maximizes the brilliance of architectural stains and integral coloring agents.

The ULTRATOP application process took two days, due to the layout of the unit. Once the ULTRATOP had cured for an additional day, it was buffed and subsequently sealed with an acrylic sealer. Several coats of floor wax were then used to

form a protective sacrificial layer.

The floor turned out amazingly well and gave the home owner the exact look that she was trying to achieve. Now her condo truly "tops the list" of creative locations in Yaletown.

This article has been taken from *Realtà Mapei Americas* no. 19, the in-house magazine published by Mapei North-American subsidiaries, whom we would like to thank.

Technical Data

Aquarius Mews II Penthouse Condo, Yaletown, Vancouver, British Columbia (Canada)

Period of Intervention: 2011-2012

Intervention by Mapei: building screeds including a radiant-floor heating system; laying cementitious floorings.

Client: private homeowner

Works Direction: Anton Vogt

Laying Company: Artisans in Concrete, Vancouver

Mapei Co-ordinator: Dave Randall, Mapei Inc. (Canada)

Mapei Products

Preparing floor substrates: Topcem Premix*, Planicrete AC*, Primer E*.

Laying cementitious floorings: Ultratop White*.

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

For further information see www.mapei.com and www.mapei.ca



1



2

Metro Bank in Douglasville

Travertine slabs were installed on the bank's façade in cold weather

Metro Bank in Douglasville, Georgia (USA), is a community bank primarily owned by shareholders living in Douglas, Carroll, Cobb and Paulding counties, that is chartered to serve the needs of individuals and businesses in the west metro area of Atlanta. The bank recently built a new main office that opened in May 2012 in Douglasville. The exterior of the bank

is covered with 46 x 46 cm travertine stone slabs. The installation work was done by Certified Finishes of Smyrna, Georgia (USA), under the leadership of Charlie Rapplean. The project consisted of installing the travertine over cement board attached to metal studs. The biggest problem faced by New South was the vertical and horizontal reveals that the

architect designed for the façade of the bank. The design called for a 5-cm-wide reveal with a 19-mm recess to match the window mullions. The reveals were placed at a level along the bottom of the windows, 2,5 m up and 3,6 m up. These horizontal reveals were incorporated all the way around the building. Where light fixtures were placed, a 23-cm reveal was constructed vertically all the way up the front of the bank.

Laying the travertine slabs

The slabs were 12 mm thick, and the contractor used a cement board measuring 12 to 16 mm. Rapplean's team suggested using a 6-mm cement board at the reveals on the smaller slab pieces so that the cement board would not be exposed. Then, where the larger-format slab was placed, the team used a 12 x



3

PHOTOS 1 and 2. The new Metro Bank building in Douglasville (USA) was completed using Mapei products.

PHOTO 3. Travertine slabs were installed on the façades with the GRANIRAPID system.



PHOTO 4. Travertine slabs were also installed on the outside columns with GRANIRAPID.

PHOTO 5. GRANIRAPID was applied with a 6 x 10 mm notched trowel to create a special decorative effect using field slabs and recess slabs.

PHOTO 6. Travertine slabs were also laid on the floors inside the bank using GRANIRAPID and ULTRACOLOR PLUS.

PHOTO 7. 30 x 2,5 cm mosaic stone and glass tiles were laid in the entrance of the lobby with GRANIRAPID and ULTRACOLOR PLUS.

12 mm notched trowel on the adhesive for the field slab.

The design intent of a 19-mm recess was unattainable due to the stone only being 12 mm thick, which would have left a gap between the field slab and recess slab. Rapplean's team used a 6 x 10 mm notched trowel on the reveals to give complete coverage so that the recess would have a total depth of 12 mm; that way, there would be no exposed areas in the recesses, which would still look good while fulfilling the architect's design intent. While the reveals were a challenge that Rapplean overcame with technical savvy and the trust of the New South team, the biggest problem that Certified Finishes faced on the project was the weather. The exterior installation had to be completed between January and March 31 of 2012.

The weather conditions posed a challenge to the installers because the substrate temperature needed to be 10°C or above for the adhesive to set and cure. "We used the GRANIRAPID system from Mapei because it sets fast and we didn't have to wait several days for the adhesive to cure, as we would have with other setting materials," Rapplean said. "We first talked about tenting and heating

the substrate of the bank's façade, but for a week or two it was above 10 °C for a short period of the day in Atlanta." Rapplean managed a crew of 10 to 12 installers who had to move fast, working from 9 or 10 in the morning until 2 or 3 in the afternoon during the tile setting because of the temperatures dropping at night. Crew members used temperature lasers on the walls to detect where the substrate was above 10 °C. "We had to leave enough time for the GRANIRAPID to set before the temperatures got too cool," Rapplean commented. He likes that there is no water in the GRANIRAPID system: "The liquid polymer in the two-component system makes the adhesive easier to use and gives a much stronger bond."

Grouting presented the same problems. If temperatures were too cold, the installers would be taking a risk that the grout could pop out of joints. The solution was to use Mapei's ULTRACOLOR PLUS grout because it is also a fast-setting product, and this product's formula is efflorescence-free.

Before beginning the installation process, the Certified Finishes crew covered the cement boards with MAPELASTIC 315 waterproofing membrane (N.B. this

product is manufactured and distributed on the US market by Mapei Corp.) using trowels. MAPELASTIC 315 also provided crack-isolation protection to the substrate. The architect had planned for control joints in the stucco but not in the slabs; with natural stone, this was especially important. Rapplean pointed out that the TCNA (the Tile Council of North America) Manual recommends using control joints every 2,44 to 3,66 m for large-format slabs, and the engineer changed the specifications to approximate the recommendation.

Because the 46 x 46 cm travertine stone tiles had a chiseled edge, Rapplean had to use 3-mm spacers to give the appearance of the 10-mm grout joint designed by the architect. The exterior installation job measured a total of 511 m². The walls were about 6 m tall, and the front wall had a tower that was 8,5 m tall. For the area of the building above eye level, crew members had to use two lifts to install the slabs all the way around the building, with certifications required for those who operated the lifts and stood on them. The exterior façade work also included installing the slabs with the same products on the columns on the drive-through lanes of the bank.

Laying ceramics and stone in the interiors

The exterior décor extended to inside the bank, where Rapplean's team set the same travertine – honed, filled and polished – in the lobby. In this case, approximately 177 m² of the stone was installed on the floors. Bull-nosed tiles measuring 23 x 46 cm were fabricated for the wall base in the lobby. About 61 m of 30 x 2,5 cm mosaic stone and glass tile was laid in the entrance of the lobby.

The crew finished up the complete tile job by installing standard 30 x 30 cm ceramic tiles on the floors in restrooms and the break room. In all cases GRANIRAPID and ULTRACOLOR PLUS were used.

“we really enjoyed working on this project,” Rapplean said. “Our lucky ‘warm spell’ in the winter helped us out a lot, but we depended on GRANIRAPID and ULTRACOLOR PLUS to get the job done within our daily temperature time limits.”

This article was taken from Realtà Mapei Americas no. 17, published by the Mapei Group's North-American subsidiaries, whom we would like to thank.



Technical Data

Metro Bank, Douglasville, Georgia (USA)

Project: Wakefield Beasley & Associates

Period of Construction: 2012

Period of Intervention: January- March 2012

Intervention by Mapei: installation of large-format travertine slabs on outside and grouting joints; waterproofing the cement substrates; installation of large-format travertine slabs in the lobby and mosaics on the wall of entryway

Client: Metro Bank of Douglasville

Works Director: Charlie Rapplean of Certified Finishes

Contractor: New South Construction

Laying Company: Certified Finishes

Mapei Distributor: Trinity Tile

Mapei Co-ordinator: John Brown, Mapei Corp. (USA)

Mapei Products

Waterproofing cement substrates:

Mapelastic 315 (N.B this product is manufactured and distributed on the US market by Mapei Corp.)

Laying stone slabs on the exteriors and stone slabs and stone and glass mosaics in the interiors: Granirapid, Ultracolor Plus

For further information see

www.mapei.com and www.mapei.us





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RSC recycling plant in Montréal

Mapei FRP systems were used for a structural strengthening intervention



IN THIS PHOTO.
Smoothing CARBOPLATE
E170 carbon fibre plate
after it had been set into
MAPEWRAP PRIMER 1.

In Montréal, Quebec (Canada), residential recycling is an important part of the city's environmental efforts. Five companies collect and deliver 125 to 150 truckloads of recycled materials to the public service company Rebutis Solides Canadiens (RSC) each day. The city of Montréal owns the recycling facility, but the actual management of the facility is entrusted to a private company, Group Tiru. Together with the city of Montréal, Group Tiru invested several million dollars between 2000 and 2001 to standardize and upgrade the sorting center. Then, in 2008, extensive work was conducted to allow the treatment of collage materials at RSC and to increase the annual capacity of the center to about 225,000 tons.



**IN THE SPOTLIGHT
MAPEI FRP SYSTEM**

The elements of Mapei's structural strengthening system for concrete and masonry structures are available in several geometries. MAPEWRAP uni-directional, bi-directional and quadri-directional fabrics easily adapt to the shape of the structural member targeted for strengthening. CARBOPLATE carbon fibre plates are pre-impregnated in epoxy resin, which makes them an excellent choice for reinforcement of load-bearing elements in buildings that have been restructured for architectural reasons or change of use. MAPEROD carbon fibre tubes are also pre-impregnated with epoxy resin and are used for structural strengthening of damaged concrete and masonry

elements. In addition to the advantages of being lightweight, having a relatively thin profile and high tensile strength, and being corrosion-resistant, Mapei's FRP (fibre-reinforced polymer) line structural composites are suitable for applications where the aesthetics of the original structure need to be preserved or when strengthening with traditional techniques cannot be effectively employed. For details on Mapei's individual FRP products, visit www.mapei.com.



ABOVE. Holes were cut in the ground level floor to allow conveyors to carry recycling materials to allotted areas on the lower floor. The holes caused a weakness in the ground floor.

On the first floor of the recycling center, RSC workers sort the paper, metal, plastic and other materials into separate piles, using conveyors, sorters and other heavy equipment. Once the materials have been sorted, they are dumped via openings in the concrete floor into one of 25 different tunnels on the lower floor. Here the materials are compacted, bailed and readied for shipment to companies that re-use the recycled objects. The RSC plant was originally part of another building that was transformed into a recy-

cling plant. To form the entrance holes to the lower levels for collection of the recycled materials, workers cut directly through the existing concrete slab, including the rebar used for structural strengthening. Because heavy equipment was operating on the upper level, RSC needed to keep those floors stable and strong. The design of the lower level prevented the support of the upper floor with posts or steel beams spaced around the lower floor, because the loaders had to be driven into the tunnels to collect and compact the materials deposited in each tunnel. To resolve this problem, RSC decided to put fibre-reinforced polymer (FRP) materials around the entrance holes to solidify the openings in the concrete slabs located in the first-floor corridor and in the ceilings of the lower-level tunnels, where baskets that temporarily store the recyclable materials are kept.

SA Construction, of Sainte-Catherine, Quebec (Canada), was selected to perform the first phase of the structural strengthening. They completed work on six of the 3,6 m high, 6 m wide, 30 m long tunnels, using CARBOPLATE E 170 carbon fibre plate in the 5 and 10 cm widths (N.B. This product is manufactured and distributed on the Canadian market by Mapei Inc.), MAPEWRAP 11 epoxy grout and MAPEWRAP PRIMER 1 epoxy primer from Mapei's line of FRP composite systems. In addition to using CARBOPLATE E 170 to solidify the 150-mm-thick structural slab, MAPEFER 1K cementitious mortar was used



ABOVE. Applying CARBOPLATE E170 to strengthen the area surrounding the ground floor holes.

ABOVE, RIGHT. The building company in charge of the works developed their own device to easily apply MAPEWRAP PRIMER 1 to the CARBOPLATE E170 plates.

RIGHT. An exterior view of the Rebutis Solides Canadiens recycling center in Montréal.



to protect the edges of the frame. There were also pits in the walls of the tunnels, which had been caused by contact with the loaders. SA Construction repaired these areas using Mapei concrete restoration products. The crew used several products which are manufactured and distributed on the Canadian market by Mapei Inc.: PLANITOP 23 for vertical repairs of the severely deteriorated corners; PLANIBOND CR 50 epoxy to inject cracks in the wall; PLANIGROUT 712 to make formwork repairs in the concrete; PLANITOP X sculptable concrete repair mortar for vertical repairs on the walls.

The work was done from midnight to 7 a.m. on Friday and Saturday nights over three consecutive weekends, so that work at the recycling plant was not interrupted. SA Construction's work was very successful, and the company has now bid on the second phase of the project.

This article was taken from *Realità Mapei Americas* no. 17, published by the Mapei Group's North American subsidiaries, whom we would like to thank.

Technical Data

Rebutis Solides Canadiens Recycling

Plant, Montréal, Quebec (Canada)

Year of Intervention: 2012

Intervention by Mapei: structurally strengthening the openings in the main-level floor; repairing floors, walls and ceilings of the lower-level storage and compacting tunnels

Designers: Cannon Design and Seeton Shinkewski Design Group

Client: Rebutis Solides Canadiens (Group Tiru)

Project Manager: Denis Gregoire

Concrete Restoration Contractor: SA Construction

Mapei Distributor: Polytech MP

Mapei Co-ordinator: Michel Lafortune, Mapei Inc. (Canada)

Mapei Products

Structural strengthening of floors

and ceilings: Carboplate E 170*,

Mapewrap 11, Mapewrap Primer 1

Concrete repairs and restoration:

Mapefer 1K, Planitop X*, Planitop

23*, Planigrout 712, Mapecure SRA,

Planibond CR 50*

*These products are manufactured and distributed on the Canadian market by Mapei Inc.

For further information see

www.mapei.com and

www.mapei.ca



Only the best finishes from the best Italian suppliers were used in the MADE_spaces show home. Mapei supplied MAPEFLOOR SYSTEM 70, NOVOPLAN MAXI and EQ DEKOR.



Salone del mobile

8TH-13TH APRIL, MILAN RHO EXHIBITION CENTRE

An event that has become increasingly international with professional visitors from more than 160 different countries. The 53rd edition of the "Salone del Mobile" furniture and furnishings exhibition, recorded a total of 357,212 visitors, 311,781 of which professionals from the sector, an increase of 13% compared with 2013. A success story mirrored by the creative and manufacturing excellence of the city of Milan and the "Made in Italy". The novelty this year was MADE_spaces, a contemporary apartment created by MADE expo and sponsored by the most important Italian companies, such as Mapei. The aim of the exhibit was to present a preview of "suggestions from the world of architecture and interior decorating" which will be

on show during the architecture, design and construction trade fair taking place from the 18th to the 21st of March 2015 at the Rho Exhibition Centre, near Milan.

Mapei at MADE_spaces

In a domestic setting designed by the architect Marina Carrara, Mapei exhibited the best of their technology to those who visited MADE_spaces. Screeds, flooring and wallpaper highlighted the importance of design for spaces and the use of innovative materials that are becoming increasingly integrated with furniture and furnishings. The innovative resin floor system MAPEFLOOR SYSTEM 70 was used for the entrance to the living area. It is available with either a trowelled effect or mottled finish to make it the ideal choice for use in interiors. NOVOPLAN MAXI rapid-hardening, fibre-reinforced, free-flowing cementitious levelling mortar with high thermal efficiency applied in layers from 3 to 40 mm thick was chosen for the substrates, a specific product for underfloor heating and cooling systems. The innovative anti-seismic wallpaper EQ DEKOR was used to decorate the bedroom, a product developed thanks to the collaboration between Inkiostro Bianco and Mapei. EQ DEKOR has a dual protective and decorative function and may be used on both walls and floors. It helps reduce the risk of components falling from walls to a minimum in the case of seismic activity, and by so doing increases the amount of time available to evacuate buildings.



The innovative resin floor system MAPEFLOOR SYSTEM 70 was used for the entrance to the living area of MADE_spaces project.



© Andrea Maritadonna

Milano Design Week

8TH-13TH APRIL 2014, MILAN

Our relationship with Mother Earth, the relationship between natural and artificial materials and the bond between technology and sustainability: these were just some of the themes that architects and designers discussed during Milano Design Week (Fuorisalone) 2014, the series of side events held during the Salone del Mobile furniture and furnishing exhibition, with the aim of offering and introducing the same projects in Milan during the six months long Expo 2015 jamboree. A kind of dress rehearsal over the course of six days: 985 events with 12 separate routes in the design districts of Brera, Ventura-Lambrate and Tortona.

Art and nature between the Brera district and the University of Milan

The "green" leg of Milano Design Week was the Brera Botanical Garden, dedicated this year to the Geometric Garden by Lissoni and Associates, recently renovated with the help of Mapei (see article on the next pages). The design week's events were sponsored by the magazine *Interni*, this year celebrating its 60th anniversary. "Compared with 25 years ago and the first side events at the Salone del Mobile exhibition", said Gilda Bojardi, editor-in-chief of the magazine and founder of the Milano Design Week, "The panorama has changed, as well as the geography. Nowadays, designers are aiming at eco-sustainability and the search for new materials, while the production side looks more towards recycling and zero-kilometre resources. Countries such as Turkey, China and Brazil are those considered the "nouvelle vague" of design". And Italy? "It is still the main source and inspiration for technological innovation. Made in Italy has withstood the crisis and, in spite of the collapse in the market, our penetration around the world has increased", added Bojardi.

Mapei and the *Beauty Seed*

During the Milano Design Week, the courtyards of the University of Milan were brought to life by, amongst others, *Beauty Seed*



Beauty Seed by Paola Navone in the courtyard of the University of Milan. MAPELASTIC waterproofing mortar and COLORITE PERFORMANCE acrylic paint were used to complete this piece of art.

by the artist Paola Navone, a giant seed that brought back the image of the generative and regenerative power of beauty. It sent out a warning message to the constructors of the metropolises of the future: to design them following the principles of beauty, with colour and lightness.

Mapei also took part in this project by supplying MAPELASTIC two-component, flexible cementitious mortar, ideal for waterproofing balconies, terraces, bathrooms and swimming pools, and COLORITE PERFORMANCE protective interior and exterior acrylic paint with a silky finish, suitable for both old and new surfaces, that offers protection against aggressive environmental agents and direct sunlight.

The doorways opening onto the hall of the Main Hall of the University were decorated with an imposing composition of mosaics depicting the mythological battle between the Greek river god Achelous and Hercules. Hercules breaks one of Achelous's horns which becomes a cornucopia, symbol of abundance and prosperity. The project, designed by the Italian architect Carlo Dal Bianco, was created in collaboration with the company Mosaico+.

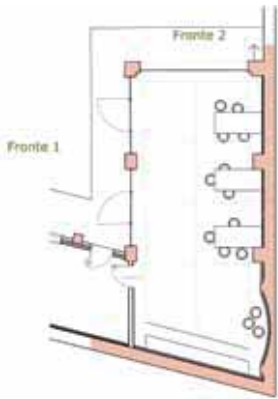


Achelous by Carlo Dal Bianco in the entrance to the Main Hall of the University of Milan. This mosaic was made by the company Mosaico+.



A room in the garden

Renovation work on a teaching and training space at the historical Brera Botanical Garden in Milan



Some pictures from the renovation project designed by architect Luca Scacchetti. The building is located in the Brera Botanical Garden in Milan (Italy) and is used for training and educational purposes.



Located in Milan's ancient city centre, the Brera Botanical Garden is a place hidden from view, surrounded by gated walls and old buildings, making this incredible oasis of green all the more precious. It is used for teaching botany and as a garden centre and since 1774 has occupied the same area next to the historic Palazzo Brera, home of the Brera Fine Arts Academy, the Brera Museum of Art and the Museum of Astronomy.

The Botanical Garden, created on a site already used for gardening and leisure activities, dates back to the dissolution of the Jesuits Order, which in 1773 administered thirty observatories all around the world, and its transfer from the Brera College, administered by the Jesuits, to the Local Council.

Designed by Father Fulgenzio Witman, creator of the much larger botanical gardens at the University of Pavia (Italy), the new design for the Brera Botanical Garden involved modifying the existing garden to form a *Hortus Oeconomicus* based on the one at the Collegium Theresianum in Vienna, in which the didactic and training functions were integrated into the growing and marketing activities of plants, in this case to supply plants for medicinal purposes for the local Brera herbal remedy company. Greenhouses were then built in the Botanical Garden at the end of the 18th century (two heads of the greenhouses were designed by the architect Giuseppe Piermarini, designer of the nearby La Scala Theatre, have survived all these years), along with an arboretum and a system of parallel flower beds, one for each type of plant according to the Linnaeus classification, to create an integral design divided into three distinct areas which still exist today.

In the second half of the 19th century a small observatory to study and measure the orbit of the planets was added to the original design and, in the north-west corner of the garden, a small building with a portico for storing tools was also built. Renovated in the 1970's and now used for didactic purposes, school field trips and meetings organised by the University of Milan, the renovation work presented in this article was promoted by *Interni* maga-







A WORD FROM THE ARCHITECT

The objective of this project was to turn the small classroom used to teach botany into an integral part of the garden and greenery itself, and I believe we managed to achieve just that; to transform this small, 17th-century body into an element that is a continuation of the garden, from being a marginal element forming a border into an integral part of the garden in which, instead of an inside and outside, the principle of continuity rather than separation is projected more clearly from both the inside and from the outside. From within, the façades of the room had to become the greenery, the garden, a green perspective, while from the outside the building had to look as if cancelled and the perception had to be of the perimeter wall as an outline for the property of the Botanical Garden.

In fact this wall, together with the terracotta pillars, will become the background for the transparency obtained by using the new full window fittings. Its natural finish, therefore, was fundamental, and so the use of a Mapei skimming mortar became a strategic choice between two points of view: the naturalness of the product in compliance with the guiding concept of the project (“to be reabsorbed by nature”) and its naturalness and “aesthetic elementariness”, with the ability to reproduce antique render, as if it were almost a relic forming a background for the Garden and the entire architectonic system of the Academy. A back up to its naturalness and architectonic neutrality guided the selection of paints and protective coatings.

And the other materials? Super-slim fittings by Secco and the Stone Italia flooring made from the recycled remains of asphalted roads (and so an outdoor material that becomes indoor), all based on the same principle of the naturalness of the construction. The lighting elements by Artemide and Danese add to the overall scenic effect of this covered garden, while the furnishings by GP Progroup, Riva1920 and Calligaris, and the naturalness of iron and solid rather than panelled wood, increase and highlight the theoretical choice, which is the aim of this small project: to annul any separation and strive for the principle of continuity with the greenery and trees.

The combination of all these extraordinary contributions has allowed a small building to be defined, whose importance takes us back to the initial creation of the Botanical Garden in 1773 which, above all, for the people of Milan, has always represented the hub of the Brera monumental complex.

Luca Scacchetti

zine and the Banca del Monte di Lombardia Foundation. The work was designed by the architect Luca Scacchetti, while several companies contributed architectural work, lighting and furnishings.

The renovation work is part of a wider project to renovate the Botanical Garden undertaken by *Interni* and the University of Milan, and the aim is to present an exhibition of the Lombardy Region’s agricultural heritage during Expo 2015, as well as add a permanent irrigation system for the garden using the groundwater to make it completely self-sufficient. The idea is to present this delicate yet precious part of the city’s heritage to visitors in the most attractive and pleasant way possible, just part of the network of green areas in Milan miraculously conserved to act also as a living “historical document for the future”. Luca Scacchetti, who taught architecture at the Brera Academy, took a highly sensitive, attentive approach when defining the overall image, from the architectural shell to the specially designed furnishings, to create a new, well-equipped environment completely open towards the surrounding garden, with the intention of turning it into a complementary element. Skimming mortars, paints, products for substrates and protective coatings were supplied by Mapei. The aim of the large, slim windows with Cor-Ten profiles is to act as an elegant, neutral shield to divide the interior from the exterior, an effect emphasised during the night by the carefully positioned lighting supplied by Artemide and Danae lamps.

A new, innovative material made from the recycled remains of asphalt roads was installed on the “DNA Urbano” flooring supplied by Stone Italia. On the theme of renovating and utilising urban features, the antique portico





has now been transformed so it can be used for didactic purposes by the University of Milan and for public events and meetings.

Mapei took part in the renovation by supplying products such as:

- TOPCEM special normal-setting, quick-drying, controlled-shrinkage hydraulic binder was used for the screeds;
- GRANIRAPID high-performance, two-component cementitious adhesive to lay ceramic tiles on the floors;
- ULTRACOLOR PLUS high performance grout for the tile joints;
- MAPE-ANTIQUE FC ULTRAFINE salt-resistant, ultra fine-grained transpirant skimming mortar to finish the renders on internal brickwork walls;
- SILEXCOLOR PAINT to paint ceilings and walls;
- ANTIPLUVIOL W as a water-repellent impregnator for the external walls.

This article was written by Matteo Vercelloni and was published in issue no. 637 of *Interni* magazine, whom we kindly thank.

IN THE SPOTLIGHT

ULTRACOLOR PLUS

It is a cementitious mortar for grouting improved with reduced water absorption and high resistance to abrasion, certified EMICODE EC1 PLUS by GEV. It is suitable for grouting floor and walls joints in all types of ceramic.



It allows to obtain uniform colour, colours resistant to ultra-violet rays and atmospheric agents, and an easy-cleaning smooth, compact finished surface. It can contribute up to **4 points** to obtain the **LEED** certification.

Technical Data

Classroom, Brera Botanic Garden, Milan (Italy)

Year of Intervention: 2013

Intervention by Mapei: supplying products for building screeds; laying ceramic tiles and painting internal walls

Project: Luca Scacchetti, Studio Scacchetti

Mapei Co-ordinator: Marco Manzoni, Mapei SpA (Italy)

Music amidst the skyscrapers, waiting for the EXPO



ANDREA BOCELLI singing at the concert held in Milan on 30th April, 2014, 365 days before the official opening of Expo 2015.

Exactly one year before Expo 2015 begins, Milan celebrated the event with a concert broadcast live on TV

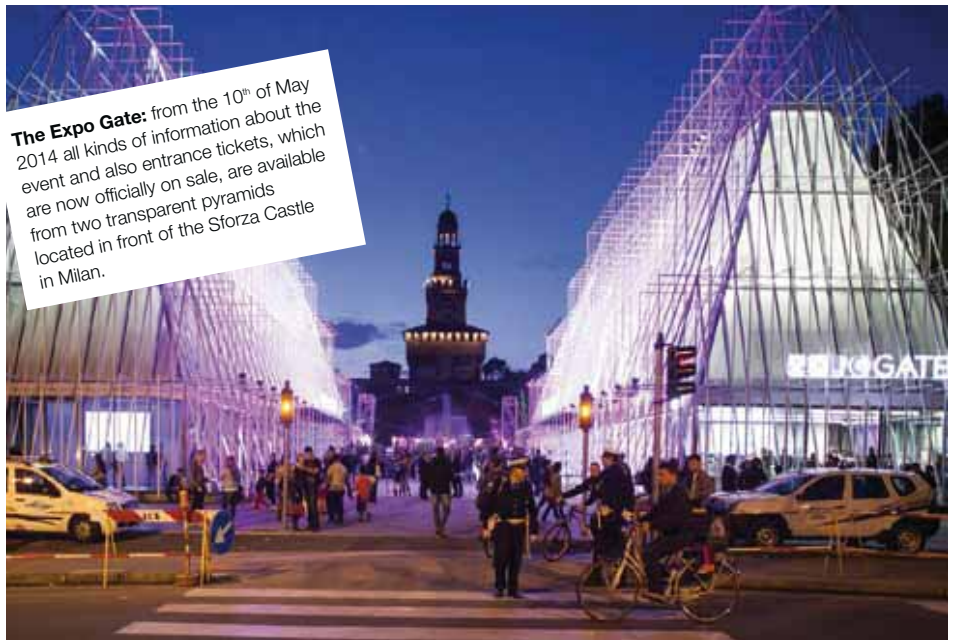
We are almost there. It is now less than a year to the start of Expo 2015, the great exhibition that will see 147 countries come together in Milan to tackle the tricky issue of nutrition. On the evening of 30th April, exactly 365 days before the official opening, Expo SpA organised a big party in Piazza Gae Aulenti in Milan with the Italian charitable foundation Banco Alimentare and RAI (Italian State Television network), inviting the city of Milan to celebrate in the form of a special show and concert held beneath the tallest skyscraper in Italy, Unicredit Tower. Next year too, a concert is planned to be held on the evening of 30th April to mark the official opening of six-month long Expo 2015. From 1st May to 31st October visitors will be able to go and see the exhibition site, where 147 nations will be taking part, together with various partner companies or corporate participants and a number of international organisations, such as the United Nations and the European Union.

While the Expo logo could clearly be seen fly-

ing up on the top floors of Palazzo Lombardia (hosting the Lombardy Region Council) and the mascot, Foody, mingled amongst the crowd, over 3000 people took their places at the foot of the skyscrapers.

Up on stage during the live broadcast by RAI television presented by the Italian moderator Antonella Clerici, lots of guests talked about own projects as ambassadors for Expo 2015. The guest of honour was the tenor Andrea Bocelli, who performed accompanied by the 60-piece Rai Orchestra conducted by Andrea Morricone, Ennio Morricone's son. The show provided the opportunity to play the official hymn of Expo 2015, "La forza del sorriso" (The Power of A Smile) for the first time. Jointly composed by Bocelli and Morricone, it was written specially to be the soundtrack for the entire Expo event.

Among those present in Piazza Gae Aulenti were the Special Commissioner and Managing Director of Expo Spa, Giuseppe Sala, the Governor of the Lombardy Region,



The Expo Gate: from the 10th of May 2014 all kinds of information about the event and also entrance tickets, which are now officially on sale, are available from two transparent pyramids located in front of the Sforza Castle in Milan.

Milan Expo 2015. Feeding the Planet, Energy for Life

THE COUNTDOWN TO EXPO 2015 HAS BEGUN: BUILDING WORK IN FULL SWING

The days are flying by and 1st May 2015, the date when the Expo in Milan will officially begin, is getting closer. The people of Milan enjoyed a little foretaste of the event on 10th May 2014, when Expo Gate officially opened: all kinds of information about the event and also entrance tickets, which are now officially on sale, are available from the two transparent pyramids located between Sforzesco Castle, the heart of the 1906 Expo, and Via Dante, a strategic thoroughfare lined with the flags of the 147 nations taking part in Expo 2015. Ever since it was first held in London in 1851, the World Fair perfectly embodies the idea of a big event: after choosing a theme, the entire world is invited to take part and every nation can display what it has produced on the given theme. The topic of Expo 2015 is food in all its various aspects: quality, sustainability, health, environment and the economy. A massive theme summed up by the event's official slogan "Feeding the Planet, Energy for Life".

The opportunities offered by a major event

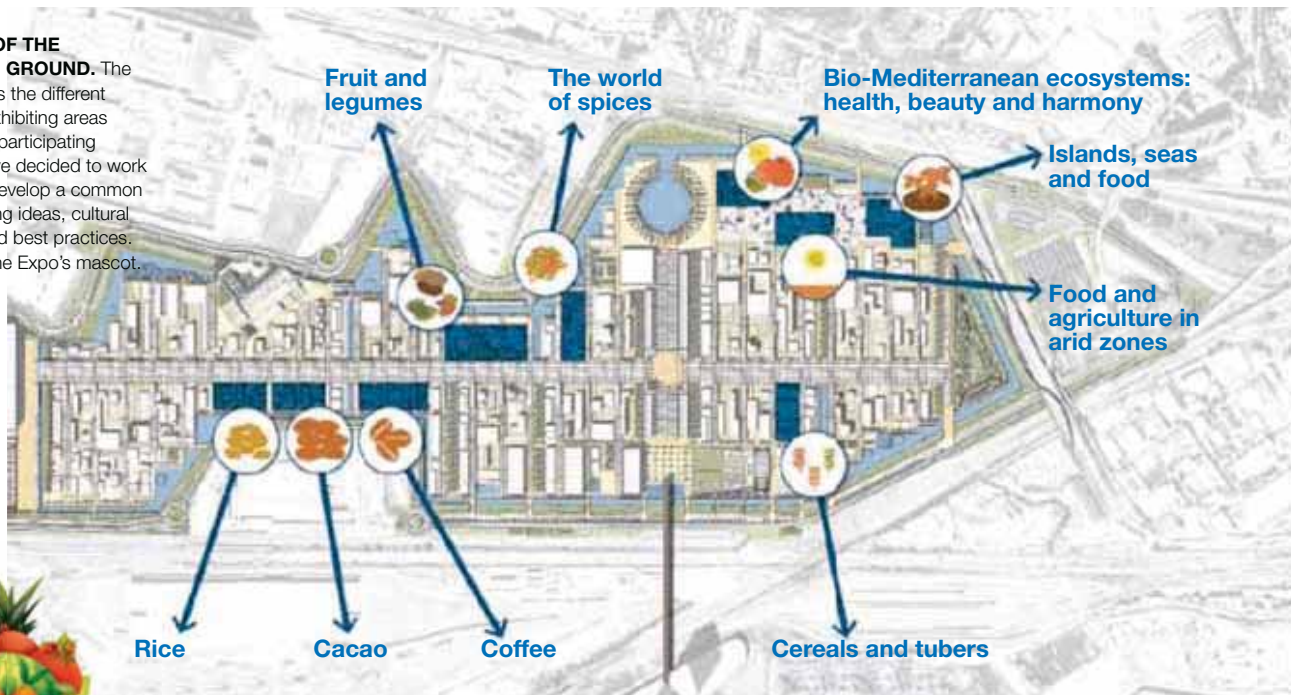
So what does this event represent for the city of Milan and the whole of Italy? According to a study carried out by SDA Bocconi school of management on behalf of the Milan Chamber of Commerce, there will be 25 billion Euros of extra production across the whole of Italy from 2012-2020 thanks to the Expo. The figure for the Milan area alone will be 12 billion. It will mainly have repercussions on tourism and the food & drink industry as a direct consequence of the rise in the number of tourists coming to Milan, estimated by economic analysts at around 5 billion Euros in benefits for the entire tourism sector. But Expo 2015's long-term legacy in economic terms right across the country will be much more extensive and far-reaching and will see the creation of new businesses, a boost in the area's appeal, and good prospects for a rise in tourism and consumer behaviour connected with the event.

The real-estate sector will also benefit through a significant rise in the value of property and increase in the number of people working in this industry. In a nutshell, according to estimates, the event will be a real driving force behind a growth in the Italian economy.

Roberto Maroni, the Lord Mayor of Milan, Giuliano Pisapia, the Italian Minister for Agriculture and Forestry with a special mandate for the Expo, Maurizio Martina, the President of Expo 2015 SpA and the General Commissioner for the Italian Pavilion, Diana Bracco, the President of Confindustria, Giorgio Squinzi, and the former Lord Mayor of Milan, Letizia Moratti, who led the Italian delegation back in 2008 that managed to literally "snatch" the organisation of the event from the hands of the Turkish city of Izmir.

Again on the issue of food, the chef, Davide Oldani, presented his own special zero-kilometre saffron risotto, the gastronomic flower in Lombardy's buttonhole and official dish for the Expo, which, a few days later during the official opening of Expo Gate, was revamped by Oldani with the help of the Italian chefs Carlo Cracco and Andrea Berton into 'Risata Colorata': yellow rice with dates, daikon and curry. What could be more Expo than that!

THE PLAN OF THE EXHIBITING GROUND. The picture shows the different clusters or exhibiting areas where some participating countries have decided to work together to develop a common theme, sharing ideas, cultural traditions, and best practices. On the left, the Expo's mascot.



ALL THE FACTS AND FIGURES FOR THE EXPO

- 147** nations taking part
- 184 days** of events:
1st May - 31st October 2015
- 60 self-built pavilions**
(there were 42 in Shanghai 2010)
- 1 million m²**
of exhibition space on the site
- 9 clusters**
rice, cacao, coffee, cereals and tubers, fruit and legumes, spices (for food production), food and agriculture in seas and islands, in arid zones, in bio-Mediterranean ecosystems
- 5 theme areas**
Pavilion Zero, Biodiversity Park, Future Food District, Children's Park, Arts&Food Park at the Triennale Design Museum
- 350 million Euros** of private funding
- 1.3 billion Euros** of public funding
- 150 million Euros**
from merchandising and services
- 20 million visitors expected,**
at least 6 million from abroad
- 7,000 people working on site**
each day
- 60,000 jobs**
created by the event
- 500 volunteers**
each day to welcome visitors

Location of the exhibition site

Expo 2015 will be taking place in an area to the west of Milan bordering on the borough of Rho. Approximately one thousand people a day have been working on the project since April, a figure destined to at least triple as the opening date gets nearer. The project for the Expo citadel - a total surface area of approximately 110 hectares - was devised by an international team of architects consisting of Stefano Boeri, Richard Burdett, Jacques Herzog, Joan Busquets and William Mc Donough. The site structure, which has rather imaginatively been named the "fish" - and looking at the site plan we can see why -, runs along two longitudinal axes (the Cardo and Decumanus) reminiscent of the typical urban layout of ancient Roman cities. The Cardo is entirely devoted to Italy with the Italian Pavillion facing onto it, while the Decumanus, World Avenue, is lined by the 60 buildings designed by the various nations taking part and the four theme pavilions, plus another pavilion installed in the Triennale Design Museum, the so-called nine clusters. The clusters are the main novelty of this edition; at previous Expos, countries which could not afford a Pavilion of their own were grouped together in communal spaces according to their geographical location, a makeshift solution that was not very popular. This time, on the other hand, the communal areas will see the various countries combined based on their types of food production (rice, cacao, coffee, cereals and tubers, fruit and legumes, spices) or shared territorial traits (sea and islands, bio-Mediterranean ecosystems, food and agriculture in arid zones). The nations taking part can also decide to create their own self-built exhibition space, i.e. built autonomously on construction lots varying in size from 500-5000 m² facing directly onto the Decumanus. This is another innovation at Expo 2015, which will allow all the various nations to have a front row position, making them all equally visible.

National pavilions

Throughout the entire history of the World Fair, the nations taking part have always competed to try and create the most beautiful pavilions, striking enough to attract hordes of visitors in front of the entrances. Once again at this edition the competition is open to design the most startling pavilion. The buildings will bear the signature of famous architects like Norman Foster for the United Arab Emirates pavilion or Daniel



UAE



ITALY

Libeskind, who has designed one of the three buildings representing China. The pavilions may also have a design concept evoking historical buildings, as in the case of the French Pavilion, which is inspired by the vaults of Les Halles market; or they may be as imposing as the Japanese Pavilion, one of the biggest, constructed with a wooden grid, which, when fully illuminated at night-time, will conjure up the idea of a traditional Japanese lantern. The building rules for guaranteeing the construction of eco-compatible buildings are quite clear: the use of sustainable and recyclable materials, the construction of temporary buildings that are easy to dismantle, reduced energy consumption, and careful attention to landscaping and the landscape. In conclusion, we would like to mention the Italian Pavilion, which is the only one facing along the Cardo. Designed by Nemesi&Partner, Proger SpA and BMS Progetti S.r.l. as regards the structural and plant-engineering, and by Livio De Santoli, who handled its energy sustainability, the building is envisaged to be an “urban forest” and will accommodate visitors in a striking architectural landscape. A panoramic terrace at the top will offer visitors spectacular views across the entire area. The four blocks spread around the central plaza will host the exhibition area, events area, offices and official area. The Italian regions and territories will all converge together on the inside together with their own Chamber of Commerce, which will use the building as a showcase for promoting local tourism and typical products. Palazzo Italia will remain in operation after the Expo as a technological innovation centre.



USA



GERMANY



ISRAEL



FRANCE



Civil passion on stage

This year's season at Spazio No'hma, a theatre in Milan supported by Mapei, focused on relations between man, nature and progress



The most unusual theatre in Milan is celebrating its 20th anniversary. The only theatre where you do not need to pay to enter or buy a season ticket. This is somewhere anybody can go free of charge that stages both poetry and prose, but is also used for holding meetings between scientists, philosophers and musicians. This facility even has a strange name, No'hma, which, according to the Greek

historian Plutarch, is a combination of thought and life force, and is unique in terms of both its form and content. Constructed where an old abandoned industrial building used to stand (the Palazzina dell'Acqua Potabile in the Città Studi district of Milan), the theatre was the brainchild of a freethinking woman, Teresa Pomodoro, who was determined to make dreaming "more real than being awake".

IN THESE PAGES

Some moments of the plays staged at No'hma theatre in Milan on the occasion of the theatre's 20th anniversary. The review opened with a piece called "Madre Terra" (Mother Earth).



This actress, author and playwright sadly passed away in 2008 but her adventures in the realms of art are now being continued by her twin sister, Livia Pomodoro, who has just as much life force and civil commitment. Livia Pomodoro, President of the Milan Law Courts during the day, is the real driving force behind the theatre in the evening, a place that has always been so important to her. "Over the last 20 years No'hma has become what Teresa always dreamt it would be", so she points out, "a meeting place and experimental ground for humanistic culture of a very ethical nature. The general public has responded magnificently. Nowadays I can hardly close the curtains and soon we won't even be able to shut the theatre doors..."

This season's themes: man, nature and progress

No'hma celebrated its 20th anniversary during the 2013/2014 season, focusing on an important, difficult and in some respects uncomfortable issue: links between man, nature and what we describe as progress.



Ever since ancient times man has shaped the world around him, in order to turn it into his own living environment, but only recently has he become more clearly aware of how delicate and unstable the relationship is between himself and the environment and just how threatened and in danger the latter actually is.

Major industrial and urban concentrations threatening to irreversibly jeopardise ecosystems, settlements, the sprawling growth of agglomerations, the uncontrolled demographic boom and frenetic agitation, are all real threats to the balance between man and nature.

This year audiences have been taken on a journey of thought through various different forms of art.

A way of delving into the innermost depths looking for reality, bringing all man's senses into play, so that we realize just how real and precious this wonderful painting we call nature actually is, before it is too late, before the threat we are under becomes reality and the scream being cried out from this painting resounds as unstoppable as Edvard Munch's famous work. This is how the artist himself de-

scribed it in his diary: "... Above the grey-blue fjord there were clouds as red as blood and tongues of fire. My friends had moved away. Alone, shaking with fear, I could hear the great scream of Nature"

The theatre's twentieth anniversary

To celebrate the theatre's 20th anniversary a series of plays by Teresa Pomodoro were staged in May-June by the theatre's director and art director, Charles Owens. The review opened with "Madre Terra" (Mother Earth), with the actress Anna Negara playing a mysterious old woman who emerges from a cave to warn people to stop wreaking havoc and destroying nature.

This was followed by "In viaggio verso un nuovo mondo" (Travelling to a new world) starring Leo Gullotta, "La danza degli alberi" (The trees' dance) starring Patrizia De Clara and "Il mio teatro nudo in carcere" (My naked theatre in prison) starring Licia Maglietta.

Mapei, which is sponsoring this wonderful theatrical adventure, would like to send its warmest birthday greetings.



SPAZIO TEATRO NO'HMA TERESA POMODORO

Via Andrea Orcagna, 2 – 20131 Milan (Italy)
Tel. +39 02 454 850 85

www.nohma.it



Sfalassà Viaduct

Durability of the reinforced concrete repair

Repair work on Sfalassà Viaduct

Repairing and protecting any reinforced concrete structure is an operation that requires specific expertise in each single phase of the intervention: from the preliminary survey of the structure itself to assess its condition right up to the execution of the work, which must be carried out using the most appropriate techniques and materials.

Such an example of the synergy that must exist between all the various phases is the repair work carried out on Sfalassà Viaduct over the A3 Salerno-Reggio Calabria motorway in Southern Italy between 2010 and 2012.

The viaduct is the highest span portal arch bridge in Italy and one of the highest in Eu-

rope. Designed by the Italian engineer Silvano Zorzi in 1967 and built between 1968 and 1972, it reaches a height of around 250 m from the bottom of the valley. It is made up of hollow concrete piers and a central 376 m long steel span resting on two inclined struts which join to the main piles and give it its characteristic portal structure.

The repair work was carried out on the internal and external surfaces of no. 3 and no. 4 piles, each one around 130 m tall from the base plane. These are the tallest piles and, as they interact with the central frame when in service, they ensure extensive static function.

Repair intervention

The initial survey carried out on the bridge



highlighted how various factors had contributed to the concrete deterioration:

- the thermal difference between the outer and the inner part of the piers and the concrete shrinkage, which had been impeded by the foundation structure and by the concrete poured in several steps, have generated vertical cracks in the first 25 m of the piles. The cracks have worsened over the years and, in certain points, they have passed right through the concrete on all four sides;
- its proximity to the sea has caused the corrosion of the reinforcements due to the presence of chlorides.

The findings from the survey have been taken into consideration and the repair work has been designed to be carried out in various steps:

- hydro-demolition down to different depths to remove all the deteriorated concrete;
- structural repair work on the first 30 m of the piles to restore the required concrete in-

tegrity. This was carried out by sealing the main cracks and preparing the new covering render with a structural cementitious mortar reinforced with metallic mesh;

- the repair of the concrete cover was carried out using a structural cementitious mortar along the entire length of the piles, apart from the first 30 m;
- the reinforcement was protected from corrosion in the lower and external parts of the piles by placing internal zinc anodes in order to provide the galvanic cathodic protection for the steel in the concrete;
- the external surfaces were protected with an elastic cementitious smoothing compound to increase the durability of the structure, including when subjected to aggressive agents such as carbonation and chlorides.

All the products used were chosen from amongst those certified according to the European standard EN 1504 *“Products and systems for protecting and repairing concrete*

OPENING IMAGE.
Sfalassà Viaduct
along Salerno-Reggio
Calabria motorway is
the highest span portal
arch bridge in Italy.



IN THE SPOTLIGHT
MAPEGROUT EASY FLOW

It is a one-component, pre-blended, thixotropic cement-based mortar, composed of sulphate-resistant hydraulic binders, synthetic polyacrylonitrile fibres, organic corrosion inhibitors, special water-retaining, expansive admixtures and selected aggregates prepared according to a formula developed in the Mapei R&D laboratories. It used for the repair of deteriorated concrete structures by using a spray rendering machine. The product is especially suitable when easy pumping is required even over long distances and under constant high heads.

It can contribute up to **2 points** to obtain the **LEED** certification for eco-sustainable buildings.



structures: definitions, requirements, quality control and conformity assessment". This standard is a valid tool to optimise repair interventions, and offers so much more than the simple approach of removing all the deteriorated material and replacing it with another product.

Support offered by Mapei

Thanks to its decades-long experience in the sector of repair work on large infrastructures, Mapei supplied all the materials to repair the concrete:

- MAPEGROUT 430 pre-blended, medium mechanical strength, thixotropic fibre-reinforced mortar was applied by spray with a rendering machine to repair the internal surfaces. This product complies with EN 1504 standard and meets the requirements of EN 1504, part 3, for R3-class structural mortars.
- The internal surfaces were finished and protected with ELASTOCOLOR PAINT, protective crack-bridging elastomeric coating in compliance with EN 1504

standard, part 2, for coatings.

- Galvanic cathodic protection to prevent corrosion of the reinforcement rods in the concrete was provided by using MAPESHIELD I pure zinc anodes. These anodes are composed of a multi-layered, zinc core with a large surface area coated with special conductive paste to keep it active over the years. After connecting the anodes to the reinforcement rods with metal stays, a difference in potential is generated between the steel and the zinc inside the cementitious material that blocks the corrosion process and impedes its formation, even in particularly aggressive, chloride-rich surroundings. In fact, when two different metals are connected together in a suitable electrolyte (concrete), the metal with the most negative potential (zinc) will corrode, while the metal with the least negative potential (steel reinforcing rods) remains protected against corrosion. The anodes ensure that the steel reinforcement is in compliance with EN 12696 standard "Cathodic protection of steel in concrete". With this

How to significantly increase the durability of structures using MAPELASTIC GUARD

MAPELASTIC GUARD is a flexible cementitious mortar to be applied by spray. It is highly resistant to the aggressive action of chemicals and forms a highly efficient protective barrier against the penetration of both CO₂ (carbonation) and chlorides. Carbon dioxide (CO₂) penetrates into the concrete at a parabolic rate:

$$x = K \cdot t^{1/2}$$

where:

x is the thickness of concrete penetrated by the CO₂

K is the diffusion coefficient of CO₂

t is the period of exposure to an

atmosphere containing CO₂.

Since it is well known that the value of K depends mainly on the characteristics of the concrete, testing has been carried out in the Società Autostrade per l'Italia (Italian Highways Authority) laboratories to measure the coefficient of penetration K for concrete with a water/cement ratio of 0.5 and 0.6.

Results gave an average K value of 7.6 for concrete with a 0.5 water/cement ratio and 8.0 for concrete with a 0.6 water/cement ratio.

If we assume a thickness of concrete cover of $x=30$ mm and then apply these values in the formula $x = K \cdot t^{1/2}$ we get:

t concrete = ~ 15.6 years

(water/cement = 0.5)

t concrete = ~ 14 years

(water/cement = 0.6)

which represents the time (t) required for carbonation to penetrate through the concrete around the reinforcement.

The same tests were carried out on concrete samples protected with MAPELASTIC GUARD and the results showed K values of 0.25 to 0.29. We can assume an average K value of 0.27 and use the same formula:

$$x = K \cdot t^{1/2}$$

where x , in this case, is the thickness of MAPELASTIC GUARD (2 mm).

By applying this type of cementitious mortar on the surface of concrete, it is possible to increase the durability of structures by more than 50 years by providing an efficient barrier to the penetration of CO₂. This also means that a 2 mm layer of MAPELASTIC GUARD corresponds to more than 50 mm of concrete cover that has

been built with a concrete having a 0.5 water/cement ratio.

As far as aggression from chlorides is concerned, according to the Danish certification body COWI (Consultancy within Engineering, Environmental Science and Economics), a 2.5 mm thick layer of MAPELASTIC GUARD corresponds to a 30 mm thick concrete cover with a 0.45 water/cement ratio.



system it is possible to protect the reinforcing rods even when it is not possible to completely remove all the chlorides from the substrate, such as when it has penetrated too deeply into the concrete.

- All the external surfaces of the piles were repaired by spraying them with MAPEGROUT EASY FLOW pre-blended, high-strength, shrinkage-compensated, thixotropic fibre-reinforced mortar resistant to sulphates (which are also present in seawater). This type of mortar has proven to be particularly suitable for this type of application, in that it may be applied in thick layers without the use of formwork.

This product also complies with EN 1504 standard and meets the minimum requirements of EN 1504 standard, part 3, for R4-class structural mortars.

- For the final protective layer, all the external surfaces were coated with spray-applied MAPELASTIC GUARD flexible cementitious mortar. MAPELASTIC GUARD complies with the principles of EN 1504 standard and the minimum requirements of EN 1504 standard, part 2, for coatings.

In conclusion we may certainly say that a correct approach to the renovation work on reinforced concrete, together with an appropriately designed repair system using the right system of certified products, allows to achieve a very high level of durability.

Achille Rilievi. Quality Control Lead - Work and Materials - Salerno-Reggio Calabria motorway

Mario Beomonte. Works Director - Lot No. 5

Claudio Muller. Viaduct Specifier - Lot No. 5

Federico Laino. Mapei SpA Technical Service Department (Building line)

Technical data

Period of Construction: 1968-1972

Period of Intervention: 2009-2012

Intervention by Mapei: supplying products for concrete repair

Project: IN.CO Ingegneri

Consultants: Silvano Zorzi, Lucio Lonardo, Sabotino Procaccia

Client: ANAS SpA

PHOTO 1. Placing the new reinforcement

on the surface after removing the deteriorated concrete by hydro-demolition.

PHOTO 2. Placing MAPESHIELD I 30/20 anodes in position.

PHOTO 3. Application and roughening of the first layer of MAPEGROUT EASY FLOW.

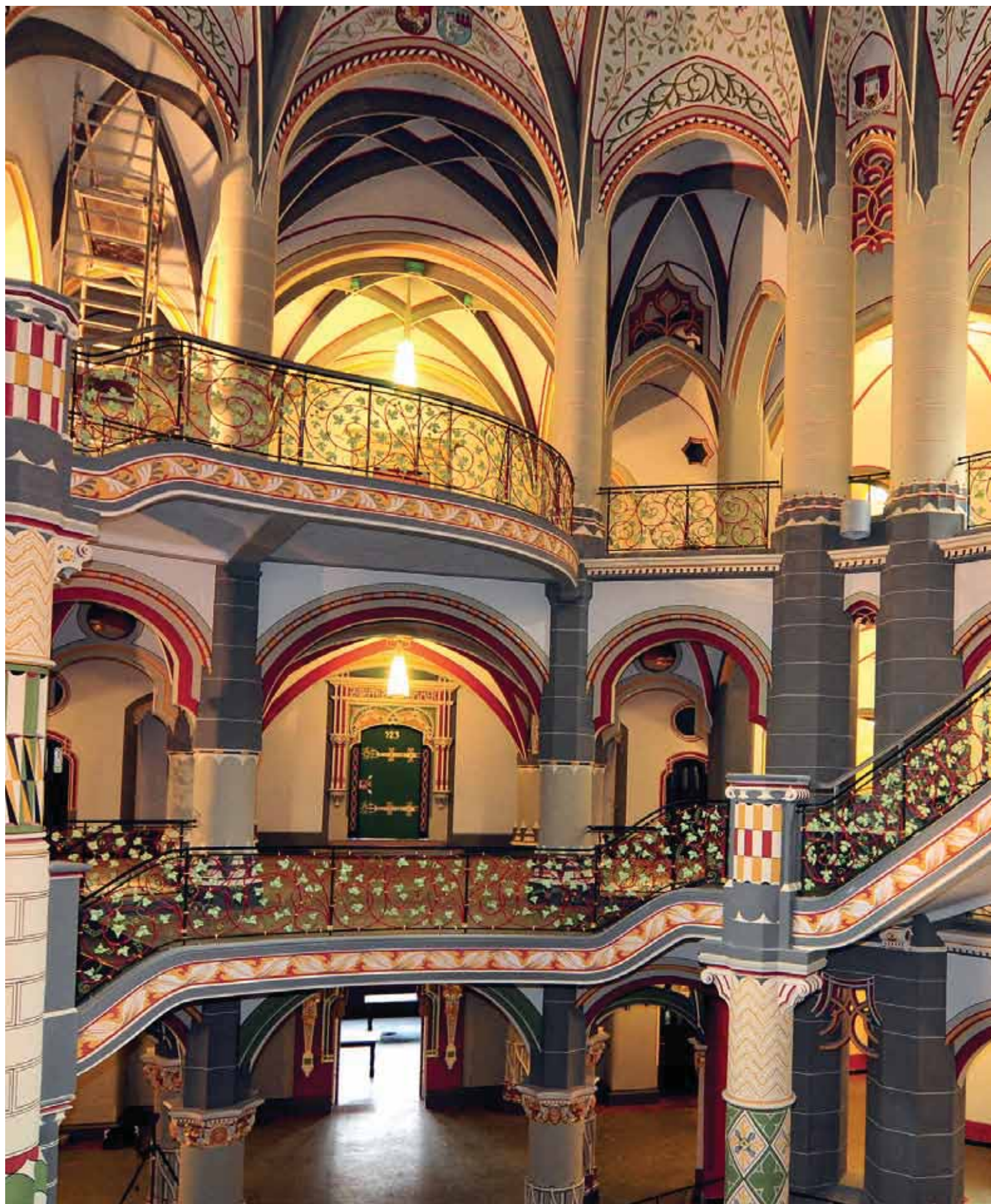
PHOTO 4. Application of the second layer of MAPEGROUT EASY FLOW.

PHOTO 5. Application of MAPELASTIC GUARD by spray.

Contractor: Consorzio Impregilo SpA/ Condotte d'acqua SpA

Works Supervision: Cilento Ingegneria Srl
Company in Charge of Concrete Repair: Mosconi Srl

Mapei Co-ordinators: Pasquale Zaffaroni, Achille Carcagni, Fiorella Rodio, Federico Laino, Michele Malvasi, Luigi Calogiuri, Giovanni Rinaldi, Mapei SpA (Italy)





ABOVE. View of the Palace of Justice's main façade.

LEFT. A double-spiral staircase is located in the building's entrance hall.



Palace of Justice in Halle

Eco-sustainable solutions were used to renovate an historical building in Germany

The Palace of Justice in the historical university city of Halle am Hansering in Germany was built from 1903 to 1905. It features the typical Baroque style of German judicial buildings dating from the turn of the 19th and 20th centuries, while combining elements of the gothic, Renaissance and Art Nouveau styles. The architects (Paul Thömer and Karl Illert) designed a sandstone façade decorated with statues of legal scholars, animals and mythical creatures. The two flanking towers are 50 m high. Inside the building there is also a remarkable double-spiral staircase.

The Palace have already been renovated in the past. In June 2011 a new restoration intervention involved some external sections of the building and several interior areas, such as the entrance hall, the main staircase, the corridors and some hearing rooms.

Preparing the substrates

Various types of floor coverings were used for the construction of the building: from linoleum coverings with and without cork underlay in the historical court rooms and corridors right up to textile floor coverings in the offices and ancillary hearing rooms.

The substrates of most floorings were made of an existing calcium sulphate screed. The screed was 3 cm thick in some areas and was cracked in most of the rooms, with adhesive and leveling compound residues. Some sections of these screeds were replaced with melted asphalt screeds and treated with ECO PRIM T, a solvent-free acrylic primer with a

very low emission level of volatile organic compounds (VOC). The product was mixed with water at a ratio of 1:1 and applied to the cleaned and vacuumed screed surface with a rubber roll. The joints had been previously treated with PRIMER MF, a two-component, solvent free, moisture-resistant epoxy primer, and sprinkled over with QUARTZ 1.2.

ECO PRIM T was also applied in the areas where the calcium sulphate screed showed sufficient stability and load-bearing ability. In this case the product was mixed with water at ratios ranging between 1:2 and 1:4.

A glass fibre fabric was used to reinforce the substrates of most screeds. It was embedded at a thickness of approximately 8 mm. Then the substrates in the corridor areas of the cupola hall and in individual rooms and offices were treated with PRIMER MF to consolidate the surfaces and ensure proper moisture-resistance. The surfaces were then sprinkled over with QUARTZ 1.2.

The levelling work was carried out with PLANITEX D10 (a levelling compound which is manufactured and distributed on the German market by Mapei GmbH) and ULTRAPLAN ECO, a self-levelling, ultra quick-hardening smoothing compound. As both products feature very low emission level of VOC, they were able to meet the client's requirement for eco-sustainable materials.

In the historical court rooms the podiums for the judges were built on a 23 mm thick chip-board layer. The elevated cable channels in front of the windows in the offices were also



IN THE SPOTLIGHT
ULTRABOND ECO V4 SP

It is a solvent-free, synthetic polymer-based single-coat adhesive in water dispersion. ULTRABOND ECO V4 SP has an especially extended open time suitable for the installation of resilient floor coverings. It can be used on non-absorbent surfaces as an alternative to polychloroprene contact or epoxy-polyurethane adhesives. ULTRABOND ECO V4 SP is easy to spread and has an excellent initial grab. After hardening, the ULTRABOND ECO V4 SP film is flexible and strong and can take heavy foot traffic and wheeled chairs. It features very low emission level of volatile organic compounds (EMICODE EC1) certified and can contribute up to **4 points** to obtain the **LEED** certification.



LEFT. Most of the floorings in the renovated areas were covered with linoleum bonded with ULTRABOND ECO 520.

ABOVE. Most of the flooring feature gray linoleum coverings and red details, both bonded with ULTRABOND ECO 520, after treating the substrates with ECO PRIM T or PRIMER MF.

Professional floor laying

Linoleum floors were laid on most of the substrates with ULTRABOND ECO 520 adhesive in water dispersion with a strong initial bond and very low emission level of VOC. It was used on the steps of the double spiral stair, in the corridors outside the cupola hall and in the historical court rooms. The textile floor coverings in the offices were bonded with AQUACOL T, solvent-free, ultra quick-setting, synthetic polymer adhesive in water dispersion with very low emission level of VOC. In the areas where soundproofing insulation was requested, a special textile covering was bonded with ULTRABOND ECO V4 SP, a multi-purpose, acrylic adhesive in water dispersion with a long open time and very low emission level of VOC.

built with a similar construction method. Both floorings had to be covered with linoleum. PLANITPATCH mixed with LATEX PLUS was applied on the substrates to ensure a proper levelled surface and proper bonding of the following layer. After priming with ECO PRIM T these areas were also levelled with PLANITEX D10 mixed with fibres.

Technical Data

Palace of Justice, Halle am Hansering (Germany)
Period of Construction: 1903-1905
Period of Intervention: June 2012
Project: nps thobau voss GmbH & Co. KG
Intervention by Mapei: supplying products for preparing the floor substrates, laying linoleum and textile floorings
Works Direction: ENKE + SCHOLZ GbR
Client: Saxony-Anhalt road building authority, Southern area

Laying Company:

Raumgestaltung Schandert GmbH
Laid Materials: textile floor coverings by TOUCAN-T and linoleum floorings by Armstrong DLW Granette and Marmorette
Mapei Co-ordinators: Lothar Jacob and Bernd Bichowski, Mapei GmbH (Germany)

Mapei Products

Preparing the floor substrates: Eco Prim T, Primer G, Primer MF, Eporip Turbo, Quartz 1.2, Ultraplan Eco, Ultraplan Turbo, Planitex D10*, Planipatch,

Latex Plus, Planitex D10 Standfest*

Laying the linoleum floorings: Ultrabond Eco 520

Laying textile floorings: Aquacol T, Ultrabond Eco V4 SP

*These products are manufactured and distributed on the German market by Mapei GmbH

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



Eco Prim Grip

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

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



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



/mapeispa

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



Grout selection, the evolution of colour

Mapei presents their new range of colours for grouting ceramic tiles

Grouting is strictly a personal choice and adds the finishing touch to every project, both indoors and outdoors. Mapei has now created Grout Selection, the new colour chart for grouting mortars. A choice of 14 different colours, 7 new and 7 from the existing Mapei colour range, to help characterise the texture of any type or format of wall or floor tiles, from ceramic to terracotta and from stone to mosaic. Their highly attractive aesthetic effect makes them particularly suitable for grouting "wood-effect" tiles, the latest trend in ceramic wall and floor coverings.

Beauty with high a technological value

Quality, functionality, a wealth of colours: these are the strong points of Mapei's coloured grouts. Suitable for both internal and external use, they have a very low emission level of volatile organic compounds (VOC) and are certified in compliance with the most severe international standards. Thanks to their natural effect, they are a perfect match for all tastes in interior design: from bathrooms to kitchens, right up to the creation of surfaces covered with the largest, ultra-thin ceramic tiles. Apart from their long-lasting durability, they are also easy to clean and resistant to the formation of mould. In fact, Mapei grouts come with two innovative technologies, the fruit of Mapei Research: BioBlock and DropEffect. The former consists of special organic molecules evenly distributed within the microstructure of the grouted joints, blocking the formation of the micro-organisms that cause mould damage. DropEffect technology, on the other hand, reduces the absorption of surface water.

KERAPOXY DESIGN, ULTRACOLOR PLUS and MAPESIL AC

Grout Selection is an evolution of the already wide range of Mapei Coloured Grouts. To meet the most exacting project specifications, the new selection of coloured grouts is available for the cementitious ULTRACOLOR PLUS version and the epoxy KERAPOXY DESIGN version. ULTRACOLOR PLUS is a high performance, anti-efflorescence, quick-setting and drying, water-repellent, polymer-modified product for grouting tile joints from 2 to 20 mm wide. KERAPOXY DESIGN is a two-component, anti-acid, translucent, decorative epoxy mortar, particularly suitable for grouting mosaics, ceramic tiles and stone, and when used in combination with MAPEGLITTER polyester, aluminium and epoxy resin metal-



effect coloured glitter, it creates particularly attractive aesthetic effects.

Grout Selection is also available for sealants in the MAPESIL AC version. This is a pure, mould-resistant, acetic silicone sealant with BioBlock technology for movements up to 25%. MAPESIL AC may also be used between different elements in the building, mechanical engineering, ship-building and car manufacturing sectors, and from today is also available in the brand new range of colours.

Grout Selection

7 new colours: 103 MOON WHITE, 133 SAND, 134 SILK, 135 GOLDEN DUST, 136 MUD, 149 VOLCANO SAND and 174 TORNADO

7 colours from the current range: 110 MANHATTAN 2000, 111 SILVER GREY, 113 CEMENT GREY, 114 ANTHRACITE, 130 JASMINE, 132 BEIGE 2000, 142 BROWN

For further information: www.mapei.com

GROUT SELECTION

- 103 MOON WHITE **NEW!**
- 133 SAND **NEW!**
- 134 SILK **NEW!**
- 135 GOLDEN DUST **NEW!**
- 136 MUD **NEW!**
- 149 VOLCANO SAND **NEW!**
- 174 TORNADO **NEW!**
- 142 BROWN
- 110 MANHATTAN 2000
- 111 SILVER GREY
- 113 CEMENT GREY
- 114 ANTHRACITE
- 130 JASMINE
- 132 BEIGE 2000

Due to the printing process, the colours should be taken as merely indicative of the shades of the actual product.

IN THESE PICTURES.

The new selection of coloured grouts is available for the cementitious ULTRACOLOR PLUS version (right) and the epoxy KERAPOXY DESIGN version (left and below).





Le Bailliage Hotel in Salers

A period residence renovated using natural materials in France

A period residence in one of the most picturesque areas of France, in the heart of the Auvergne Volcanoes Regional park, with rich vegetation and a breathtaking view. Le Bail-

liage hotel is located in the medieval town of Salers at the foot of the Cantal Mountains, and is the perfect spot for those wishing to take a break from their frenetic daily routine. The hotel takes its name from a term used between medieval times and the French Revolution to indicate a Judicial and Administrative zone.

As well as its particularly special position, this small *hotel de charme* has an atmosphere that conserves a certain fascination with the past and combines it with the more contemporary desire to offer its guests the highest levels of comfort. The owners, the Gouzon family, offer 26 rooms, each one different to the next. "We decided that each room should have its own theme" they told us, "And it's important that our clients can choose the room that is best

ABOVE. The "Salers" room with its warm, intimate surroundings.

PHOTO 1. In the Turkish bath the stone slabs for the walls and ceilings were bonded with GRANIRAPID, while KERAFLEX was chosen for the red glass mosaic tiles on the floor.

The joints were grouted with KERAPOXY CQ.

PHOTO 2. The cobblestone tiles for the walls in the bathroom in the "Nature under the roof" room were bonded with KERAFLEX S1, whose counter part on the international market is KERAFLEX MAXI S1.

PHOTO 3. The bathrooms of the rooms are all very modern. The floor substrates were waterproofed with MAPELASTIC.





1



2



3

suited to their particular mood: intimate, Zen or natural... and many of them like to change their rooms each time they are guests here". The owners like to change the look of some of the rooms every year. Not simply routine maintenance, but also a wish to evolve and follow their own particular tastes and those of the clientele.

During the annual shutdown, which generally takes place between the middle of November and the beginning of February, work is carried out at a feverish pace so that it is completed on schedule for the reopening.

Thanks to the work of the craftsman Christian Lafarge, the interior decorators Rémi Bobet and the State-registered architect Michelle Reuge, the hotel has been completely transformed over the last 10 years. "The common theme in all our rooms is nature" the Gouzon family told us, "Along with noble materials which we are so fond of". The "Nature under the roof" room has a warm, elegant atmosphere, with seagrass flooring and furniture and decorations made from driftwood. With

its fireplace, wooden decorations and natural stone wall coverings, the "Mountain" room will transport you to the ski slopes on a winter evening. The communal areas have also been renovated in a contemporary style with highly original contrasts of colour and lighting. And last but not least the spa area, a recent addition to the hotel to offer total relaxation.

Perfect bonding and grouting

How could Mapei products not be used for this small jewel of the French mountains? The craftsman Christian Lafarge personally followed progress of the work and chose Mapei products that he already knew so well.

The first step was to waterproof various concrete substrates in the hotel, particularly in the bathrooms of the bedrooms. The product chosen for this operation was MAPELASTIC, a two-component cementitious mortar ideal for waterproofing bathrooms and balconies.

Then, according to the type of substrate and material to be bonded, the most suitable adhesives were chosen:

IN THE SPOTLIGHT KERAFLEX MAXI S1

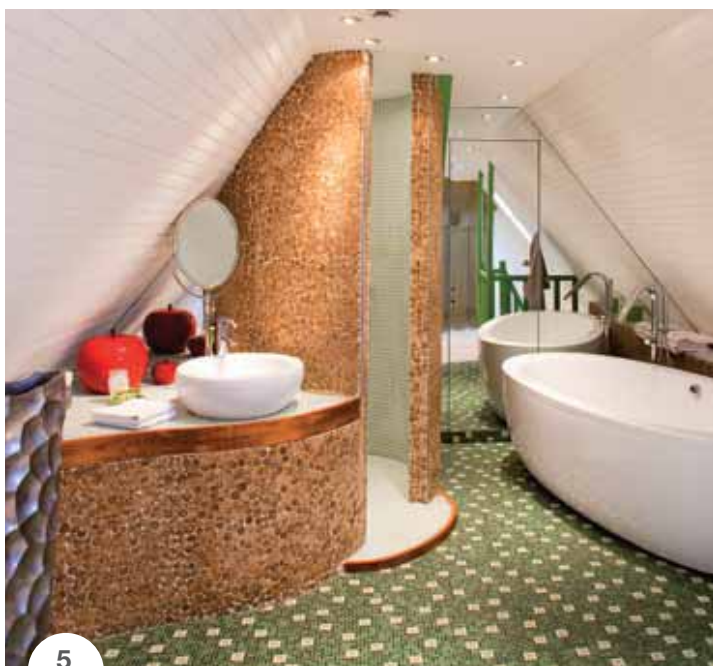
It is a high performance, cementitious adhesive with no vertical slip, suitable for the installation of large-size ceramic tiles and natural stone, for interior and exterior bonding (up to 15 mm thick). KERAFLEX MAXI S1 is a deformable, improved slip resistant, adhesive with extended open time. The innovative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

It can contribute up to **4 points** to obtain the **LEED** certification.





4



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7

- KERAFLEX S1 was used to bond "Percosi" ceramic tiles on the floor and walls of the bar area, "Bioessence Rovere Decapé" wood-effect ceramic tiles in the restaurant and "Artech Perlato" ceramic tiles and "Moka Seram" cobblestone tiles for the shower in the "Nature under the roof" room. This high performance adhesive (its counterpart in the international market is KERAFLEX MAXI S1) has extended open time, is deformable and has Low Dust technology, reducing the amount of dust given off during use by 90%.
- KERABOND T + ISOLASTIC adhesive was used for the bathroom in the "Mountain" room to bond the blue glass mosaic tiles on the floors, walls and in the bathtub and to bond the "Mathias" stone slabs on the walls.
- GRANIRAPID adhesive was used to bond the natural stone slabs on the floors and walls in the Turkish bath. The high performance characteristics of this adhesive, particularly its rapid-setting and high bonding properties, allowed quite heavy stone slabs to be installed.
- ADESILEX P22 PLUS adhesive (distributed on the French market by Mapei France; the international counterpart is ADESILEX P22) was used to bond the ceramic tiles on the counter and walls in the bar area. Suitable for interior installation work, this adhesive is highly slip and moisture resistant.
- KERAPOXY adhesive was used in the spa area to bond the white "Verticolor" glass mo-

PHOTO 4. The "Mountain" suite: the stone slabs and glass mosaic tiles were bonded with KERABOND T + ISOLASTIC, while the joints were grouted with KERAPOXY CQ.

PHOTO 5. The bathroom in the "Bees Apple" room where KERAPOXY CQ was used to grout the joints.

PHOTO 6. In the dining room KERAFLEX S1 was chosen to bond the wood-effect ceramic tiles on the floor and ULTRACOLOR PLUS was used to grout the joints.

PHOTO 7. In the spa KERAPOXY was used to bond white mosaics and ceramic tiles.

saic tiles on the floor and walls, and in the kitchen to bond "Shape" and "Alpox" ceramic tiles.

Mapei products were also used to grout the joints:

- ULTRACOLOR PLUS was used in the bar area, in the bathrooms of some of the rooms and in the restaurant dining room.

- KERAPOXY CQ was used in various areas such as the showers, bathrooms, the kitchen and in the spa area. This epoxy mortar is particularly suitable for areas that require a high level of hygiene, such as spas and kitchens. It is a very innovative product, highly appreciated because it is easy to apply and clean.

This article was taken from issue no. 39 of *Mapei&Vous*, the in-house magazine published by Mapei France, whom we kindly thank. Our thanks also go to the Gouzon family from Le Baillage Hotel, Christian Lafarge and Michelle Reuge for their kind help in writing this article.

Technical Data

Le Baillage Hotel, Salers (France)

Period of Intervention: 2006-2012

Intervention by Mapei: supplying products for waterproofing substrates, laying ceramic tiles, stone slabs and mosaics, grouting joints

Clients: Mr and Ms Gouzon

Project: Rémy Bobet, Michelle Reuge

Contractor: Christian Lafarge

Mapei Distributor: Rouchy Aurillac (Philippe Rongier)

Mapei Co-ordinator: François Guarini, Mapei France

Photos: Le Baillage Hotel, Christian Lafarge

Mapei Products

Waterproofing the substrates: Mapelastic
Laying ceramic tiles, stone materials,

mosaics: Kerapoxy, Keraflex S1*, Adesilex P22 Plus*, Kerabond T+Isolastic, Granirapid

Grouting joints: Kerapoxy CQ, Ultracolor Plus.

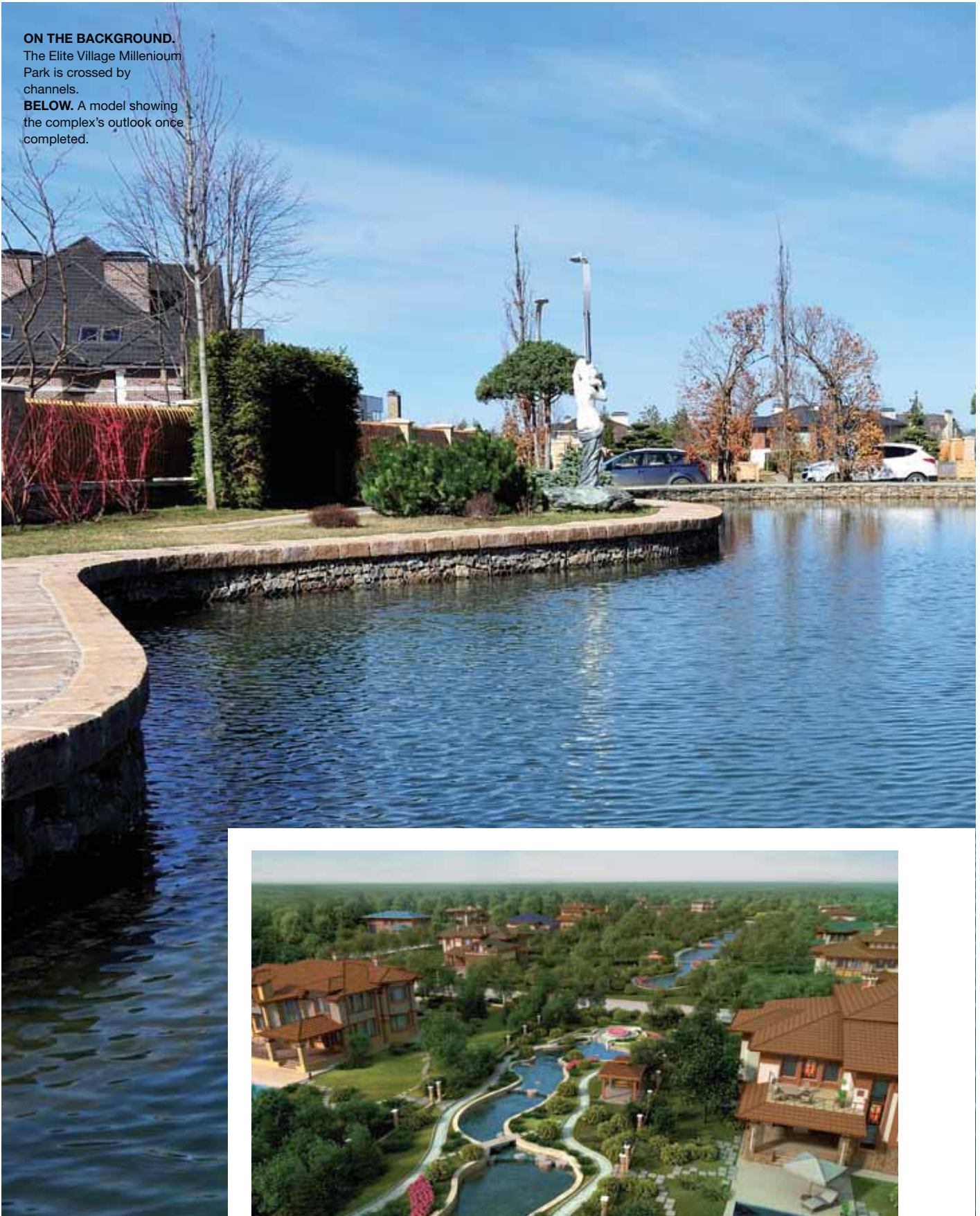
*These products are manufactured and distributed on the French market by Mapei France.

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

PROJECTS LAYING CERAMICS AND STONE MATERIALS

ON THE BACKGROUND.
The Elite Village Millenium Park is crossed by channels.

BELOW. A model showing the complex's outlook once completed.





Elite Village Millennium Park

A luxurious residential complex was awarded a prestigious prize due to its buildings' high quality

The Elite Village Millennium Park, located in the village of Obushkovo, is the largest suburban residential complex in the Moscow region. It was designed for 670 cottages.

The unique layout of the village, which covers 285 hectares, includes seven blocks. Each block features a different own architectural style and is separated from the other blocks by green parks covering over 30 hectares. Crossed by spacious boulevards and graceful lawns, the residential complex also includes

five theme parks with a total area exceeding 50 hectares.

Each park features its own style. The largest one is the "Three Lakes Park" and the name speaks for itself: it includes three water reservoirs surrounded by natural stone, artificial hills, willows and a Chinese garden with deciduous and coniferous trees with shaped tops.

The Elite Village Millennium Park won the silver medal in the category "Residential property" at the competition FIABCI Prix d'Excellence





ABOVE. The substrates of terraces, fountains and pavilions were waterproofed with MAPELASTIC.
RIGHT. The canal system of the Elite Village Millennium Park includes 11 artificial water channels with dams and waterfalls.

which is the most prestigious competition in the field of development, a kind of Oscar award in real estate. It was the first time in the 60-year history of FIABCI that a Russian project has been awarded the prize as one of the best residential complexes in the world. Currently construction of more than 100 houses is completed. Mapei contributed to

this important project by supplying several products, as it is explained below.

Construction of reinforced-concrete structures

When building the reinforced concrete load-bearing structures MAPEFER 1K one-component, anti-corrosion cementitious mortar was

**IN THE SPOTLIGHT
MAPELASTIC**

It is a two-component, flexible cementitious mortar for protecting and waterproofing concrete surfaces, renders or cementitious surfaces. MAPELASTIC is used for waterproofing water basins, bathrooms, showers, balconies, terraces and swimming pools, as well as for underground concrete structures.

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





applied on the steel reinforcement rods; fibre-reinforced, compensated-shrinkage mortar MAPEGROUT THIXOTROPIC was used to repair damaged concrete; PLANICRETE synthetic latex rubber was added to NIVOPLAN PLUS smoothing mortar to improve adhesion and strength when levelling walls; construction joints were sealed with MAPEFOAM.

Waterproofing and installing ceramics and stone

The canal system of the Elite Village Millennium Park is the largest artificial water system in the Russian suburban developments. It includes 11 artificial water channels with dams and waterfalls. Their total length is over 7 km and their width is up to 12 m. In the central park there is a lake of 4 hectares.

The canals are surrounded by arbors, terraces, pavilions and sculptures. During their construction TOPCEM PRONTO ready-to-use, normal-setting, controlled-shrinkage mortar was used for building the screeds. MAPELASTIC two-component, flexible cementitious mortar was used for waterproofing the surfaces before laying porcelain tiles in the arbors and terraces with ADESILEX P9 high-performance cementitious adhesive with no vertical slip and extended open time adhesive.

ABOVE. Stone slabs were laid in some areas with ADESILEX P4.

Tile joints were grouted with ULTRACOLOR PLUS high-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent DropEffect and mould-resistant BioBlock technology. MAPESIL AC pure, mould-resistant, acetic silicone sealant with BioBlock technology was used for sealing the expansion joints.

The complex's gateways feature a futuristic style and decorative fountains. The fountain bowls were waterproofed with MAPELASTIC. Artificial stones were laid on the surrounding area with ADESILEX P4 high-performance, cementitious adhesive.

The basements of the cottages' and arbors' façades were covered with artificial stone bonded with ADESILEX P9 high-performance cementitious adhesive with no vertical slip and extended open time. The joints were grouted with ULTRACOLOR PLUS.

This article was taken from *MIR Mapei* no. 12, the in-house magazine published by ZAO Mapei (the Russian subsidiary of the Mapei Group) whom we would like to thank.

Technical Data

Elite Village Millennium Park, Moscow region, Russian Federation

Period of Construction: 2009-2012

Period of Intervention: 2009-2012

Intervention by Mapei: supplying products for building the screeds, laying ceramic tiles and stone materials, waterproofing substrates, protecting reinforcement rods, repairing concrete, levelling walls' substrates

Designer and Contractor: Villagio Estate

Client: Incom Corporation

Mapei Distributor: Albia

Mapei Co-ordinators: Vladimir Kovalenko, Elexey Savonin and Irina Boldyreva, ZAO Mapei (Russian Federation)

Mapei Products

Building interventions: Mapefer 1K,

Mapefoam, Mapegrout Thixotropic

Building screeds and levelling substrates:

Topcem Pronto, Nivoplan, Planicrete

Laying ceramic tiles and stone slabs:

Adesilex P9, Adesilex P4, Mapesil AC, Ultracolor Plus

For further information see

www.mapei.com and www.mapei.ru



Fast-setting products

Mapei's new FastTrack Ready technology for simplified, improved and optimised installation

Mapei's commitment to identifying new systems and solutions for the installation of resilient, textile, stone, ceramic, wooden and PVC wall and floor coverings continues. Every year Mapei invests approximately 5% of annual turnover and dedicates 12% of their employees to Research & Development programmes. Apart from the 64 Quality Control laboratories, Mapei also has 18 main Research & Development laboratories around the world in Italy, Canada, Norway, Germany, Austria, Switzerland, Poland, France, Singapore, Malaysia, China, South Korea and the United States. And it is in the latter country, at Deerfield Beach in Florida to be exact, that Mapei, through their US

subsidiary Mapei Corp., has developed their new FastTrack Ready technology, an identifier for all those products that, compared with traditional technology, reduce the number of operations required to complete installation work and/or allow work to be carried out more rapidly. FastTrack Ready takes its place alongside the other innovative technologies developed by Mapei R&D Lab, such as:

- Low Dust to reduce dust emissions by 90% during mixing and application of cementitious adhesives;
- BioBlock to impede the formation and proliferation of mould;
- DropEffect to reduce absorption of surface water;

- Ultralite Technology that allow products to be packaged in lighter bags (15 kg compared with 25 kg for traditional cementitious adhesives) for easier handling, lower transport costs and 60-80% per m² higher yield compared with their corresponding cementitious adhesives.

Advantages

Thanks to FastTrack Ready technology, fewer operations are required to complete installation of wall and floor coverings. Depending on specific building site requirements and the type of wall or floor coverings to be installed, Mapei offers a wide range of FastTrack Ready products, some with very low emission

READY TO USE IN SHORTER TIMES



Products with **FastTrack Ready** technology are particularly suitable for rapid interventions in areas that need to be put back into service immediately



level of volatile organic compounds (VOC) to safeguard the environment and the health of installers and end users. Products with FastTrack Ready technology are particularly useful, for example, when repairing flooring in commercial areas, in that they allow for a drastic reduction in the time surfaces need to be closed to traffic (up to 12 hours) to limit disruption as much as possible, but above all to reduce costs caused by a loss in business and revenue. Another important example is repair work on floors, in bathrooms, etc. in private homes. In such cases, new ceramic or natural stone flooring may be installed in less than 24 hours.



RAPID PRODUCTS

CERAMIC LINE

Adhesives: ADESILEX P4, ELASTORAPID, GRANIRAPID, KERAQUICK, ULTRALITE S1 QUICK, ULTRALITE S2 QUICK

Levelling mortars: NOVOPLAN MAXI, PLANITOP FAST 330

Grouts: ULTRACOLOR PLUS

RESIN AND CEMENTITIOUS FLOORINGS LINE

Self-levelling mortars: ULTRATOP, ULTRATOP LIVING

Mortars: MAPEFLOOR CPU/HD, MAPEFLOOR CPU/MF, MAPEFLOOR CPU/RT

WATERPROOFING LINE

Binders: LAMPOSILEX

Membranes: MAPEGUM WPS, MAPELASTIC AQUADEFENSE

SEALANTS LINE

Adhesives: ULTRABOND MS RAPID

Chemical anchors: MAPEFIX EP 385, MAPEFIX EP 470 SEISMIC, MAPEFIX PE SF, MAPEFIX VE SF, MAPEFIX PE WALL

Sealants: MAPEFLEX PU65

BUILDING LINE

Adhesives: ADESILEX PG1 RAPID

Binders: LAMPOCEM

Mortars: MAPEFILL R, MAPEGROUT FAST-SET, MAPEGROUT SV, MAPEGROUT SV-T, MAPEGROUT SV FIBER, PLANITOP SMOOTH & REPAIR, PLANITOP 100, PLANITOP 400

Resins: EPORIP TURBO

RESILIENT LINE

RAPID PRODUCTS

Smoothing compounds: FIBERPLAN, NIVORAPID, PIANODUR R, PLANIPATCH, ULTRAPLAN, ULTRAPLAN ECO, ULTRAPLAN MAXI

Screeds: TOPCEM, TOPCEM PRONTO

VERY RAPID PRODUCTS

Adhesives: MAPECONTACT, ULTRABOND ECO CONTACT

Smoothing compounds: ULTRAPLAN QUICK TRAFFIC

Screeds: MAPECEM PRONTO, MAPECEM

Primers: ECO PRIM T

WOODEN LINE

Base coats: ULTRACOAT UNIVERSAL BASE, ULTRACOAT SOFT TOUCH BASE
Primers: ECO PRIM PU 1K TURBO (PRODUCTS AVAILABLE ON THE BRITISH MARKET)

Adhesives: RAPIDFLEX LITE, RAPID SET, ULTRALITE RAPID FLEX S1, MAPEKER RAPID SET FLEX

Smoothing screeds: ULTRATOP INDUSTRIAL

Levelling and smoothing compounds: LATEXPLAN TRADE FAST



The 36th ICMA conference

The last edition of the conference of the International Cement Microscopy Association was held in Milan and co-sponsored by Mapei

With a speech on innovation in materials for the building industry (see the following article), Giorgio Squinzi, Mapei Group's CEO, opened the proceedings of the thirty-sixth edition of the "ICMA" (International Cement Microscopy Association) conference held in Milan (Italy) from the 14th to the 17th of April 2014, co-sponsored by Mapei.

ICMA is a non-profit organisation founded in 1981, with a mission to provide a more in-depth understanding of the relationship between the microstructure and performance of cementitious materials, from manufacturing to application, using the most innovative analytical techniques.

ICMA holds a meeting every year where discussions are held on practical applications in cement production plants, new analytical techniques and approaches and the very latest research in the field of construction materials.

Speakers and participants are generally chemists, sector specialists, petrologists, technicians, engineers and managers from the industry, universities, consultancy companies and government institutions from all over the world.

The convention was traditionally held on the American continent until 2012 when, for the first time, it was organised in Europe, in Halle, Germany.

During the 35th edition of the conference

held in Chicago, Mapei, after 15 years of active participation and 18 scientific papers presented, joined the European Advisory Board and was offered the chance to become co-sponsor of the event for the second European edition.

Thanks to the firm conviction of Giorgio Squinzi and the whole Mapei Group's Board that a close collaboration between the scientific community and industry is necessary to develop new materials and improve performance and reduce costs, the project was accepted and organised thanks to the intense participation of the entire Mapei staff.

Twenty countries took part at the event (Albania, Australia, Austria, Belgium, Canada, China, England, France, Germany, Holland, Italy, Japan, Kuwait, New Zealand, Philippines, Portugal, Russia, Switzerland, Tunisia and USA) and more than forty papers were presented.

A research team from the University of Padua (Italy), working in close contact with Mapei researchers, made a significant contribution in the field of new technology and innovative analytical methods. The subjects discussed regarded the application of X-ray micro-tomography to the characterisation of the 3D microstructure in cement pastes, the use of nano-dispersion of silicate hydrate for the solidification and stabilisation of waste

and the use of advanced techniques for the micro-chemical and micro-mineralogical characterisation of clinker relicts from aged cement composites.

In the session dedicated to practical applications in cement manufacturing plants, Mapei presented a paper on the investigation of the effects of chemical grinding aids on cement milling and separation efficiency.

Mapei's contribution to new research in the field of materials for the building industry discussed the effect of fluorides on the mechanical strength development of mortar admixed with alkali-free accelerators, a microscopic analysis of cementitious tile adhesives and a comparison among hydraulic binders commonly used in commercial products used in the repair of historical buildings.

The programme for the conference included three days of presentations and a whole day spent visiting Mapei Corporate Research and Development Centre and Mapei's manufacturing plant in Robbiano di Mediglia, near Milan, where the 130 participants were given the chance to discover the vast range of Mapei products and the various steps that take them from raw material analysis, formulation right through to manufacturing.

The event was rounded off with a speech by Giorgio Squinzi and other members of the Mapei Group's Board during a gala dinner held at Mapei SpA's headquarters.



LEFT. The ICMA's Executive Board at the 36th Congress in Milan, together with some members of Mapei Group's Board.

BELOW. Giorgio Squinzi (CEO of the Mapei Group) and Arturo Nispero, ICMA's General Chairman.





Innovation in the materials for the building industry

In these pages one finds the presentation given by Giorgio Squinzi (Mapei Group's CEO) at the 36th Conference of the International Cement Microscopy Association

In 2013, the global investments in constructions reached a value in the order of 6,000 billion Euros (Fig. 1) giving a contribution equal to the 11.5% to the formation of the world wealth. The value of the investments is nearly divided in an homogeneous way among the three building compartments: residential, non-residential and infrastructures.

The historical analysis of market segmentation shows that the residential sector in recent years has greatly reduced its weight, while the incidence of infrastructures investment has increased (Fig. 2).

The breakdown of investments by sector and geographical area shows that emerging markets are strongly linked to infrastructures. On the contrary, in the European market - which is the most advanced - housing is still the largest if compared to the non-residential and civil engineering. Even in the North American market the residential sector assumes a prevalence in the destination of financial resources.

Considering the impact of investments in renovation and maintenance on the total value of the construction industry, in recent years there has been, in mature economies, a growth in the maintenance and renewal; on the contrary, a mod-

est weight is observed in the context of emerging economies (Fig. 3). In Western Europe this trend is likely to expand in a scenario where the redevelopment of real estate assets will be necessary to achieve the objectives of environmental efficiency. In this context, innovation is a key factor for the development of building and construction business.

A continuous development

Even if building and construction are the earliest activities associated with the beginning of the human civilization, a variety of new materials, through all these centuries, has been developed for building purposes. The applications of these materials - natural as well as manufactured - have been subjected to wide variations and

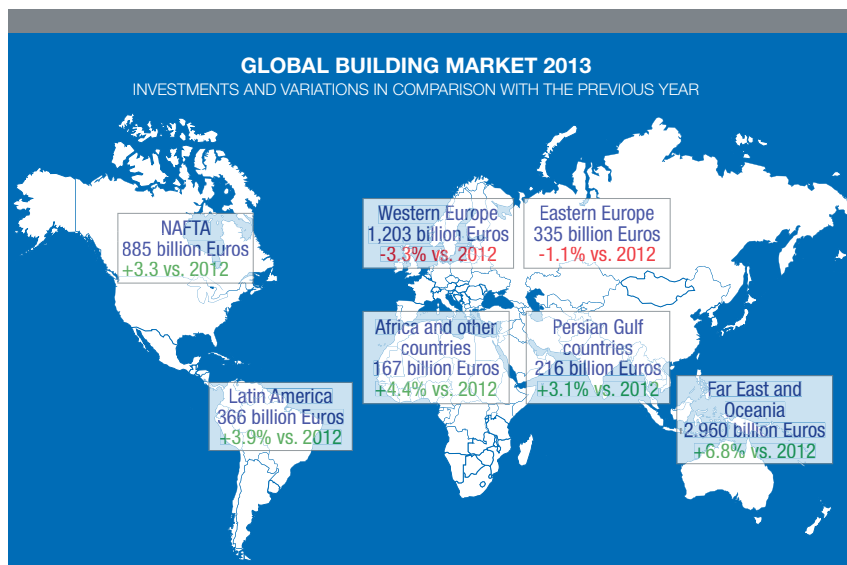


FIG 1. Source: PROMETEIA

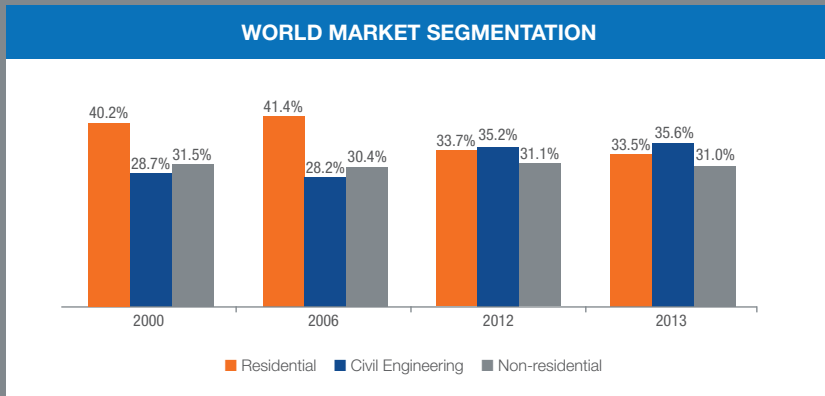


FIG 2. Source: Federcostruzioni (Italian Building Federation)

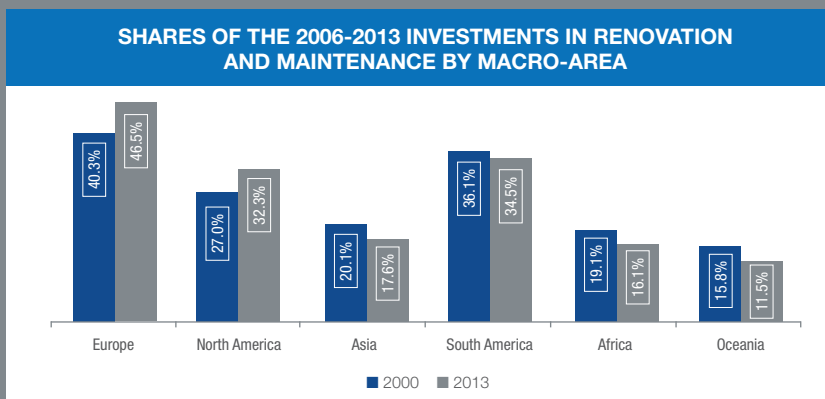


FIG 3. Source: Federcostruzioni (Italian Building Federation)

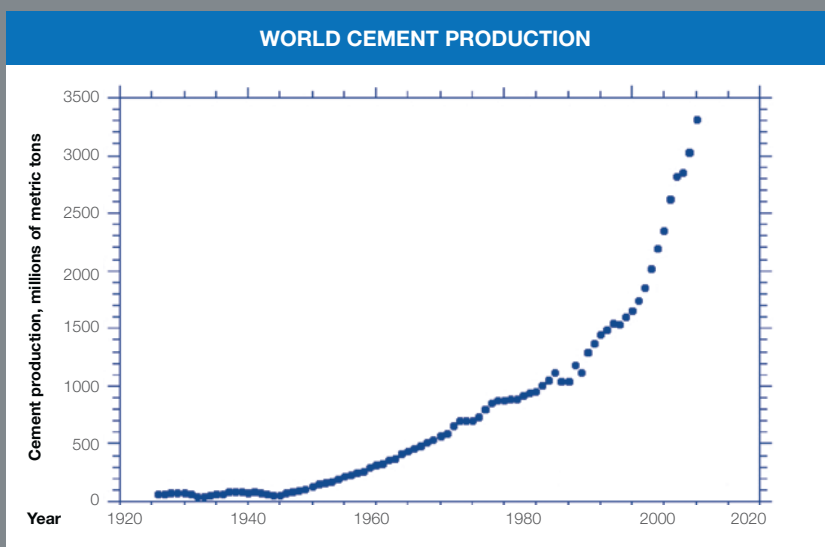


FIG 4. Source: USGS (United States Geology Survey)

innovations. Research and development have never stopped, but have always continued to enhance new materials and better techniques to apply them to the needs of the construction activities. Recent decades have shown the introduction of a large number of new materials and new types of construction methods to improve performances and reduce costs upon the previous methods, and significant development has been done

worldwide in this field. Despite the development of a huge number of new products, cement is still the main raw material for the construction industry and at the moment no other material can replace its role, as confirmed by the annual production of cement in the world which is higher than 3 billion tons (Fig. 4). Consequently, a key factor for the innovation in the building industry concerns the

deep understanding of the cementitious systems and in particular of the hydrated phases.

The importance of controlled hydration for cement-based products

Focusing on cement-based formulated products, the most important step for the structure development is the controlled hydration, at different times, of the different phases composing the cement.

The property of cementitious materials to develop mechanical strength when mixed with water results from a complex set of chemical, physical and structural processes taking place during hydration. Although the overall chemical reactions and physical changes occurring during the hydration process are known, the knowledge of the mechanisms involved in the structural development of the hydrating paste is still limited. A major issue concerns the location where the hydration products preferentially develop in relation to the reacting Portland clinker phases and their relationships with the evolution of the physical properties of the paste.

The performances of the cementitious materials, even if used at a centimetric or larger scale, are strongly influenced by the structure of the material itself at a nanometric and micrometric scale. This is the driving force pushing the development of nanotechnologies in the sector of the materials for the building industry.

A deep understanding of scientific grounds of these mechanisms opens the opportunity of structuring the cementitious material at the nanometric scale, which means, with reference to the intimate structure of the product, being able to control and characterize it at the nano-scale, and to correlate the nano-structure with the functional performance of the material.

A full characterization of the nanostructure is necessary, as well as the capability to develop the correlation between the nanostructure and the product properties through suitable models of cement hydration, which consider chemical and rheological aspects.

Advanced analytical techniques

As far as the characterization of the nano- and micro-structure is concerned, the task is performed by using advanced analytical techniques (Fig. 5, 6, 7) such as electron microscopy (to “see” in depth the structure of the material), x-ray diffraction (for crystalline phases analysis) also using synchrotron radiation (to record on site

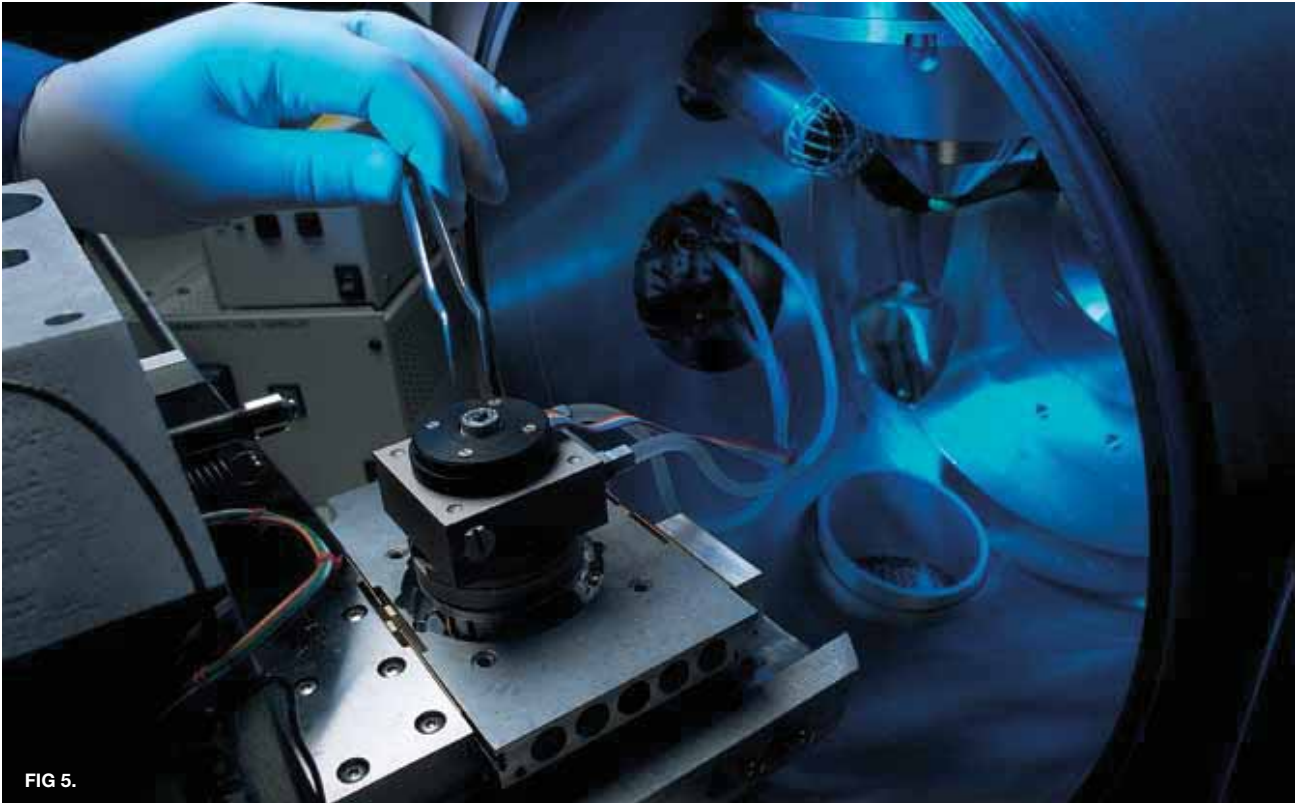


FIG 5.

IN THESE PICTURES. In order to analyse the cement's nano- and micro-structure, advanced techniques are used such as electron microscopy (Fig. 5), x-ray diffraction radiation, atomic force microscopy (Fig. 6) and x-ray computed micro-tomography (Fig. 7).

the evolution of the structure of the material over time), atomic force microscopy (to image the surface of the material at atomic resolution) and, of great interest, x-ray computed micro-tomography (to visualize in 3D, in a totally not invasive way the internal microstructure including pore structure properties, phase evolution, particles shape, micro-fractures, etc.). As far as the correlation between the nanostructure and the product properties is concerned, the capability to develop suitable models of cement hydration - taking into consideration chemistry as well as rheology - is necessary; this means being able to properly define the chemical composition of the formulated product and to predict its behavior based on the experimental measurement of the reaction rates of the different chemicals in the system. In order to develop the correlation between the nanostructure and the functional properties of the material, its physico-chemical, rheological and physico-mechanical characteristics have to be also determined.

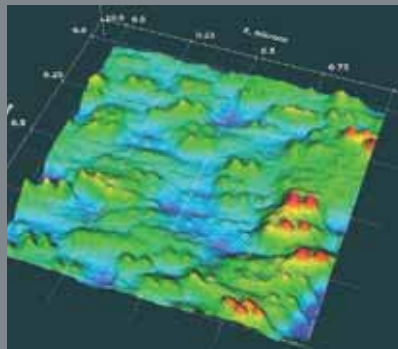


FIG 6.

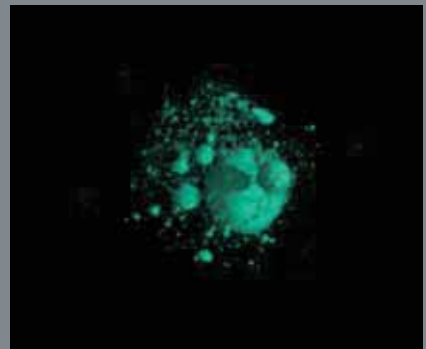


FIG 7.

Mapei's cooperation with the scientific community

Mapei decided to invest and to cooperate with the scientific community, by signing a very important agreement with the University of Padua (Italy) for a ten years joint research project, starting mid-2008.

Professor Gilberto Artioli of the University of Padua has been appointed as leader of the project, supported by a joint management committee.

The expected return on this high risk investment is the acquisition of the capability of designing and constructing new nanostructures in order to reach superior performances in Mapei formulated products, to consequently increase Mapei intellectual property protection and to achieve significant long lasting competitive advantages.

In conclusion, according to the up-to-date scientific knowledge, the cement is nowadays considered as a complex material whose chemical evolution at molecular level (*nanoscale*) directly causes the evolution of the cementitious paste microstructure over time (*micro- and meso-scale*) and finally the mechanical and physical properties of the material (*macro-scale*).

The study of cement hydration is still a very open field of research and I can say that this Congress is a very qualified context in which discuss and disclose the scientific progress achieved worldwide and to point out the future targets.

In order to achieve these targets, both scientific community and industries must cooperate by allocating significant human and financial resources.

The 39th Annual FEP Congress

The European Federation of the Parquet Industry presents its figures for the European wooden flooring market in Malaga, Spain

On the 5th and 6th of June 2014, manufacturers and distributors of wood and products for installing wooden flooring took part at the 39th Annual FEP Congress, organised by the European Federation of the Parquet Industry (FEP), that brought together the main players from the wooden flooring industry. The congress took place in Malaga (Spain). Mapei was represented by Angelo Giangliullo, Product Manager for the company's product line for the installation of wood, and by Francesco Doria, Mapei Market Research Manager. Amongst the speakers presenting the market figures for 2013 were the President of FEP Lars Gunnar Andersen and the General Secretary Endre Varga. A perfect opportunity to remind everybody that wood is "One of the most beautiful natural products available, the most desired by consumers, and which has an enormous impact on the value of real estate". The "FEP award"

was handed over for the third year running during the meeting, an award in recognition of a person, organisation, institution or authority that has made a significant contribution to the progress of the European parquet industry. The winner of this year's grant for 5,000 Euros was Frédéric Henry, Managing Director of the French non-profit organisation BNBA for the standardisation of wood and furnishings.

tor of the French non-profit organisation BNBA for the standardisation of wood and furnishings.

European consumption and production

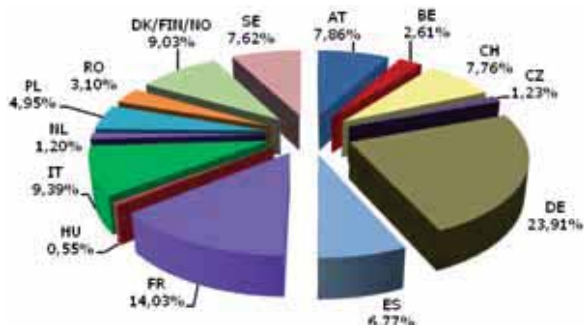
In 2013 the overall consumption of parquet in Europe fell by 2.6% compared with 2012. These are the figures released by FEP, according to whom the volume sold last year amounted to 82,681,000 m² compared with 84,888,000 m² in 2012. Germany, France and Italy are the leading consumers, several percentage points ahead of the other countries. Production, on the other hand, confirmed the trend recorded in previous years, with some companies deciding to transfer their business to European countries outside the FEP territory. As a result, even though the total production in the FEP area fell by 1.8% to 67,027,450 m², the overall production for the whole of Europe (FEP countries and European countries outside FEP) was an estimated 77,000,000 m². The largest increase was in Poland which is consolidating its leading position with almost 20%, with Germany in second place accounting for 15.48% and Sweden with 13.1%.

Outlook for 2014 and 2015

After almost seven years of economic and financial crisis the overall picture is improving slightly in the current year



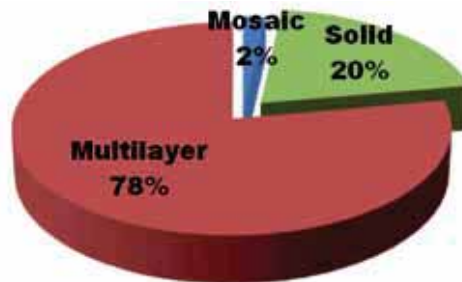
TOTAL CONSUMPTION PERCENTAGES FOR 2013



Source: FEP

In terms of wooden flooring consumption per country, Germany maintained its leading position with 23.91%, followed by France with 14.03%. Italy was in third place with 9.39%, recording a slightly better performance than 2012 when the share was 9.32%.

PRODUCTION PER WOODEN FLOOR TYPE IN 2013



Source: FEP

In 2013, the total production of wooden floor according to type of product was very similar to 2012. Multi-layer had the largest slice of the cake with 78%. Next in the list were solid wood (including lamparquet) with 20% and mosaic with 2%.



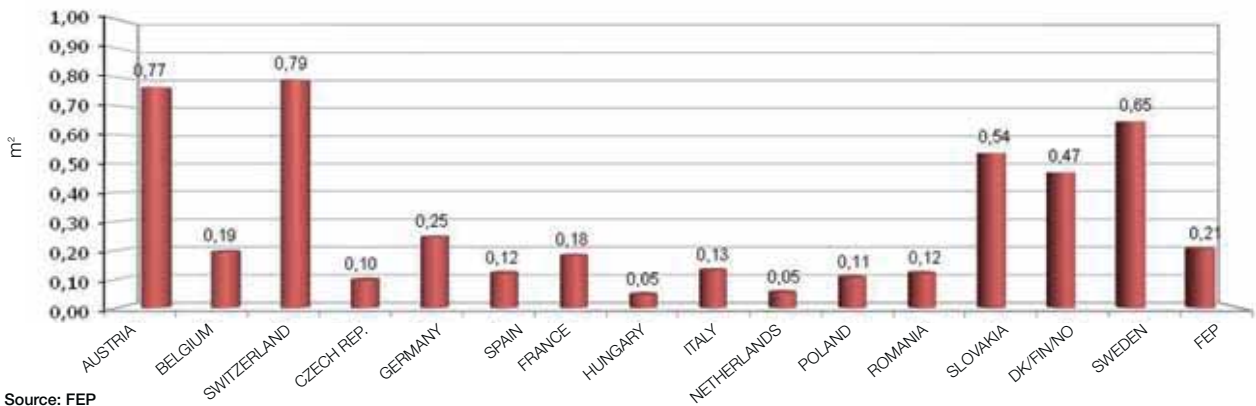
ABOVE. Participants at the 2014 FEP congress.
LEFT. The winner of this year's "FEP award" was Frédéric Henry, Managing Director of the French non-profit organisation BNBA for the standardisation of wood and furnishings. He was awarded the prize by Endre Varga, General Secretary of FEP.



and a stronger market recovery is expected for 2015. It is difficult to make a forecast for the future, but the hope is that the wood industry records increasingly positive results over the next few months. We need to work on re-establishing important financial tools such as easier access to loans, which would benefit both the real estate market and provide vital resources to industry, particularly

small and medium size companies, considered the real driving force that will allow Europe to turn its back on the crisis. The parquet industry, for its part, is enjoying excellent credibility. Wood is a sustainable, renewable raw material and wooden flooring itself is amongst the type of floor covering that consumers desire the most.

WOODEN FLOOR PER CAPITA CONSUMPTION IN 2013 IN M²



In 2013 the highest consumption level of wooden flooring per capita was in Switzerland (0.79 m²), followed by Austria (0.77 m²) and Sweden (0.65 m²). The average consumption rate per capita for the entire FEP area was 0.21 m².



Mapei again working with Peggy Guggenheim Collection

Mapei is once again involved in the Intrapresæ Collezione Guggenheim project and backed the exhibition entitled *Themes & Variations. The Empire of Light*

"Art inspires business, business brings art to life". This is the slogan chosen for the Intrapresæ Guggenheim Collection project that Mapei is supporting once again after first getting involved in 2008. This is actually the first and most renowned Italian private venture for supporting a museum with the backing of some of the most important Italian and international businesses. Companies all sharing a passion for art and firm belief in investing in culture, which stand out for their careful attention to issues of social responsibility and cultural projects. An authentic strategic joint-venture in which Mapei is one of the key players. The bond between Mapei and the Peggy Guggenheim Collection in Venice has gradually strengthened down the years, due to the fact that the company has played a pivotal role in renovating two important Guggenheim art locations.

In 2008 Mapei products were used to renovate the Solomon R. Guggenheim Museum in New York. The building, designed by Frank Lloyd Wright, had slowly been attacked by atmospheric agents down the years resulting in numerous cracks. The repair work took into account the need to maintain a certain degree of flexibility over the entire surface of the building to prevent new cracks from

forming (see *Realtà Mapei International* no. 27)

In 2009 Mapei helped with renovation work on the Peggy Guggenheim Collection in Venice. Work repair operations were carried out on both the Istria stone façade of Palazzo Venier dei Leoni along Canal Grande and the façade of Rio delle Torreselle, where the museum entrance is located (see *Realtà Mapei International* no. 31).

In 2012 Mapei was also the official sponsor of the exhibition entitled "Cycling, Cubo-Futurism and the 4th Dimension. Jean Metzinger's 'At the Cycle-Race Track'" organised by the Peggy Guggenheim Collection in Venice to pay tribute to the winner of the 1912 edition of the famous Paris-Roubaix cycle race (see *Realtà Mapei International* no. 40).

Themes & Variations. The empire of light

Underlining its great commitment to culture, this year Mapei was involved in the *Themes & Variations. The Empire of Light* exhibition as a technical sponsor, which ran from 1st February to 14th April 2014 at Palazzo Venier in Venice - supplying the products for painting the walls of the main chamber. A starring role was played by DURSILITE, a washable water-based wall paint with low dirt pick-up,



IN THESE PHOTOS. Some views of the exhibition *Themes & Variations. The Empire of Light* which ran from 1st February to 14th April 2014 at the Peggy Guggenheim Collection in Venice and was sponsored by Mapei. Among the exhibited works there was also René Magritte's "The Empire of Light" (on the left). © Photos by Lorenzo Ceretta.



extremely permeable to water vapour and easy to clean, offering long-lasting protection.

Visitors were welcomed into a regenerated space, allowing them to fully appreciate the fourth edition of "Themes & Variations", a highly successful form of curatorship devised by Luca Massimo Barbero in 2002 for the works and spaces of the Peggy Guggenheim Collection. Working on the theme of light, embodied by René Magritte's masterpiece that is still kept in Palazzo Venier dei Leoni and is the ideal linchpin of the exhibition, *The Empire of Light* takes visitors on an enchanting journey through works by masters from various different generations right

down to the very verge of the modern-day scene.

What was most startling was the unusual way in which some indisputable masters were brought together, such as Edgar Degas, Henri Matisse, Mark Rothko and Lucio Fontana, whose interacting works took museum-goers beyond the temporal boundaries of the 20th century right into the very contemporary world of Gabriele Basilico, David Hockney, Gerhard Richter, Anish Kapoor, Thomas Ruff, Kiki Smith, Hiroshi Sugimoto and Piotr Ukiński.

The final section of the exhibition, the museum now traditional tribute to Italian art, was devoted to the artist Fausto Melotti (1901-1986): a wonderful monographic display of 20 works, including *Contrappunto II*, *Orfeo dimentico* and *Chiave di violino*, created by a poetic sculptor, who, for years, entitled some of his works "Tema e variazioni" ("Theme and Variations"). Light, envisaged in terms of assonances and contrasts, was a fundamental theme of the exhibition, often interacting with its subjects to reveal female bodies as it spreads across abstract surfaces or defines landscapes and cities. The exhibition provided the chance to travel through time in the realm of art thanks to the excellent choices and far-reaching vision of the American collector aimed at studying the development of such a universal theme in the art world as light, drawing on curious and always original expressive forms.





Renovation of the museum's coffee bar

In spring this year the coffee bar at the Peggy Guggenheim Collection was renovated. Once again Mapei was involved by supplying products for painting the walls, most notably:

- ELASTOCOLOR WATERPROOF, a waterproof, easy-to-clean acrylic paint for internal and external surfaces in permanent contact with water;
 - QUARZOLITE TONACHINO high-protection, thick-layered acrylic coating product with high filling properties for internal and external surfaces;
 - SILEXCOLOR MARMORINO, a highly-decorative, fine-grained, silicate mineral coating product in paste form with high chemical resistance for internal and external surfaces.
- As you can see in this page, the results were excellent.

IN THIS PAGE. The photos show the museum's coffee bar which was lately renovated (concept and project by Hangar Design Group) with Mapei products.



THE PEGGY GUGGENHEIM COLLECTION

The Peggy Guggenheim Collection has been one of the most important museums in Italy for European and American art ever since the first half of the 20th century. It is housed in Palazzo Venier dei Leoni along Canal Grande in Venice, where Peggy Guggenheim used to live. The museum hosts Peggy Guggenheim's personal collection, as well as masterpieces from the Hannelore B. and Rudolph B. Schulhof Collection, Gianni Mattioli Collection, the Nasher Sculpture Garden, and temporary exhibitions. The Peggy Guggenheim Collection is owned by the Solomon R. Guggenheim Foundation, which manages this museum and also the Solomon R. Guggenheim Museum in New York and the Guggenheim Museum in Bilbao.

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CURIOSITY



Ceramic and its supporting player

Granirapid adhesive, usually hidden under tiles, comes out into the open in the work of Angelo Celeste

For thirty years he has dedicated his life to ceramic art, with 25 of those years spent as a Maestro at the State High School of Fine Arts in Bologna (Italy). This is the story of Angelo Celeste's passion for glazed clay and for a more technical material, GRANIRAPID cementitious adhesive, usually employed to install ceramic tiles and natural stone. In the research of this artist from Bologna, born in 1954, it also has an expressive role to play. In its natural state, in the colours white and grey, it is used to bond vases and decorative ceramic features to various materials, including wood. In its white version, painted with water-soluble colours, apart from being used for bonding, it is also an excellent painting material to create backgrounds for his works of art. But there's more: depending on which technique is used, different decorative effects can be created, such as a trowelled effect.



ON THESE PAGES.

Works of art by Angelo Celeste (above, the artist at work and one of his creations). The artist uses GRANIRAPID to bond objects, but also as paint and for decorative effects.



Black and green

the colours of those who never give up

After beating Genoa, Sassuolo could celebrate staying in **Serie A** with one match still to play

A strong wind swept away some threatening rain clouds just before the start of the match. A powerful gust actually blew away the Mapei banner wrapped around one of the towers of the sports arena and the fire brigade had to intervene promptly to recover it. For a few minutes all you could hear were doors and windows rattling in the stands, while the crowd slowly flowed into the stadium. The over 200 Mapei guests nodded and greeted each other, predicting the final score, touching wood and keeping their fingers crossed. All the ingredients were in place for a match that many people will never forget. Everybody had now taken their seats, the wind had died down and the teams were

out on the pitch ready to start play. This was a decisive match and the Sassuolo fans were hoping with all their hearts that the old saying "dulcis in fundo" (the best comes last) would come true again this year for the black-and-greens. There were some really terrible moments during the 96-minute match and just a few minutes before the end it looked like everything was taking a turn for the worst. But that was not the case and the sweet, sweet taste of the Italian Serie A will continue to linger on the lips of Sassuolo team for at least another season. After be-



ing promoted to the top flight for the first time ever 18th May last year, the team can now celebrate 11th May. Another historic date that everybody will remember. The day the team managed to avoid relegation and, with one game still remaining, Sassuolo could celebrate staying up in the top division.

Everything happened at the Mapei Stadium - Città del Tricolore in Reggio Emilia (Central Italy), at the end of the second to last game of the 2013/2014 season between Sassuolo and Genoa. At 4.59 p.m. precisely Sassuolo finally knew it was mathematically safe from relegation, as the players, the manager Eusebio Di Francesco and all the staff of the black-and-Greens, waited, seven minutes after the final whistle of their match, to hear the final result of the game being played between Bologna and Catania. When the result of the match at Dall'Ara Stadium was finally announced (Sassuolo needed Bologna to lose), the celebrations really broke out on the pitch as the players rejoiced together with the fans, who had stayed in the ground to celebrate a result that had seemed so unlikely just a few weeks earlier. Playing in front of a packed Mapei Stadium, Di Francesco's boys completed their comeback, winning all three points at the end of a match that could have gone either way. At one point news from the other grounds suggested that everything was about to go pear shaped. Congratulations to the Genoa team that battled till the very end, even though it was not as motivated as its opponents, and the red-and-blues only really collapsed at the very end under the barrage unleashed by Berardi and his teammates.

Excitement from start to finish

Sassuolo got off to an excellent start and



did not seem to be at all tired after their win on the previous Tuesday in Florence. The team kept control of the ball while Genoa, with lots of players missing, were pegged back deep into their own half, ready to try and strike on the counter-attack. Berardi's left foot immediately made an impact on the match: first he stung Perin's (Genoa's goalkeeper) hands with a powerful shot from just outside the area and then, in the 16th minute, he latched onto a perfectly measured pass by Floro Flores, who had broken free from Antonini, and blasted the ball past Perin.

The young star from Cariati had not finished yet: another hooked left-foot shot in the 28th minute was tipped over the bar by Perin and then a half-bicycle kick on the volley just went wide of the post. So far there had been no sign of Genoa. In the

33rd minute Antei scored for Sassuolo with a header from a free kick but it was ruled offside. Just when Sassuolo was enjoying its best period of play, Genoa equalised in the 40th minute: Vrsaljko collapsed to the ground after barely been touched in the area by Magnanelli. The referee, Gervasoni, was fooled into awarding a penalty kick. Pegolo (Sassuolo's goalkeeper) was outstanding in saving Gilardino's spot kick, but could not prevent Calaiò from scoring from the rebound. The home team struggled to recover from this psychological blow and nothing more happened before the half-time break.

In the second half Sassuolo got off to another flying start and immediately had a great chance when Magnanelli hammered a right foot shot that was saved by the red-and-blues' goalkeeper. The Sassuolo defence was then caught napping in the fifth minute when Vrsaljko's cross from the right just needed to be tapped in, but Gilardino could not get a touch on the ball from just a couple of yards out and Bertolacci hit the post with the goal wide open: in any case the referee had blown

» A MATCH THAT MANY PEOPLE WILL NEVER FORGET





for offside. After the first quarter of an hour Cabral lost control on the edge of the area, Zaza took control of the ball and did not hesitate before slamming a shot just past Perin's left-hand post. Soon after that Sassuolo deservedly took the lead again: Biondini scored with a towering header from a corner kick taken by Berardi. Nerves then took over and everything became very scrappy with Genoa eventually scoring to make it 2-2: Pegolo misjudged a cross, there was a misunderstanding with Cannavaro and Cabral's snapshot was instinctively deflected into the net by Gilardino. The match then turned into a siege with the whole Sassuolo team pushing forward.

The all-important goal ensuring top-flight football again next season for Sassuolo came in the 41st minute. Magnanelli's pass from the right wing was judged by Sansone, who then timed his shot to perfection.

The Mapei Stadium exploded with joy and driven along by the wave of enthusiasm Floro Flores scored to make it 4-2 as the stadium literally went wild. In the meantime Catania won at Bologna and both teams were relegated: Sassuolo was officially safe.

A black-and-green future

As the city bells rang out at 5:30 p.m., the people of Sassuolo slowly gathered in Garibaldi Square, the local congregation spot, to celebrate the team's achievement of staying up in Serie A.

The stadium was by then completely empty and just a few of the team's man-

agement staff went down onto the pitch. After the adrenaline had passed, the emotions really poured out. Everybody walked around the pitch on their own to try and relieve the tension and really savour the moment, smelling the sweet scent of the grass. The President, Carlo Rossi, still had tears in his eyes, Bonato was marching around like a Prussian soldier after dismounting from his horse after a foray into enemy territory, and Dr Pecci from Mapei Sport Research Centre was complaining about the sheer stress of a match that, in his opinion, was the best possible test his arteries had ever been subjected to. Meanwhile in Sassuolo an increasingly long line of cars drove around Martiri Square with flags flying and horns blowing. Some of the players, already back from Reggio Emilia, joined in with the fans. "I'm so proud of this result - was the first thing the Lord Mayor, Lucca Caselli, had

to say - special thanks go to the manager, Di Francesco, and the club owner, Giorgio Squinzi".

In the end football gave Sassuolo a thrilling end to the season, like some kind of prize for such a difficult season. Politicians and comedians had often joked about Sassuolo. But Sassuolo is no longer a laughing matter, indeed its fans are now singing out loud as the future looks increasingly black-and-green. Mapei is also joining in the singing of Sassuolo's official song together with the Italian singer Nek and all the fans: "Sassuolo plays football - Sassuolo does its best - We are a new light that will never die - Sassuolo believes it can do it and nobody can take away our determination - To aim ever higher".





Sassuolo is “Made in Italy”

Mapei-style planning in football too, so as to stay in the top flight and keep improving

Sassuolo's last match of the Italian football season finished 2-1 for A.C. Milan but it was Sassuolo that was really celebrating, safe in the knowledge that the team would not be relegated. The match turned out to be a classic game of two halves. The first half was completely dominated by the red-and-blacks of Milan but the green-and-blacks made a real mustered in the second half and were a constant threat with Zaza eventually scoring a consolation goal. After its first season in the Italian Serie A, Sassuolo won the big prize it was really after: not being relegated. The end of a triumphant progression from what is now known as the Pro League to the very top flight of Italian football, a farsighted project that came to its culmination the previous Sunday when Sassuolo beat Genoa and was already safe from relegation with one match still to play.

“Considering how things have been going, already knowing we would not be relegated with one match still to play was an astonishing miracle”, said Eusebio Di Francesco, the team manager, who

played a crucial role in this incredible comeback to avoid relegation.

From the Bologna-Sassuolo match played on the 9th March to the final game of the season, the manager picked up 17 points in 10 games, allowing the team to crawl out of the relegation zone and make history by staying up.

The coach deserves credit for helping Sassuolo stay in the top division, thanks to the team's fine play. Adopting a flexible 4-3-3 formation, the team always tried to play positive football. It conceded lots of goals (the second worst defence in the league), but it also scored a lot. A deliberate policy of attacking football that was extremely risky for a team battling not to be relegated, but it really paid off in the end.

Team captain, Magnanelli, is absolutely convinced it was the right decision and claimed that Di Francesco “really believed in us when he came back for a second stint as team manager; we were good enough and lucky enough to follow his advice, we knew what kind of manager we had and we were ready to follow



» IT WAS REALLY TOUGH BUT WE ALL BELIEVED WE COULD DO IT

his orders. What we achieved was really something special. It has been a very tricky season with all kinds of obstacles and such a lack of experience - so the captain of the green-and-blacks went on to say - but we corrected our mistakes through careful planning, hard work and attention”.

SPORT DIVISION



Sassuolo can celebrate another season in the top flight of Italian football and Berardi's thoughts are shared by the entire team: "It was really tough, but we all believed we could do it - so the team's forward commented - I'm really pleased for all the people who came to the stadium today. We really played well in the last six matches. The manager never gave up and we believed in him. I'm really delighted to be here and I hope to stay with this

club that is so special to me; our greatest strength is being a real team". When Sassuolo was right at the bottom of the division, not so long ago, who would have bet on the team staying up? How many people thought the team would manage to avoid relegation with one game still remaining, which was what happened in the end? Among those who believed it could happen was certainly Mapei and its CEO, Giorgio Squinzi, as well as lots of friends, colleagues and company clients. During those grey winter days when the results were not good and the team was not playing as it should have, resignation never gained the upper hand over the firm belief that Sassuolo would blossom again in the spring and that the at times cruel rules of football would not get the better of organisation, hard work, determination and a real will to succeed.

Italian pride

"One thing I am really proud of is that we are the only team in the league to have played most of our games with Italian footballers and all our goals were scored by Italian players", so the owner of Sassuolo, Giorgio Squinzi, pointed out. A real exception on the modern-day Italian football scene that always looks abroad for its players. Of the 32 players that Eusebio Di Francesco was able to pick from (excluding the players transferred in January: Kurtic, Valeri and Rossini), a total of 26 are Italian: the only foreign players out on the pitch at the Mapei Stadium

were in fact Mendes (a Portuguese player bought from Parma during the winter transfer market, who played eight times), Ziegler and Chibsah (the Swiss and Ghanaian played 17 games each), plus three forwards, namely the Romanian Alexe, the Brazilian Farias and the Paraguayan Sanabria, who together played a total of 543 minutes. So it is hardly surprising that all 42 goals scored by the team from Emilia were by Italian players: the leading scorer was Domenico Berardi with 16 goals, followed by Zaza with 8, Floro Flores 5, Sansone 4 and one goal each for Floccari, Longhi, Marzorati, Missirotti, Schelotto, who was transferred to Parma in January, and Biondini.

Sassuolo's corporate planning also conforms to the idea of "balancing the books", helping bring on Italian footballers and providing technical support for the Italian national football team.

A corporate philosophy that Mapei-inspired Sassuolo will continue to follow in the future and in this respect Giorgio Squinzi's comments regarding his decision 10 years ago to join the world of football are most poignant "This experience really was a leap in the dark; the idea was to focus on our youth sector, so as to gradually make Sassuolo a much stronger team". A coherent line of thinking that will be continued in the future. After the extremely stressful but wonderfully constructive experience this season, Sassuolo is ready to enter the highest echelons of Italian football. Aiming, needless to say, to keep on improving.



See you next season!



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