

INTERNATIONAL

REALTÁ MAPEI

Year IX - No. 15 - January 2005

THE WORLD OF MAPEI

Group figures

1.2

BILLION EUROS
Projected turnover



2005

43

PLANTS
WORLDWIDE

more than

800

PRODUCTS

Adhesives • Sealants
Chemical products for building

4000

EMPLOYEES

of which 480
in our 7 R&D centres

more than

13000

TONS
OF PRODUCTS
A DAY

more than

40000

CUSTOMERS WORLDWIDE

ADHESIVES • SEALANTS • CHEMICAL PRODUCTS FOR BUILDING
www.mapei.com

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Main cover photo:
Careful repair and maintenance work has been carried out over recent years on the canal banks of Venice, a unique city of striking beauty (article on page 2). Photo by Giovanna Dal Magro.

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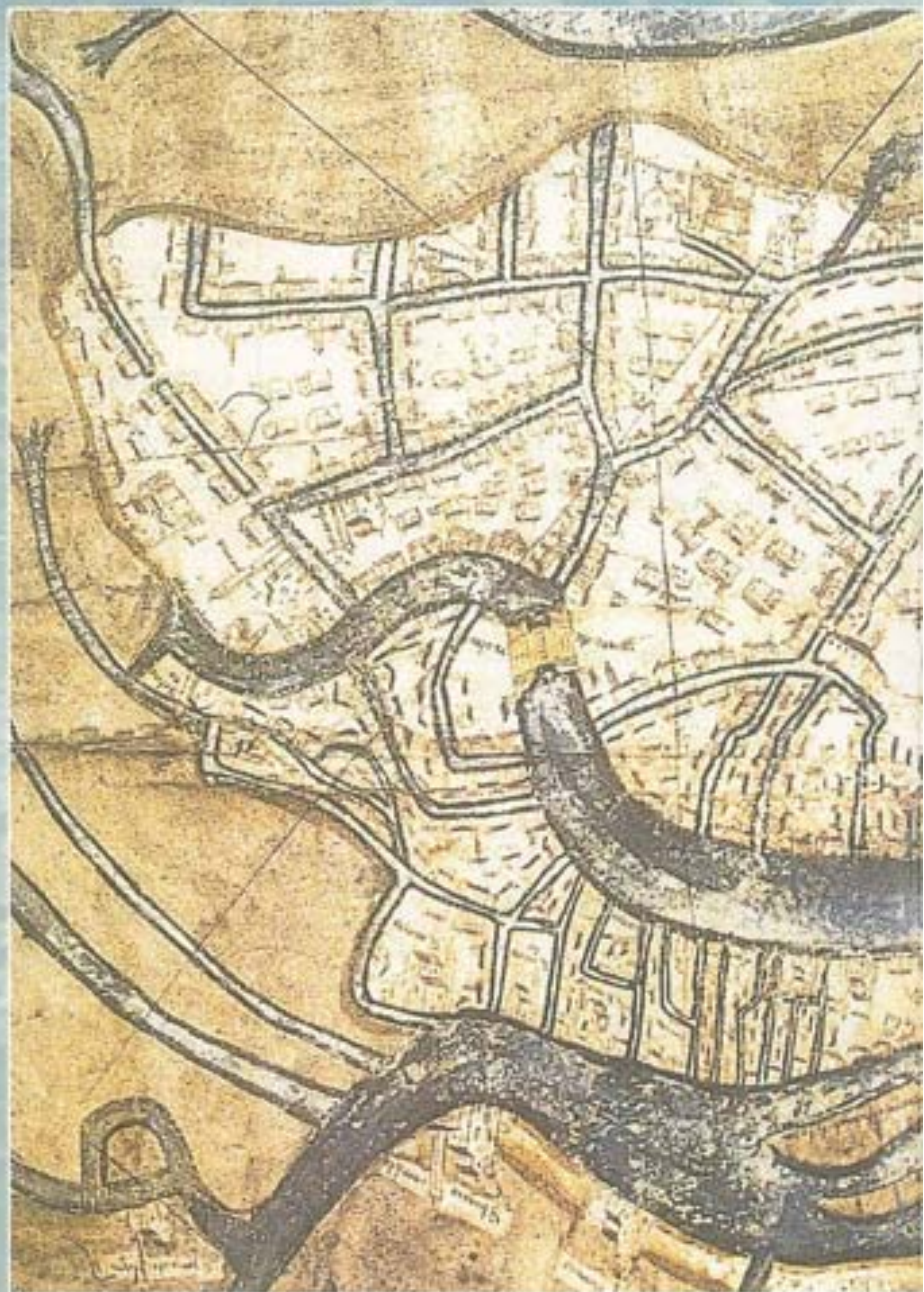
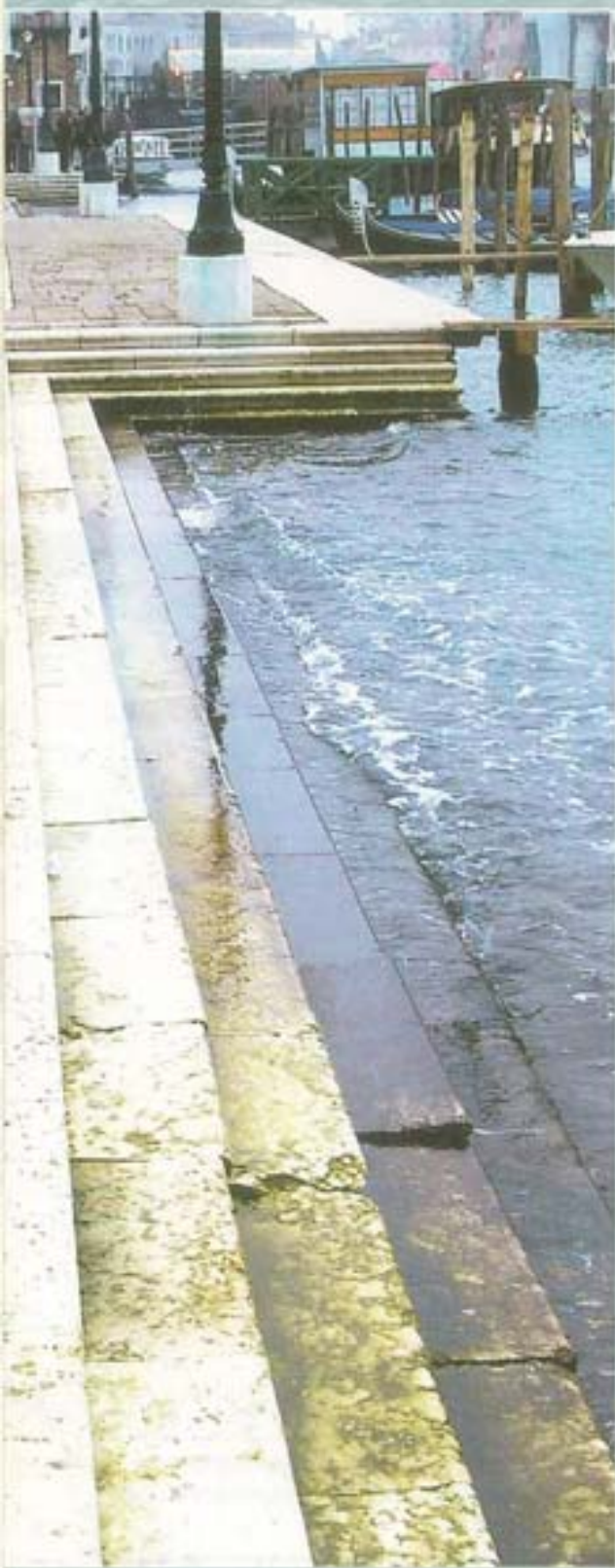
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www.mapei.com

The Mapei site contains all the information about the Group's products, its organisation in Italy and overseas, its involvement in the sector's main trade fairs and lots more.

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Maintaining the



Redeveloping the canals and banks of a stunningly beautiful city like Venice is no easy matter.

Venice is not just a very special city because of its unique artistic beauty and heritage, but also because of the peculiar structural engineering problems involved in architectural renovation and maintenance operations. The tricky undertaking of maintaining the canals was already an issue back in the days of the Venice Republic, when work had already begun on salvaging the canals despite all the tidal action. Over recent years there has been growing pressure to work on the walls along the banks, which has not just meant repairing the most obvious cases of damage and instability, but also providing suitable means of prevention, monitoring of random factors, and containing the damage they cause. These problems have required

Canals of Venice



Photo 1.
Picture of a canal during maintenance work. Note the injection pipe stems already set in place.

Photo 2.
The bank walls in Venice are made from various building materials: the photo shows the example of a brick wall.

careful planning of operations serving reinforcement, maintenance and protection purposes. Down the years intensive special maintenance work has been carried out on the banks of the Venetian canals as part of what is known as the "Integrated Canals Project" financed through special law no.139 of 1992. Excavating the canals and repairing their banks together form the main and most urgent part of an extensive special maintenance, hygiene-improvement and building programme for the city of Venice, which also involves maintenance of the bridges, rationalising sub-services and repairing the sewers. The urgency of the

programme mainly derives from the actual level of the canals, which, ever since the 1980s, has even been creating internal navigation and safety problems. Drying out the canals, required for getting rid of all of the mud, made it possible to uncover the banks and carry out systematic cleaning and maintenance operations on them. Canals actually inside the city of Venice extend over a distance of 45 kilometres and, if we add those in Murano and Burano, the figure increases to about 49, 42 of which in need of dry excavation.

Damage to the Banks

The last time proper dry maintenance

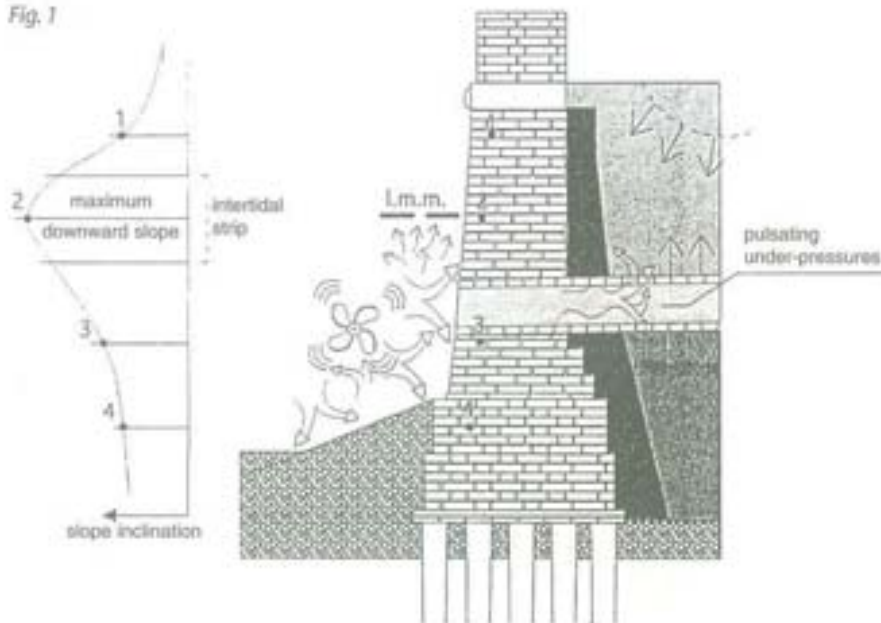
operations were carried out on the canals was in the mid-1960s, and the precarious state of the banks has clearly emerged whenever there are low tides. But only in the most serious and urgent cases have any operations been carried out to remove the mud from water in the central sections of the canals. The amount of sediment that has built up along the banks has concealed the true state of the foundations, which only becomes apparent when the canals are dry and the mud can be removed. Indeed, even though field surveys can be carried out during the planning-design phase, there are inevitably plenty of surprises in store when the foundations are uncovered, often calling for alterations to the original projects to cope with the unexpected. Damage to the banks may vary in extent, ranging from just a loss of impermeability due to grouting being washed away around cracks or cracks in the facing, a loss of constituent elements or even holes inside the structure causing parts of the walls to actually cave in. All the damage and disrepair is also due to heavy motorised nautical traffic, the ebb and flow of high and low tides, blocked drains and sewers, rising damp causing the crystallisation of salts, the quality and age of materials, and the frequency of maintenance operations.

As has already been mentioned, not all the banks show the same extent of disrepair, so the amount of repair work required also varies in relation to the actual state of the banks at the time when it is carried out. Based on the state of repair assessed after removing sediment, different salvage operations need to be carried out: from simple re-waterproofing work to the reconstruction of missing parts of the wall facing.

Mapei Operations

The delicate issue of the maintenance of banks and canals, and the kind of damage and disrepair they suffer due to the gradual wearing away of bank walls, has called for careful scheduling of operations, both when first being carried out and then later during maintenance and protection work. Unless the constant washing effect of the water, that is

Fig. 1



seeping more and more easily into the underwater walling, is effectively combated, then the banks are gradually weakened and the bearing structure suffers increasingly serious damage. Unless quick and effective action is taken, the worsening state of general



Photo 3. A dry canal. *Stabilcem*, a superfluid expanding cement binder used for filling cracks and cavities and porous gaps in rock and concrete, is injected into the canal bank. The product has here been used in the HV (high viscosity) version, specially developed for this building work.

decay will in future force the city council and private bodies to carry out more elaborate and tricky repair work. In actual fact, taking prompt action to repair the damage and decay means less invasive and intrusive work is required, calling at most for only partial demolition and reconstruction of the bank structures. Constant monitoring of the state of decay and careful attention to damage suffered by the constructions, followed by prompt remedial action prevent the damage from spreading, so that extensive tricky repair work, that might jeopardise the basic structures and be extremely costly, can be avoided. The repair work is carefully designed to ensure the walls serve their purpose, only carrying out indispensable operations and avoiding anything superfluous. However obvious it



Figure 1.
How cavities form on
the wall faces.

Figure 2.
Excavations in the
presence of water for
maintenance and
hygiene purposes.

The two figures are
taken from: I. Turlo, *Foundations and canal
beds in "Le fondazioni
degli edifici a Venezia",
Minutes from the
Conference of Venetian
Architects, Ateneo
Veneto, December
1994.*

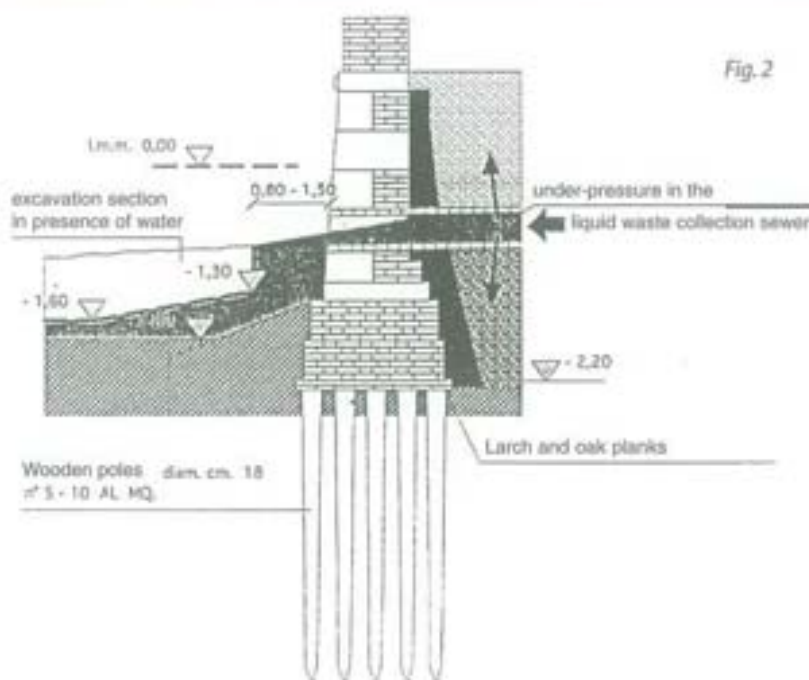


Photo 4.
The HV version of
Stabilcem is made by
incorporating additives
with microsilica-based
components improving
the properties of the
cement system and
making the paste more
cohesive, mechanically
resistant and
impermeable, as well
as making it easier to
pump the concrete.

Photo 5.
Stabilcem is injected
after sealing the grouts
on the wooden coating
with Mapegrout T60S,
a mortar resistant to
chlorides and
sulphates.

Photo 6.
A protective layer of
plaster was applied at
the foot of the
foundations using
Mapegrout T60S as a
mortar and an
electrically welded
stainless steel mesh.
The mesh was "guided"
into position to
withstand the ebb and
flow of the tides and
constant aggressive
action of the water,
and to act as plaster-
carrier reinforcement
to make it more
resistant to accidental
bumps and bangs.

might seem, this calls for special efforts by technicians, based on plenty of well-documented information about the extent of damage, missing parts and structural anomalies incurring. This data is then cross-checked and compared with in-depth knowledge about the physical nature of the construction, properties and characteristics of the materials used to make it, construction techniques, static data, structural engineering information, and how they all vary over time. Bearing these factors in hand, Mapei, which has already worked very successfully on bridges in Venice like the one over Rio Marin, suggested solutions which, when put to the test, managed to combine technological and architectural factors, using injection mortars with average resistances even in the walls along the canal banks of between 18-28 N/mm². In a setting like this, using injections to strengthen walls turned out to be easily the most effective technique, thanks also to research work carried out in Mapei laboratories allowing products to be formulated with compounds containing microsilicas, whose granules are ten times smaller than cement's. The formation of a large number of small crystals increases the properties of the paste's microstructure reducing its porosity in favour of resistance and hence durability through time, despite the action of sea water. The work was carried out using STABILCEM[®], a superfluid expanding cement binder injected into holes and cavities and filling porosity in concrete and rock. The product soon proved its versatility when used on cavities in wall faces forming due to the cavity-forming effect of salt water. A HV (high viscosity) version of STABILCEM[®] was prepared for this application by incorporating additives with micro-silica based components, which improve the cement system's properties, make

the paste more cohesive, and give it greater mechanical resistance and impermeability, as well as making it easier to pump the concrete. All this can be done by saturating the empty spaces without having to struggle to place it in the canals or neighbouring areas. To prevent such difficulties, STABILCEM[®]'s original formula has been altered to slow down the system's rheological properties, so that the viscosity can vary when pressure on the mass drops, thereby keeping the sodium and chloride's chemical resistance stable. This ensures the gaps in the



7

walls are filled while guaranteeing the injected product does not decay over time, even if subject to both mechanical and chemical stress. The product's properties produce a smooth-flowing and cohesive paste, keeping its fluid-expansive characteristics unaltered without bleeding or segregation risks. This means the muddy residue in the wall structure is useful again, due to both their beneficial retaining/interstitial-saturation action and to positive alterations to mechanical resistance and elastic modulus. After sealing the grouts in the wooden coating using MAPEGROUT T60S*,

a sulphate-resistant fibre-reinforced controlled-shrinkage mortar resistant to chlorides and sulphates, the injection holds even, as in this case, in the presence of wet environments or where water is likely to seep in.

At the foot of the foundations, from less than 70 centimetres from the average sea level to the bottom of the canal, an approximately 6 cm protective layer of MAPEGROUT T60S* was applied using stainless steel mesh (measuring 10x10 calibre 5).

The mesh had to be "guided" into position to prevent expansion as the product was setting

Photo 7.
The foundations of Arzere after renovation work carried out by injecting HV Stabilcem in the bank walls and facing the main block using Mapegrout T60S.

(chosen to withstand tidal action and the aggressive effects of water) and also to act as a grout-carrier support helping to prevent damage due to bumps and bangs.

The sheer scope of the operations involved meant it took months to complete and called for serious team work involving Mapei in the front line with its own technicians, but also Insula Spa, notably the engineer, Mr. Ivano Turlon, and the surveyor, Mr. Giuliano Molon – respectively the technical manager and project manager – for the various technical solutions required; there were also important working partnerships with various design firms represented by the engineers Luigi and Stefano Muffato, Giovanni Cocco and Daniele Rinaldo. The building firms involved in the project carried out preparatory work for making the injections and getting the concrete and cement ready for the banks, so that salvage work could be carried out on the canals at S. Stefano, S. Trovaso and Fondamenta dell'Arzere.

These important operations on Venetian canals are part of a more extensive programme of maintenance and conservation work for the whole of the city of Venice, also now involving bridge renovation and redevelopment work. For all these operations, which are already under way, Insula once again opted to work with Mapei, which developed some new systems, such as carbon fibres used for salvaging the bridges.

Generally speaking, a major project has been set in motion, which will take a long but definite time to complete and will certainly have an impact on city life.

"The products referred to in this article belong to the "Building Speciality Line". The technical charts are available from the "Mapei Global Infonet" CD and Internet site: www.mapei.com.

Mapegrout T60S: a sulphate-resistant fibre-reinforced thixotropic mortar for repairing concrete.

Stabilcem: a superfluid expanding cement binder for injection slurries, mortars and concretes. Here used in the specially developed HV (high viscosity) version.



TECHNICAL DATA

Venice canals, Italy

Work: repair and maintenance of canals and banks in the Venetian districts of S. Stefano, S. Trovaso and Fondamenta dell'Arzere.

Contractor: Insula Spa, Venice
Project and Works Management: Luigi Muffato, Sinergo Engineering from Martellago (Venice)

Building Firms: Rossi Costruzioni from Marcon (Venice), Edilcostruzioni from Camponogara (Venice) for CO.DEMAR, from Valli did Chioggia (Venice), Tiozzo Costruzioni from Mestre (Venice)

Year: 2000-2001

Mapei Products: MAPEGROUT T60S, STABILCEM

Mapei Co-ordinator: Paolo Alberti, Mauro Orlando and Pasquale Zaffaroni.



Gala Mapei 2004 - 30 settembre
Andrea Bocelli
live

PalaMalaguti
Via Gino Cervi, 2
Casalecchio di Reno
Bologna

19.30 Apertura con Inediti
21.00 Concerto di Andrea Bocelli

Temporale Bologna
sede di 1
sede di 1
Associazione AI
sede di Casalecchio di Reno
sede di Casalecchio di Reno
per l'Ente Mapei

**MAPEI: a world of
emotion and success**



An article like this is not a musical score, but that is what it would have to be to re-
evoke the magical charm of music and
bel canto. Andrea Bocelli's singing voice. Mapei
organised a concert at the PalaMalaguti in
Bologna on 30th September to celebrate the
Cersaie, and Andrea Bocelli delighted an
audience of over three-thousand, including 800
international journalists, who listened atten-
tively and with great commotion to the artist's
magical performance. An occasion not to be
missed, bearing in mind that Andrea Bocelli is
now the biggest selling classical artist in the
world. A real scholar of music who, after starting
with a pop repertoire, has been concentrating
on operatic works over recent years, mainly
Verdi and Puccini. On stage alongside an artist
of this kind of international status, but who is
always keen to engage with audiences who love
the excitement of music, even those with no
specific knowledge of it, there had to be two
equally popular presenters: Pippo Baudo and
Susanna Messaggio accompanied Bocelli throu-



ghout his lengthy performance (two hours of uninterrupted singing, so that the audience could really enjoy his melodic voice), ranging from the prelude to Carmen and "Torna a Surriento" to "E lucean le stelle" from Tosca and "Libiamo nei lieti calici" from The Traviata. Bocelli's magnificent tenor voice was accompanied by the soprano Paola Sanguinetti, making the duets from La Bohème, the Merry Widow and The Traviata even more moving and touching. Both the singing and the accompanying music, of course. The music was played by the Italian Philharmonic Orchestra (55 musicians) conducted by Maestro Marcello Rota.

An International Vision of Art and Business

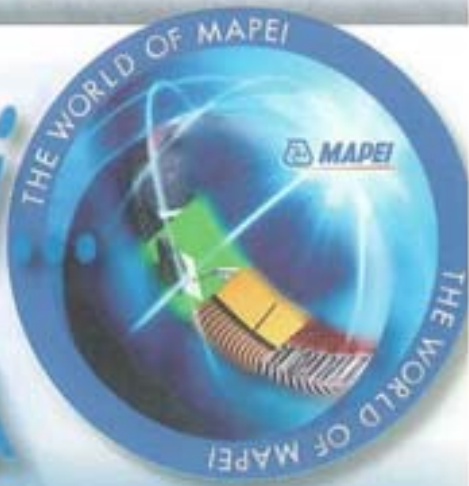
The gala evening was preceded by a elegant stand-up meal, hosted by Susanna Messaggio, who entertained the banqueters with her lively performance at the microphone. There were guests from all over the world at the Mapei concert and diner, the most important side event at the Bologna Show. The firm's international scope was underlined by the way the evening was organised overall. The decision to invite Bocelli to perform, an international artist well-known and much loved worldwide, mirrored Mapei's awareness of being an international player in the manufacturing industry and, at the same time, of being deeply involved and entrenched in the areas in which it operates, both in Italy and abroad.

The distinctly Italian charm of all the artists involved in the evening won everybody's admiration. The warmth of the artist's voice and also the friendly way in which the legendary Pippo Baudo introduced him. He remembered how shy and bashful Bocelli had been when he performed at the San Remo Song Contest, despite his background and training as an opera singer.

The song he performed was an instant hit and now an authentic landmark in Italian popular music. And the very first notes of "Partirò", which drew the concert to a close, immediately touched the hearts of all the Mapei guests. The notes, melodic tune, voice and finally the emotional applause and standing ovation for a great artist and a great evening.



The world of Mapei Mapei in the world



This international event was a prestigious showcase for Mapei and its latest products. Ultracolor Plus, Tixobond White, Mapegum Wps, Mapelastisc Smart were all on show for the first time in Bologna.



The 22nd edition of Cersaie, the international ceramics show for the building and bathroom furnishing industries held at the Bologna Trade Fair from 28th September-3rd October, was a truly memorable event.

Once again this year, attention was focused on the architectural and stylistic qualities of ceramics to underline the key role played by people responsible for influencing collective thought in terms of building and home designs: architects, designers, artists.

The exhibition laid on displays highlighting how art and architecture come together through ceramics. Ceramics as a striking trademark for such famous firms and figures as Renzo Piano, Atelier Mendini, Kollhoff und Timmermann, Foster and Partners etc.

But Cersaie did not forget it was not just an exhibition but also a cutting-edge commercial event, where business deals get closed and the foundations are laid for the very near future. The results this year rewarded the organisation for

its efforts and confirmed that the entire sector is going through something of a revival.

Thanks to the opening of two new overlapping pavilions nos. 16 and 18, the overall exhibition area was extended to 156,000 square metres, providing room for 1,057 firms, including 208 foreign companies from 35 different nations. The number of visitors also increased to almost 100,000.

Out of a total of 98,592 visitors (+1.6% compared to last year), the number of foreigners was quite remarkable: 25,706 visitors, 4.9% more than 2003. This latter figure actually sets two new records for the event: the highest total of visitors, both overall and in terms of the foreign contingent (now counting for 26.1% of the overall figure). Mapei catered for the distinctly international flavour of the show in real style by revamping the image of its famous big exhibition pavilion in line with the company's new philosophy this year summed by the slogan "The World of Mapei",



Trade fairs



referring to its worldwide successes and its ambitious plans not only to keep up but actually to improve its position as a privileged player with industrial designers, technicians, retailers, journalists and experts in the sector from all over the world. The middle of the front of the stand was furnished with a big sky-blue globe containing the icons designed to represent the four traditional lines of Mapei products (ceramics and stone materials – resilient materials, textiles and wood – building products – additives for concrete), so that it now visually symbolises this internationalism, too. A new symbol open to two readings: the big family of Mapei products and the family of all its customers and installers, embraced in one big world, also epitomising the group's international vocation and business operations. The circular nature of the new symbol has been further represented by the stand's interior furnishing design. There is a huge multi-media tower inside the entrance lobby composed of five large video LCDs arranged in a semi-circle showing film clips, writing and pictures of Mapei business operations worldwide.

Amongst those on display on large photographic panels backed up by explanatory technical charts placed inside the stand, it seems only right to mention the new McLaren Technological Centre (UK), the Berlaymont Building (home of the European Commission in Brussels), and San Pio da Pietralcina Church in San Giovanni Rotondo (Foggia).

On the top floor, furnished for meeting customers and holding private meetings, a MAPEI POINT has been set up, a special space that retailers can devote entirely to Mapei products in their shops (we will be talking at length about this project in forthcoming issues of this magazine).

A huge planisphere of the world showed where the group operates over 5 continents through its 40 factories and 7 research laboratories.

These laboratories have developed the four new products on display at the Cersaie Show this year: ULTRACOLOR PLUS, TIXOBOND WHITE, MAPEGUM WPS, MAPELASTIC SMART.





ULTRACOLOR PLUS (the new formula for the excellent ULTRA-COLOR product) is a brand-new version of the mortar for grouting joints and Mapei's most cutting-edge solution to the severe problems associated with grouting mortars for damp environments (bathrooms, Turkish baths, swimming pools etc.) due to the formation of unsightly and unhealthy mould. This is a radical remedy for producing grouting with no aesthetic defects or mould that turns out to be indestructible down the years. Ultracolor Plus is available in Mapei's full range of 26 grouting colours and has CG2 certification according to EN 13888 standards for grouting mortars.

This edition of the Cersaie Show also included the presentation of an updated CD showing the latest products and new range of grouting colours. This is an indispensable interactive tool allowing various settings to be visualised in order to decide which of the 26 colours available meets the user's requirements.



Mapei Waterproofers

Mapelastic

Mapelastic Smart

Mapegum WPS

MAPEI

TIXOBOND WHITE is a new super-white cement-based adhesive with no vertical slip and extended open time for installing ceramic coatings. Thanks to its creamy texture, TIXOBOND WHITE is easy to trowel-on and its whiteness index means none of those unsightly marks and colour differences appear when part of the adhesive flows into the grouting joints during application.

A large section of the Mapei stand was devoted solely to waterproofing; alongside MAPELASTIC water-resistant cement-based mortar, the leading waterproofing product on the market for some time now, another two new products from this range were also launched at the show.

MAGEGUM WPS is a new fast-setting ready-to-use flexible liquid membrane for waterproofing the inside walls and floors of bathrooms, kitchens and work tops ready for installing ceramic, natural stone and mosaic tiles. MAPEGUM WPS has a thixotropic texture, so it can easily be applied to horizontal, sloping and vertical surfaces, and is flexible enough to withstand the usual dilatation and shrinkage of the substrate



due to sudden changes in temperature or vibrations.

MAPELASTIC SMART is a highly flexible two-component cement-based mortar for waterproofing concrete surfaces like foundations, walls, embankments, balconies, terraces, bathrooms, swimming pools, and all tricky surfaces in general.

Mixing the two components together creates a paste with a plastic-style texture that can easily be applied with either a brush or roller.

MAPELASTIC SMART remains flexible in all environmental conditions and settings and is totally waterproof up to a positive pressure rating of 1.5 atmospheres and resistant to the aggressive substances found in the air, such as carbon dioxide, sulphur and sulphuric dioxide and soluble salts like the chlorides and sulphates found in salt water and soils. These properties mean that structures protected with MAPELASTIC SMART are hardwearing even if installed in particularly harsh climates, coastal areas full of salt or even industrial areas, where the air is particularly polluted.

Mapei's international status was embodied in the stand in a less striking but no less important way: a whole section has been devoted to the EC regulations to be applied on all packages of adhesives for ceramics and the stamp certifying conformity to EN 13813 standards for screeds. The huge Mapei exhibition space at the Cersaie Show combined more concrete considerations with the boldness of a company capable of grasping the opportunities offered by globalisation, not just in terms of opening up new markets but also, and above all, in providing the chance for everybody to see and benefit from the results achieved by a company that has made research and development its real trump cards.



International Press Conference

Mapei's business philosophy and the attention it has always focused on international markets emerged once again here at this edition of the Cersaie Show in its contribution to an international press conference held on 29th September in the afternoon.

The press conference, organised by the ICE (National Institute for Foreign Trade) in conjunction with Assopiastrelle, was attended by over 200 journalists from all over the world.

All the economic figures for the sector outlined at the conference and referring to the first quarter of 2004 are positive, and a real feeling of optimism could be felt in all the speeches made. Franco Vantaggi, the Director of Assopiastrelle, once again not only underlined the quality of Italian tiles around the world, but also the fact that they are currently the highest selling of all at the moment. After problems over recent years, the market situation has really improved: production has increased overall by +1.23% in terms of square metres and +4.4% in terms of value. Average prices have reached 9.36 Euro/sq.m., corresponding to +3.14%. Sergio Sassi, Chairman of Assopiastrelle, emphasised that the economic revival in Europe has also produced a boom in France (+6.25%), Scandinavian countries (+15.2% in Denmark and +19.7% in Finland) and the UK (+8.11%). There has also been real growth in eastern Europe (+4.21% in Russia)





except in Poland (-6.22%), but there has been a slowing down in sales in Australasia (-4.6%). An important market like the United States has only grown by 5.45%, limited growth connected with problems with the exchange rate between the Dollar and Euro and a likely slowing down in the boom period for new buildings and restructuring work. In any case, Italy is still the market leader on the other side of the Atlantic and, as Enzo Mularoni, the Vice-President for Assopiastrelle's promotional operations, pointed out, Italian tiles are with us all the time and all over the place. Mr. Mularoni also underlined how versatile the product is, with over fifty



The "Assopiastrelle Distributors Award" and "Ceramic Tiles of Italy Journalism Award" awards were presented at the International Press Conference. The photo shows the prize-winners together with some of the speakers. From left: Giorgio Squinzi (Mapei SpA), Laura La Corte (Ice), Sven Gundlach (award-winning journalist), Hans Heinrich Tintelnot (Wilhelm Linnenbecker GmbH & Co), Arnaud Rouchy (Ets Rouchy Sas), Angelo Garbi (Garbi Srl), Enzo Mularoni (Assopiastrelle), Sergio Sassi (Assopiastrelle) and Russell J. Wild (Studio Ceramics Ltd.).

different uses and purposes. Giorgio Squinzi's comments, the Sole Director of the Mapei Group, were also in line with this view of the market, as he emphasised the importance of research and took the opportunity provided by the international press conference to present ULTRACOLOR PLUS. Finally, Laura Corti, a member of the ICE's management team for Products and Consumer Behaviour, confirmed its full support for promoting Italian tiles worldwide and also presented a project devised in conjunction with Assopiastrelle for an all-glass house in which all the interior components are visible. At the end of the press conference there was the much-awaited prize-giving ceremony for the Assopiastrelle Distributors Awards and 2004 Journalists' Award for Italian Ceramic Tiles. The former went to four distributors: Wilhelm Linnenbecker GmbH & Co. KG (Germany); Studio Ceramics Ltd., (UK); ETS Rouchy SaS (France), and Garbi Rrl, (Italy).

The prize awarded to Wilhelm Linnenbecker (a customer of the Sopro firm, which was taken over by Mapei in early 2002) was recognition for the important work carried out by a group set up way back in 1928 and now employing 780 staff and boasting an overall turnover of 200 million Euros in 2003, 50% from sales of ceramic tiles.

Studio Ceramics was founded in 1989 and now has an annual turnover of 2.2 million Euros, almost entirely due to selling Italian ceramic tiles, a product that accounts for over half the turnover of ETS Rouchy (set up in 1972), equal to over 32 million Euros. Finally Garbi (Italy, 1969), 80% of whose turnover of 3.1 million Euros comes from selling ceramic tiles.

Finally, the yearly journalists' prize for the best international article about the trade fair and the sector in general went to Sven Gundlach from the Russian magazine

"Material" for an incredibly varied photo gallery showing different living environments using ceramic tiles and bathroom furnishing and fittings. The next Cersaie event involving Mapei and its customers will be the 23rd edition to be held from Tuesday 27th September-Saturday 1st October 2005.

N.B.: the forthcoming edition will be one day shorter. It will close on Saturday instead of Sunday.

Technical Manual for installing ceramic tiles

ANSE-CNA has published a handbook on installing ceramic tiles in conjunction with Mapei and the Centro Ceramico di Bologna. The handbook was written by Professor Giorgio Timellini, who teaches the Sciences of Technology at Bologna University.

This handbook fills a gap in Italy. In actual fact, despite being one of the biggest manufacturers and consumers of ceramic tiles, Italy still does not have its own regulations and standards governing tiling. This technical handbook outlines some general rules and specific provisions aimed at setting the quality standards for ceramic tiles. It actually points out the main rules to be enforced when designing and installing tiles.

Mapei has got involved in this project as a technical consultant on products for installing ceramics.



ULTRACOLOR PLUS

The latest mortar for grouting joints which prevents mould from forming in damp environments.



ULTRACOLOR PLUS is the latest product to be presented by Mapei at the Cersaie Show and is the ultimate solution for grouting joints without aesthetic defects, such as uneven colour and efflorescence. It is very easy to clean and surface mould never forms.

The result of Mapei's cutting-edge research and a development on the excellent ULTRACOLOR, technically speaking ULTRACOLOR PLUS is a high-performance mortar made of a mixture of special hydraulic binders, carefully sized inert granules, special polymers, waterproof additives, organic molecules, and pigments. This new anti-efflorescence product can be used for grouting 2-20 mm joints. It is fast-drying, waterproof and mould-resistant thanks to BioBlock technology and features a special DropEffect. It can be used for grouting both interior and exterior ceramic floors and coatings of all types (double-fired, single-fired, ceramic tiles, clinker etc.), brick, stone (natural stone, marble, granite, agglomerates etc.), glass mosaics and marble.

This is the ideal product for grouting floors and coatings in places with heavy foot-traffic (airports, shopping malls, restaurants, bars etc.). It is also indispensable for grouting floors and coatings on outside facades, balconies, terraces and swimming pools.

ULTRACOLOR PLUS technology, based on a special self-hydrating hydraulic binder guaranteeing perfect colour uniformity, is further enhanced in ULTRACOLOR PLUS by the combined use of two new technological developments from Mapei's Research & Development laboratories called Drop Effect and BioBlock.

BioBlock technology is composed of special organic molecules which distribute evenly over the micro-structure of the tile joint to block the micro-organisms responsible for the onset of mould at root level.

DropEffect technology works synergically with BioBlock by reducing surface water absorption through its silicone molecules:

- completely blocks mould from forming;
- reduces the dirtiness of tile joint;
- improves ULTRACOLOR's already excellent properties in preventing dirty-white efflorescence from forming;
- completely eliminates colour difference (shading effect) by exalting the splendid aesthetic qualities of tile joints carried out using ULTRACOLOR.

In summary, when mixed with water in the right dosage and used properly, ULTRACOLOR PLUS can be used for grouting uniform coloured, stainless, UV ray-resistant waterproof joints with the DropEffect. It is quick drying and easy to clean and finish ready to be used on floors and coatings.

Its smooth, compact surface only absorbs a small amount of water and is hence easy to clean, and highly scratchproof which makes it virtually shrinkproof and prevents it from cracking during freezing-defrosting cycles.

ULTRACOLOR PLUS is available in the full range of 26 Mapei coloured joints and is CG2 certified based on European standard EN 13888 for grouting mortars.



Mapei Waterprooferers

Mapelastic®



Application
by trowel



Application
by spraying

Two-component flexible cementitious mortar for waterproofing concrete, balconies, terraces, bathrooms and swimming pools

- It is water-resistant
- It is a barrier against aggressive substances
- It is elastic
- It has long-term durability
- It may be used for a wide range of applications
- It may be tiled onto
- It may be painted with products from the Elastocolor system



Mapelastic® Smart



Application
by brush



Application
by roller

Two component, high flexibility cementitious membrane for waterproofing foundations, retaining walls, balconies, terraces, bathrooms and swimming pools

- It dries more quickly
- It may easily be sponge finished
- It is more elastic
- It may be painted with products from the Elastocolor system
- It is suitable for waterproofing irregular shapes
- It may be tiled onto



Mapegum® WPS



Application
by brush



Application
by roller

Quick-drying, flexible liquid membrane for waterproofing internal walls and floors in bathrooms, showers, kitchens and worktops before laying ceramic tiles, natural stone and mosaic

- It is quicker
- It is more elastic
- It is more resistant to alkaline water
- It is certified by various European Institutes
- It may be applied on all common substrates used in the building industry



MAPEI

ADHESIVES - SEALANTS - CHEMICAL PRODUCTS FOR BUILDING





Return to SPIELBERG

This jailhouse-fortress has now been restored to its former glory as a Medieval castle. The renovation work involved the entire east wing, that now looks as stunning as it used to and is open to the public.

"We reach our destination on 10th April. The city of Brünn is the capital of Moravia and Slesia (...) Near the walls to the west there is a small hill and terrible Spielberg Rock, once the home of the lords of Moravia and now the toughest jailhouse in the Austrian monarchy. It was a well-guarded town, but the French bombarded and captured it during the famous Battle of Austerlitz (the village of Austerlitz is close by). This time there was no redevelopment of the fortress, just the rebuilding of part of the crumbling walls. This high-security and extremely tough prison now holds about three-hundred inmates, mainly thieves and murders."

This is how Silvio Pellico described Spielberg Fortress (which used to be a jailhouse back



*Photo 1.
Spielberg Castle in
Brno in the Czech
Republic. Once the
home of the lords of
Moravia, it has been
converted into a
jailhouse under the
Hapsburg dynasty.*

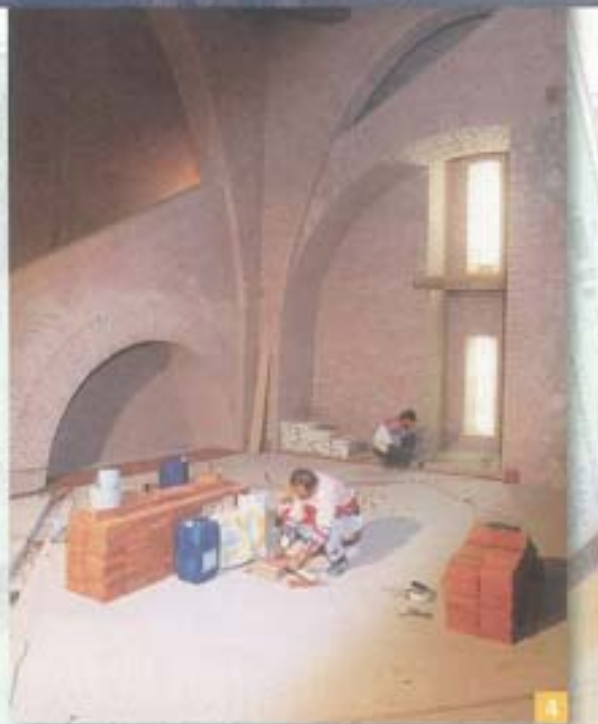
*Photo 2.
The work also involved
the terraces, which
were given new
flooring. Now that the
work is finished,
Spielberg Castle looms
over the valley as
majestic and imposing
as ever.*



at the time of the Austro-Hungarian Empire and then during the Fascist Occupation) in his book "Le mie prigioni", so that it would forever be engraved in our memories and imaginations as a dark and distant place. But Spielberg Fortress has now been restored to its old status as an ancient castle (the 13th-century home of the Counts of Moravia), without ignoring some of the architectural features from when it was a jail-fortress. At the end of lengthy renovation work carried out from 1994-2000, the east wing of the castle was restored to its former state. The Baroque tower – added on to the original construction under the Hapsburg dynasty – was left as it was to testify to that dark period when it was a prison. The most recent restoration and renovation work was carried out between 1996-97. The repair work on the walls was partly affected by finds made during restoration. Bits of valuable Medieval plaster-work (Gothic finish) on the walls of the Royal Chapel

underwent chemical analysis. This allowed new formula for historical buildings to be developed to copy the original plaster; these products, belonging to the Mapei-Antique range, are outstanding for their special physical-mechanical characteristics, just like those of the original materials. The same care has also been taken over the floors in the various rooms, striving wherever possible to restore the original floors or, alternatively, to use materials designed to recreate the same period atmosphere. The Royal Chapel floors are made of glazed ceramic stone and handmade flagstones. All the other areas are made of non-glazed flagstones. The flooring of the tower terrace, in contrast, is a combination of granite and brick flagstones. All the other areas are paved with non-glazed flagstones.

Work carried out using Mapei products
Mapei worked on the project right from the start. The initial work on rebuilding the rooms



and courtyard was performed under the supervision of workers from the Monument Authority. The ceiling was immediately reinforced with a steel-fibre structure. This had to be done due to the notable weight of the vaults made of 12-15 cm high sandstones. Products from the Mape-Antique range were used for the walling finish: MAPE-ANTIQUE FC*, clear-coloured cement-free fine mortar for dehumidifying mortars, MAPE-ANTIQUE LC*, cement-free binder for light-coloured dehumidifying mortars, and MAPE-ANTIQUE MC*, pre-packed cement-free light-coloured dehumidifying mortar. All products from the Mape-Antique range may be used on walls of historical interest because they contain no cement. It is imperative to combat damage due to rising damp when working on old buildings: macro-porous Mape-antique mortars are highly effective at dehumidifying.

The work was also aimed, where possible, at conserving the building and restoring it to its original state.

Mapei products have served this purpose by reproducing the original finish.

The floors, too, are designed to recreate the old atmosphere that reigned for centuries beneath the ancient castle vaults.

Firstly, the original red bricks were removed and then put back in place. The substrate was prepared using PRIMER G*, synthetic resin based primer in water dispersion. All the stone and brick flagstones were installed using KERAFLOR*, cement-based powder adhesive ideal for using with ceramic and strip tiles with high lugs and ribs, large tiles, terracotta and natural stone. KERAFLOR* can be laid on irregular substrates with beds of up to 15 mm without preliminary levelling. KERAFLOR* is mixed with ISOLASTIC* additive in a 2:5 dose to obtain an elastic adhesive.

ULTRACOLOR*, fast setting and drying grout, was used for grouting the joints, because it does not produce efflorescence. This is vital when working on old buildings, in underground locations, or any places where the humidity is high. MAPESIL AC*, solvent-free acetic-crosslinking mildew-resistant silicone sealant, was used for the expansion joints.

The east wing was completed on 15th November 2000, and the opening ceremony took place on the 24th of that month.

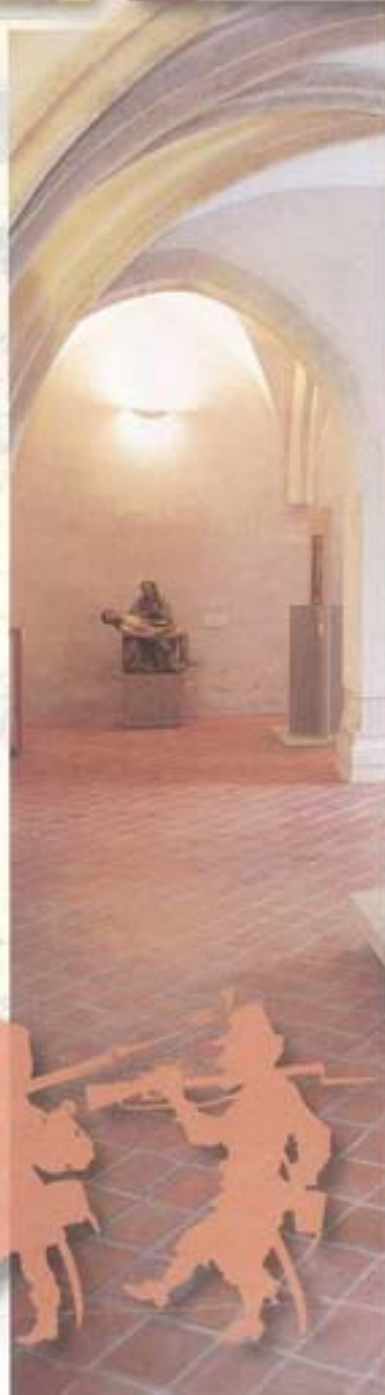
Since then, the doors of the "toughest life-imprisonment jail in the Austrian monarchy", converted into a museum, welcome in hoards of keen and curious visitors, all very happy that they can go home when the sun sets.

Photo 3.
After reinforcing the ceilings, the plasterwork was restored using products from the Mapei-Antique range, making it possible to recreate the old finish.

Photos 4 and 5.
The floors were laid using Kerafloor adhesive mixed with Isolastic flexible latex additive, installed over the substrate prepared using Primer G.

Photo 6.
An inside room: the flooring and plasterwork are now finished. All the products used have been carefully selected to faithfully recreate the original state.

Photo 7.
One of the castle floors after work has been completed. After restoration, completely revamping the overall image, the old jailhouse has been converted into a museum.





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*The products referred to in this article belong to the "Products for Ceramic Tiles and Stone Materials" and "Building Speciality Line" ranges. The technical charts are contained on the "Mapei Global Infonet" CD and from the web site:

www.mapei.com.

The Mapei grouts and adhesives conform to EN 12004 and EN 13888 standards.

Primer G: synthetic resin based primer in water dispersion.

Kerafloor (C1 mixed with Isolastic it turns into **C2**): cement-based powder adhesive for ceramic tiles (adhesive thicknesses of up to 15 mm).

Isolastic: flexible latex additive for mixing with Kerabond and Kerafloor (adhesive thickness of up to, respectively, 5 and 15 mm).

Mapesil AC, solvent-free acetic-crosslinking mildew-resistant silicone sealant, available in 26 colours and transparent.

Ultracolor (CG2): fast setting and drying grout, used for grouting joints from 2-20 mm, available in 26 colours; does not produce efflorescence.

Mape-Antique FC: clear-coloured cement-free fine mortar for dehumidifying mortars on stone, brick and tuff masonry.

Mape-Antique LC: cement-free binder for light-coloured dehumidifying mortars, ideal for repairing damp stone, brick and tuff masonry.

Mape-Antique MC: pre-packed cement-free light-coloured dehumidifying mortar for repairing damp stone, brick and tuff masonry.



TECHNICAL DATA

Spielberg Castle, Brno, Czech Republic

Work: repairing the plaster-work on the walling and resurfacing the floors in the inside rooms, courtyard and terrace.

Project and Works Management: Brno City Council

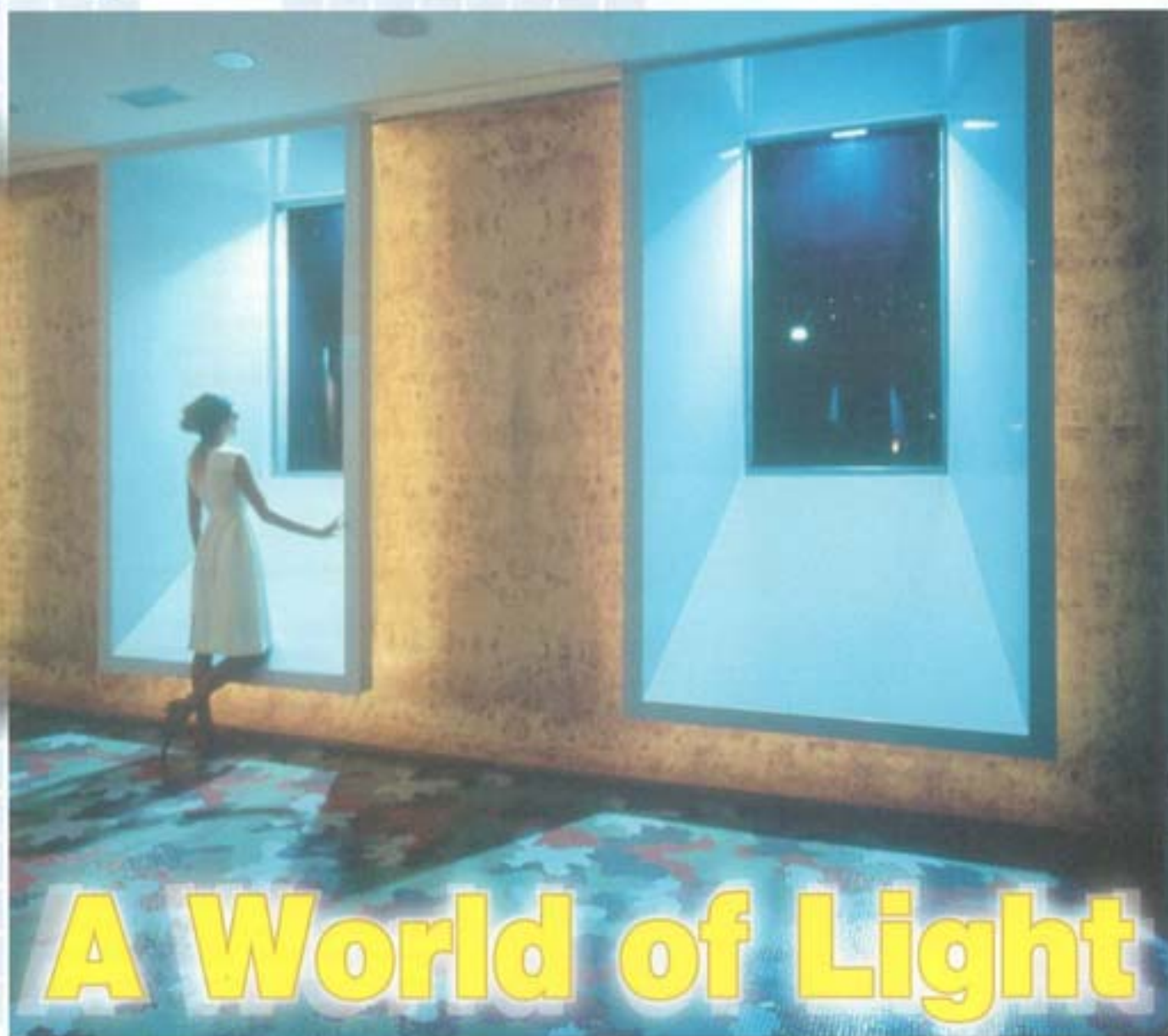
Contractor: Stavební Firma Tocháček s.r.o., Brno

Year: 1997-2000

Surface Repaired: 2,000 m² (using MAPEI-ANTIQUE LC), 3,000 m² (MAPEI-ANTIQUE MC) 4,000 m² (using floor installation products)

Materials Installed: glazed and unglazed handmade flagstones

Mapei Products: MAPEI-ANTIQUE FC, MAPEI-ANTIQUE LC, MAPEI-ANTIQUE MC, PRIMER, KERAFLOR+ISOLASTIC, MAPESIL AC, ULTRACOLOR.



The Bisazza Space in downtown Milan calls to mind Malaparte House in Capri. The magnificent mosaics were laid using Mapei products.

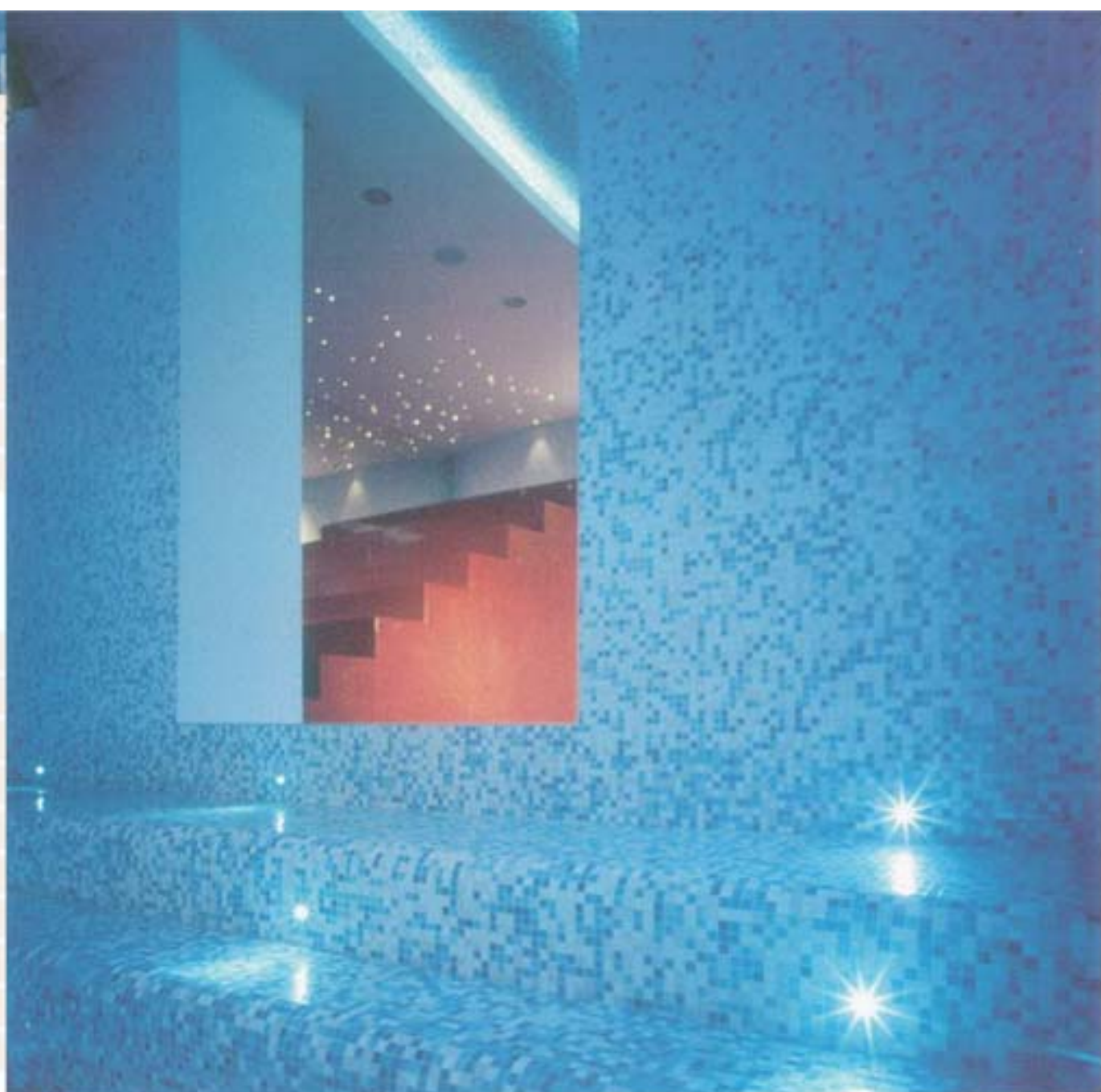
The partnership between Bisazza and Mapei resulted in the creation of a haven of colour and light in the rather dark and austere setting of Milan's old buildings. The Bisazza Space, inspired by Malaparte House in Capri (Curzio Malaparte's summer home), is a perfect combination of art and technology. Designed to be a company showroom and place for hosting cultural events, the space has gradually been enlivened by new events devoted to the arts, architecture, fashion and design, such as the "Sandro Chia - Divano a mare" exhibition that opened on 5th June. This exhibition brings together some previously unseen works by an artist who has been working with Bisazza for years, designing mosaics on public and private commissions, furniture articles and preparatory sketches featuring marine designs. Amongst the water-inspired objects in the Bisazza Space in Milan, we can admire the portrait of a man about to dive into a swimming pool, as well as the "Sea Sofa" from which the exhibition takes its name. The "sofa" serves a dual purpose: as a furnishing accessory made of a lucid fabric and as a sculpture coated with glass mosaic designed by Bisazza.



BISAZZA



Glass materials cover the entire surrounding environment designed by the architect Fabio Novembre in conjunction with Sandro Chia: an intricate structure, open on several sides to let light into the small pool and over the portrait of the diver. The coverings were installed using Mapei products*, as with lots of other art projects designed in Italy and overseas, such as museums, underground railway lines, prestigious old buildings,



hotels and restaurants.

Some of the building work used Mapei products available from any retailer (as in the case of the showroom); in others – whose installation was followed directly by Bisazza – the products used were custom-made by Mapei specially for this famous company at the cutting-edge in the manufacturing of glass mosaics for floors and coatings.



The Bisazza Space in Milan is part of a company project also extending abroad that began in 1998 through the creation of the first showroom in New York designed by Alessandro Mendini. Its first brand shop opened in Barcelona in 2001 in a famous international design centre; the project was the work of Fabio Novembre, who also designed the Bisazza Spaces in Berlin and New York that opened recently (September 2003).

"The products referred to in this article belong to the "Products for Ceramic Tiles and Stone Materials". The technical charts are contained on the "Mapei Global Infonet" CD and from the web site: www.mapei.com. The Mapei grouts and adhesives conform to EN 12004 and EN 13888 standards.

ULTRAMASTIC III (D2TE): ready-to-use paste adhesive for the installation of ceramic tiles on walls and floors (adhesive thicknesses of up to 5 mm).

PRIMER G: synthetic resin based primer in water dispersion.

GRANIRAPID (C2F): two-component adhesive system with rapid setting and hydration for fixing ceramic tiles, natural and artificial stone (adhesive thicknesses of up to 10 mm).

ADESILEX P10 (C2TE): cement based white adhesive with good initial adhesion strength and no vertical slip, for glass mosaic, ceramic and marble tile coverings.

ISOLASTIC: flexible latex additive for mixing with Kerabond and Kerafloor (adhesive thicknesses of 5 and 15 mm respectively).

FUGOLASTIC: liquid polymeric additive for Keracolor FF and GG.

KERABOND (C1; C2 if mixed with Isolastic): cement based powder adhesive for ceramic tiles (for adhesive thicknesses of up to 5 mm).

KERALASTIC T (R2T): two-component polyurethane adhesive for ceramic tiles and stone materials, slip-proof.

KERAFLEX (C2TE): cement based tight-bonding adhesive with fair deformability and no vertical slip, ideal for ceramic tiles and stone materials.

ULTRACOLOR (CG2): fast-setting/drying mortar for sealing grouts of 2-20 mm, available in 26 colours, does not cause efflorescence.

KERAPOXY (RG): two-component acid-resistant epoxy grout for joints of at least 2mm in width. Available in 26 colours.

MAPELASTIC: Two-component flexible cement mortar for waterproofing and waterproof bondings of swimming pools and balconies.



TECHNICAL DATA

Bisazza Space, via Senato 2, Milan - Italy

Work: installation of floors and coatings

Owner: Bisazza S.p.A.

Designer: Fabio Novembre

Project assistants: Lorenzo de Nicola, Carlo Formisano, Ramon Karges, Giuseppina Flor

Project dates: January - April 2002

Completion of work: 11th April 2002

Surface: 170 m²

Contractor: E.Pro.Services.Sc.ArI

Supplier: F1 S.r.l.

Swimming pool structure engineered by: Pierachille Barzaghi

Swimming pool: Germa S.r.l.

Floor coverings: opus romano and mosaic made of Bisazza glass

Wall: art work by Sandro Chia made of art mosaic, Bisazza glass mosaic (Vetricolor 2x2)

Ceilings: Bisazza plaster and artistic mosaic

Mapei products: ULTRAMASTIC III, PRIMER G, GRANIRAPID, ADESILEX P10, ISOLASTIC, FUGOLASTIC, KERABOND, KERALASTIC T, KERAFLEX, ULTRACOLOR, KERAPOXY, MAPELASTIC



Central Bank of Nigeria

The Central Bank of Nigeria, built in new capital Abuja, has tested out how effectively Mapei products can be installed in tricky climates.

Text and photos by Walter Mauer

Thanks to its oil production Nigeria is one of the most economically powerful states in the whole of Africa. Situated over on the west side of the continent facing the Gulf of Guinea, it is also one of the biggest (covering an area two and a half times larger

than Germany). The country went through an economic boom in the 1970s, which slowed down dramatically in the 1980s due to the slump in oil prices. The nation's main business partners were, and still are, the European union, United States, Japan and Canada,

Photo 1.
The large building holding the Central Bank of Nigeria in Abuja

Photo 2.
The impressive building construction site.

Photo 3.
Azul Montana granite was chosen for paving the floors in the hall and stairways. Natural stone was installed on the metal spiral stairway using Keralastic polyurethane adhesive.

Photo 4.
Estremoz marble installed on the floors and slabs of Verona Rosso installed on the service floors in the Executive area. In the first case, Keraquick adhesive was used and the backs of the slabs were primed with Mapeprim SP. In the second case, Adesilex P9 was used for installation purposes.





Photo 5. Azul Montana granite was chosen for the counters area and installed using Keraquick.



allowing Nigeria to hold onto its powerful economic status. Oil is the country's only economic resource and there are also plenty of industries working with imported raw materials and semi-finished products or exporting their own materials, such as a substance as rare as columbite, but also tin, lead and zinc. The flow of capital and arrival of foreign companies has resulted in the construction of new buildings all the time, especially in the capital where building projects are run and carried out by both local and overseas firms. Abuja, situated right in the heart of the country, became the nation's capital and home of the Government of a huge federation of 36 states in 1991. The decision to re-locate the capital was taken due to serious problems associated with the boom in population of the "old" capital Lagos. The city of Abuja was created "on the drawing board" in 1979 and then was actually constructed from 1986 onwards. This is why so much building work has gone on (and is still going on): buildings and infrastructures of all kinds, such as airports, bridges, roads, government buildings, hospitals, mosques, churches and hotels, have already been constructed or are waiting to be erected.

Central Bank of Nigeria

The new projects include the construction of the Central Bank of Nigeria, placed in the hands of one of the nation's most important general building contractors, Julius Berger Nigeria PLC

from Abuja, an associate of the Bilfinger Berger AG firm from Wiesbaden. The firm has been working in Nigeria for almost forty years and is reported to be able to construct big buildings (in terms of both height and volume) very quickly in compliance with European quality standards. The Central Bank of Nigeria is composed of a 76 thousand square metre main building, a 3200 square metre auditorium, a 600 square metre utility block, and a car park covering 19 thousand square metres. The bank was clad with slabs of natural stone on both the inside and outside: over 10 thousand square metres of granite were fixed mechanically onto the facades and more than 5 thousand square metres of natural stone were installed on inside floor and wall surfaces, together with lots of porcelain quarry tiles. Berger contracted the German firm Strohmann International from Hofheim-Wallau for the installation work, which in turn decided to draw on Mapei's technical expertise and experience with adhesives for installing and grouting ceramic and stone tiles on all kinds of supports in all kinds of climatic conditions, even as tough as those here in Abuja. Plenty of Mapei products were used to level the surfaces, as well as to install and grout the natural stone and ceramic floors.

Mapei's Role

After extensive consultations with Strohmann International and Bilfinger Berger in

Wiesbaden, Mapei was asked to carry out tests on the "Azul Montana" natural stone granite, "Rosso Verona" limestone and "Estremoz" Portuguese marble. The extreme climatic conditions called for the use of special materials and expert hands to install the natural stone. Local tilers were employed under the watchful eye of European "masters". Owing to the unusual building site conditions and importance of the work being carried out, the entire project was closely tracked by Mapei's chief executive for Germany, Walter Mauer, and special staff for co-ordinating all the procedures for installing Mapei products. Due to the high temperatures and extremely low humidity during the construction period, technicians only made very restricted use of fast-setting, fast-drying adhesives like KERAQUICK® or the two-component GRANIRAPID® adhesive. Due to the below par

dimensional stability of "Azul Montana" natural stone, it was decided to use KERAQUICK, an ultra-fast setting powder adhesive ideal for installations on both inside and outside floors and walls. Special precautions had to be taken during application, so the Azul Montana stone slabs and Estremoz Portuguese marble slabs were given a coat of MAPEPRIM SP® two-component primer before installation. ADESILEX P9®, a cement-based adhesive for both interior and exterior bonding of ceramic tiles even on walls thanks to the absence of any vertical slip, was used for installing the Rosso Verona limestone. ULTRACOLOR® was used for grouting to ensure a smooth coating with no surface efflorescence and rapid drying. The technicians suggested using ULTRAPLAN® self-levelling compound for the fast-setting smooth surfaces, which is also ideal for either new or existing substrates to prefer them for

*Photo 6.
The Kerabond+Isolastic adhesive system and Keracolor FF+Fugalastic grouting system were used to install the ceramic tiles in the lobbies in the main towers.*



handling heavy loads and traffic. Wall and floor surfaces affected by humidity were protected from infiltrations by applying WAPEGUM WP* flexible liquid waterproofing membrane and extra tapes and patches. KERABOND* adhesive, mixed with ISOLASTIC* flexible latex instead of water, and KERACOLOR FF* grout mixed with FUGOLASTIC* liquid additive to make the system more compact and resistant to abrasion, were used to install the porcelain quarry tiles in the atrium of the main towers. PRIMER G* was used to treat the plaster surfaces before applying KERABOND*. The natural stone slabs were installed in the same spaces using MARMOCOLOR* grout developed by the Mapei Laboratories for internal and external applications of natural stone, marble and granite on walls or floors. EPORIP* was used as a primer for rigid joints between structural elements.

MAPETEX non-woven fabric was used to provide an anti-fracture surface on the steel spiral staircase connecting the hall to the upper level. The Azul Montana granite chosen to cover the stairs was installed using KERALASTIC* polyurethane adhesive. For Mapei this was a highly testing and stimulating project carried out up to the highest building standards in a distant and extremely fascinating location.

**The products referred to in this article belong to the "Products for Ceramic Tiles and Stone Materials".*

The technical charts are contained on the "Mapei Global Infonet" CD and from the web site: www.mapei.com.

The Mapei grouts and adhesives conform to EN 12004 and EN 13888 standards.

ADESILEX P9 (C2TE): cement based adhesive with good initial adhesion strength and no vertical slip for ceramic tiles.

EPORIP: two-component epoxy adhesive for bonding new and old concrete and the monolithic sealing of cracks in screeds.

FUGOLASTIC: liquid polymeric additive for Keracolor FF and GG.

GRANIRAPID (C2F): two-component adhesive system with rapid setting and hydration for fixing ceramic tiles, natural and artificial stone (adhesive thicknesses of up to 10 mm).

ISOLASTIC: flexible latex additive for mixing with Kerabond and Kerafloor (adhesive thicknesses of 5 and 15 mm respectively).

KERABOND (C1; C2 if mixed with Isolastic): cement based powder adhesive for ceramic tiles (for adhesive thicknesses of up to 5 mm).

KERACOLOR FF (CG2): cement based grout for joints of up to 6 mm.

KERALASTIC (R2): two-component polyurethane adhesive for ceramic tiles and stone materials

KERAQUICK (C2FT): ultra-rapid setting cement based powder adhesive with fair deformability for ceramic tiles (adhesive thicknesses of up to 5 mm).

MAPEGUM WP: flexible liquid membrane for interior waterproofing.

MAPEPRIM SP: two-component solvent-free primer

MAPETEX SYSTEM: completely removable installation system for ceramic tiles and stone materials. Can be used as an anti-fracture and removable membrane.

MARMOCOLOR (CG2): Special rapid setting and drying grout for stone materials with 0-5 mm joints; does not produce efflorescence.

PRIMER G: synthetic resin based primer in water dispersion.

ULTRACOLOR (CG2): fast-setting/drying mortar for sealing grouts of 2-20 mm, available in 26 colours, does not cause efflorescence.

ULTRAPLAN: ultra-fast drying self-levelling compound for thicknesses of 1-10 mm per coat.



6

TECHNICAL DATA

Central Bank of Nigeria, Abuja, Nigeria

Works: installation of slabs of natural stone, marble and granite in various premises and outdoors.

Client: Nigerian Government

Contractor: Julius Berger AG, Nigeria

Project Manager: Mr. Tiefenbach, Ms. Wolf-Gericke, Bilfinger Berger

Project: Interstate Architects, Nigeria

Installation firm: Strohmann International, Hofheim-Wallau, Germany

Year of installation: 2001

Mapei Products: ADESILEX P9, EPORIP, FUGOLASTIC, GRANIRAPID, ISOLASTIC, KERABOND, KERACOLOR FF, KERALASTIC, KERAQUICK, MAPEGUM WP, MAPEPRIM SP, MAPETEX SYSTEM, MARMOCOLOR, PRIMER G, ULTRACOLOR, ULTRAPLAN.

Mapei Distributor: Mobau Braun

Mapei Co-ordinator: Walter Mauer – Mapei Germany

Southpoint Mall

A "European Village" in America.

Text by Diana Chiodi and photos by Carolyn Ryan, Mapei Corp.

Mapei Corp. and David Allen Co. have helped build an extremely unusual shopping mall in North Carolina, USA.

What meets the eyes when entering Southpoint Mall is something more than just the usual collection of bars, restaurants and clothes found in the average shopping mall. The architects from the Rtkl firm in Dallas, Texas, designed this shopping mall – which also extends into an outdoor walkway – along the lines of an imaginary European



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Photo 1.
One of the mall entrances.

Photo 2.
Inside Southpoint Mall.
All the floors were installed using Mapei systems.

Photo 3.
The facades of a number of the shops and restaurants are brick-faced.

Photos 4 and 5.
Fountains and statues decorate the exteriors.

Photo 6.
The shopping mall is designed like a small town.



3



village, in which each shop has its own special facade. The black chimney tops on the roof and brick-faced store fronts create the feeling of a stroll through the narrow streets of 18th century England. The shopping mall's outside walkways lead through to restaurants and other stores facing onto plenty of plazas and fountains.

The interior floors (covering an area of over 13 thousand square metres) are made of French and Portuguese limestone and German greenstone.



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6

Projects



Photo 7.
The heart of the "village", made of a covered structure, is behind the decorative fountain.

Photo 8.
Inside the Mall. Natural stone has also been used for the top-floor flooring.

The floors were laid by the David Allen Company, which is headquartered in Raleigh, North Carolina, and has branches in South Carolina, Tennessee and Virginia. With over 80 years' experience, the firm was founded in 1920 and is now regarded as being one of the most capable and reliable marble, granite, tile and terrazzo contractors in the United States.

Martin Howard, Vice President of David Allen Co., who was responsible for completing the floor installations within the tight schedule, told us that: "It was important we use installation products that would reduce our risks; the natural stone was in large pieces and we wanted assurance we would get complete coverage under each stone application."

This is why the installation firm opted for Mapei's Ultracontact®, a full-contact self-backbuttering mortar renowned for its complete coverage on large modular tiles. "It did not take long to realise that ULTRACONTACT® was just the product we were looking for," Howard went on to say. It was successfully used for all the mall's stone installations, including "Nordstrom's" marble floor.

All the indoor floor installations were carried out using Mapei systems. These systems are guaranteed to perform for the life of the installation.

This particular project also drew on other Mapei products, such as PRP 315®, a waterproofing membrane, PLANIPATCH®, a



Photos 9 and 10. Ultracontact self-backbuttering mortar, Prp 315 waterproofing membrane, Planipatch patching compound, Ultraplan self-levelling underlayment and Ultracolor grout, were all used for Nordstrom's marble floor.



Photos 11 and 12. Ceramic and porcelain tiles were used for the utilities rooms.



fast-setting cement-based polymer-modified patching compound, ULTRAPLAN*, a self-levelling fast-setting polymer-modified underlayment, ULTRACONTACT* and ULTRACOLOR*, the most colour consistent grout available on the market. These systems were also used for the installation of the ceramic and porcelain tiles

found in the utilities rooms and others areas of the mall. The Mall floor installation is based on a combination of honed and polished stones brought directly from their countries of origin. The French and Portuguese limestone were honed to resemble a cobblestone street.



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German greenstone was set alongside the honed stone to create a more striking effect. The same stone was used for all the elevated platforms at the mall intersections. This six-month project began in September 2001 and the centre officially opened on 7th March 2002. Three weeks after opening, Southpoint had already had one million visitors and it is still attracting hoards of shoppers.

TECHNICAL DATA

Southpoint Mall, Durham, North Carolina (USA)
Works: Interior and exterior floor installations and surfacing of utilities rooms.
Year of Construction: 2001-2002
Project: Rtkl, Dallas (Texas)
Contractor: David Allen Company (North Carolina)
Works Management: Martin Howard, David Allen Company
Materials installed: greenstone, ceramics, porcelain, marble, limestone
Mapei Products: PRP 315, PLANIPATCH, ULTRAPLAN, ULTRACONTACT, ULTRACOLOR
Mapei Retailer: Dohile, Raleigh (North Carolina)
Mapei Co-ordinator: Ed Alexander, Mapei Corp.

Photo 13. A combination of honed and polished stones for the inside floors.

Photo 14. German greenstone was used for the special outside setting.

**The products referred to in this article are distributed in America by Mapei Corp. (USA) and Mapei Inc. (CDN). For further information, consult the web site: www.mapei.com.*



Elastorapid

Great new product: "All-in-ONE" adhesive.

ELASTORAPID is the latest cement-based adhesive (that Mapei first presented in Cersaie, see article on page 5), which combines all the technical properties of adhesive for ceramics. It is "all-in-one", making it unique of its kind on today's market. Indeed no other adhesive can claim to have been awarded C2FTE certification in accordance with EN 12004 and EN 12002 European standards. **The former classes it as a high-performance (2), fast-setting (F) cement-based adhesive (C) with no vertical slip (T) and longer pot-life after being opened (E); according to EN 12002, it is a highly deformable adhesive belonging to class S2.**

It is a two-component, cement-based adhesive for ceramic tiles and stone. Mixing the two components (a selected silica sand-based white or grey powder and a synthetic latex rubber) produces a mortar with the following properties: low viscosity, therefore easy to work with; high thixotropicity, so it may be applied to vertical surfaces without dripping and without letting even heavy tiles slip; much longer pot-life than other fast-setting adhesives; excellent capacity to follow deformations in the substrate or tiles, bonds perfectly to all materials normally used in the

building industry. Its excellent properties make it ideal for fixing tiles of every shape and style (single-fired, double-fired, porcelain, klinker and terracotta etc.), natural stones (marbles, granites etc.) and artificial materials slightly sensitive to humidity (class B according to the Mapei dimensional stability rating), requiring the use of a quick-drying adhesive. It may be used for laying ceramic and stone floors subject to intensive foot traffic and quick repair operations when floors need to be serviced immediately (public building, motorway service stations, supermarkets, airports, pedestrian crossings), even in hot weather. Compared to other fast-setting adhesives, Elastorapid's long pot-life makes it easier to apply even in summer. This new adhesive may also be used for laying operations on deformable substrates, such as marine plywood, wooden agglomerates (provided they are sufficiently waterproof) and old wooden floors. Excellent results can also be obtained for quick laying operations and when carrying out repairs in tricky places like swimming pools,

refrigeration units in industrial plants (breweries, wine cellars, dairies etc.) or laying even large ceramic or stone tiles on facades, balconies, terraces, and sun-decks, which are subject to direct sunlight and heat gradients. It is also ideal for laying operations in places subject to high mechanical stress and vibrations (railway underpasses, underground railway platforms etc.) and on prefabricated concrete walls and concrete substrates.

During repair work, ELASTORAPID may easily be applied over old ceramic, marble-chip and marble floors etc., even when working with large tiles; it is also recommended for bonding over heated screeds.

The ELASTORAPID technical chart is available from the site: www.mapei.com.



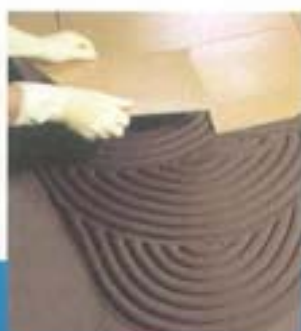
Spreading Elastorapid over a cement-based screed with a notched trowel.



Laying large porcelain tiles over a concrete façade.



Laying porcelain tiles on multi-layered marine plywood substrate.



Laying porcelain tiles over a screed waterproofed with Mapelastic.



In a tunnel heading for Genoa

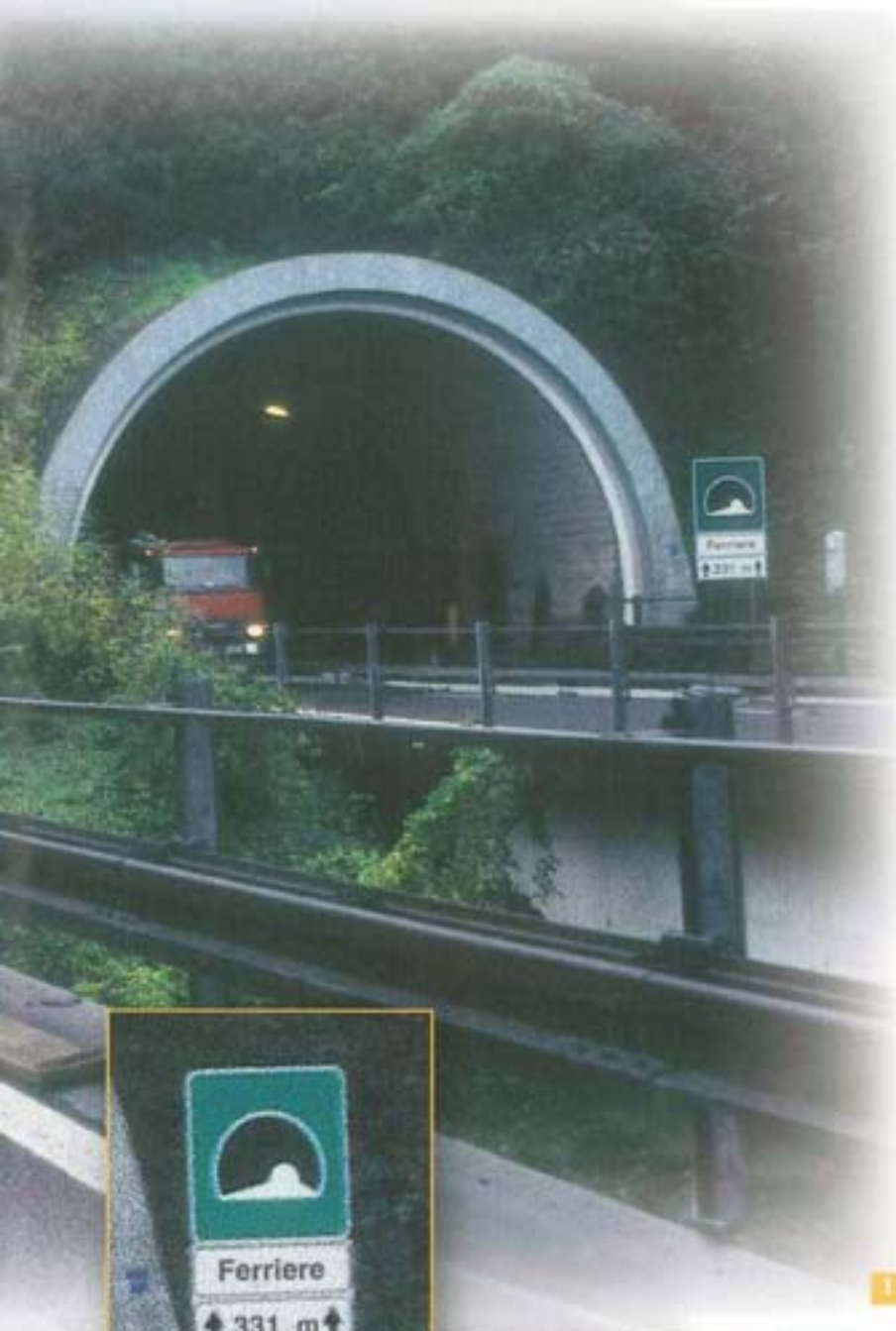
The Ferriere motorway tunnel needed to be restyled to quickly cover up signs of ageing. This was done with the help of MAPEGROUT GUNITE.

The Ferriere tunnel is situated between Sestri Levante and La Spezia and is part of a network of tunnels running along the section of A12 Motorway, which have been placed in the hands of S.A.L.T., the Società Autostrada Ligure-Toscana. The tunnel in question, which is located in the borough of Carrodano in the province of La Spezia, at a height of 231 metres above sea level, is actually 334.87 metres long. Opened in 1971, it is made of a concrete structure varying in thickness from a minimum of 70 to a maximum of 100 centimetres. The concrete is only fully reinforced along a short sections (total of 20 metres) and partly reinforced at the piers near the quoins.

Problems with the tunnel began to emerge years after it opened and are mainly due to natural wear-and-tear and the systems used during the original casting and installation of the coating used during all the different construction phases right at the beginning. Working with the S.A.L.T.'s Technical Department, Mapei technicians sent to repair the tunnel coating divided up the problems detected into two categories: static-structural and resulting from inadequate finishing coating. The former were due to both macroscopic instability phenomena involving varying degrees of damage to the structure and the more or less dilapidated state of repair of the concretes; the latter were

Photo 1.
The outside of the Ferriere Tunnel along the section of A12 motorway near Carrodano.

Photo 2.
A Mapei technician by a tunnel wall with bags of Mapegrout Gunite, a pre-mixed cement-based grout used for repairing concrete coverings in tunnels and galleries.



apparently connected with the presence of water and problems of visibility. The planned maintenance programme, which was duly carried out, aimed at improving the waterproofing and lighting and preventing any decay already under way (but hard to pinpoint) from getting any worse. Repair works were planned in two separate phases: surveying, allowing the damage to be clearly and carefully analysed, and actual maintenance operations, during which the structure was repaired and the causes of the damage were dealt with.

First Stage: surveying the problem

After removing all the lighting and radio communication systems, the first thing to be



Photo 3. Technicians busy spraying on Mapegrout Gunitite. You can clearly see the electrically welded steel mesh forming the frame for the plaster made from Mapegrout Gunitite. The product was applied using a rotary pump directly supplied by bags of dry product hydrated when emerging from the hose.



done was to spray-clean the tunnel's coating surfaces to get rid of any dirt or dust that had formed down the years (grease, smoke marks etc.), accretions formed by dripping and running water of varying intensity, and bits of loose concrete that might break off at any moment and cause accidents. After cleaning, which perfectly exposed the intrados of the basic coating, the real state of the tunnel became clear, showing gaps in the concrete, damage and cracks where the various rings are attached and near the quoins, as well as clearly indicating where the running and dripping water was located.

Second Stage: solving the problem

The usual repair operations carried out were adapted to the actual state of repair that came to light during the survey and involved: filling any gaps in the intrados coating by making low-pressure injections of cellular concrete at a density of 400 kg/m³; getting rid of, or at least notably reducing, the water seeping in by capturing the dripping water and conveying into special gutters at the sides of the tunnel by means of a drainage system made of small PVC channels with spiral plating; repairing and reinforcing the coating by placing electrically welded steel mesh (measuring 6 mm in diameter and 1500 along its square sides) all along the tunnel to form a protective coating over the plaster (with an average thickness of about 35 mm) made from MAPEGROUT GUNITE®. The intrados of the coating near the piers was treated with special white-coloured cement additives to improve visibility, after which the surface was finished off in a durable white resistant to micro-organisms and detergents and easy to maintain (to be washed at pressures of about 200 atm and temperatures of about 90/100°C).

Work carried out by Mapei

Mapei's innovative solutions for underground construction are the result of years of in-depth research and on-site tests that can cope with any kind of building requirement. Constant daily on-site experience has made it possible to continually develop and perfect work methods and update products in the Mapei research laboratories. The firm offers a wide range of solutions for underground engineering and can provide full technical support with the help of its expert technicians. Mapei's repair service can analyse problems affecting firms specialising in underground engineering through a series of on-site inspections, chemical-physical tests on materials, studies into concrete mixes, product supply and, last but not least, a technical support service while work is in progress.

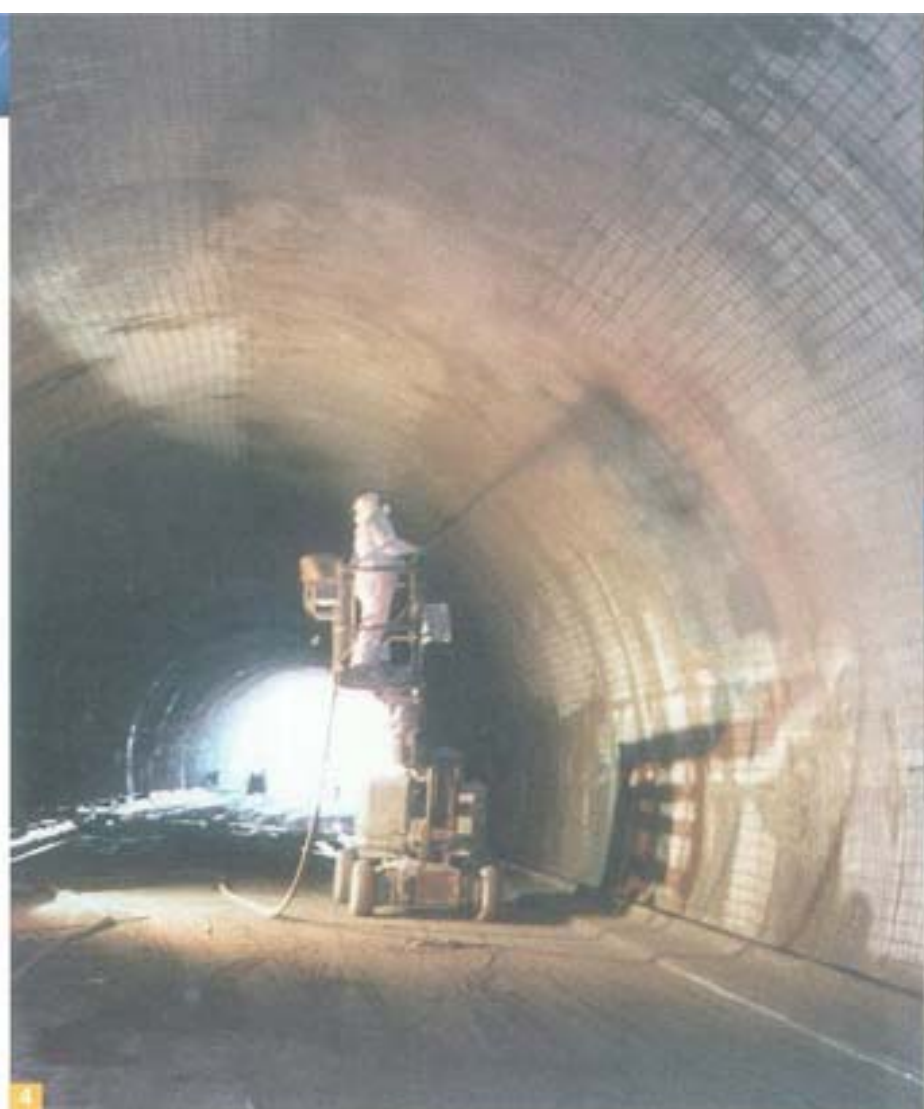


Photo 4.
The tunnel's coating surface was carefully cleaned with water before spraying on Mapegrout Gunite.

Photo 5.
The spray method, starting with dry product, allows the kind of fast work rates required when operating on roads. In this case, the work was carried out in almost record time; no more than 60 work days.

Mapei products for underground constructions have been used both for building new works and repairing old ones, as in the case of Ferriere Tunnel. To carry out this work – applying a covering surface with a nominal thickness of 35 mm, reinforced with an electrically welded mesh – Mapei suggested and supplied MAPEGROUT GUNITE® premixed grout, used for covering concrete tunnels, repairing damaged bridges, hydro works, reservoirs, and industrial structures. MAPEGROUT GUNITE®'s high mechanical properties make it ideal for structural repairs, that can be carried out up for thicknesses of up to 40 mm per coat without using fixed formworks. Composed of hydraulic binders, microsiliates, selected aggregates and special additives, the product is applied by means of a special dry mix spray machine on solid, dirt-free, rough surfaces that have been previously saturated with water. The product has undergone rigorous testing to assess and certify its high mechanical resistance to compression and flexion and its absolute waterproofness. For work on Ferriere Tunnel, MAPEGROUT GUNITE® was sprayed on using a special Ocmer rotor pump (mod. "0cm-030 compact"), fed directly with bags of

dry product, soaked as they came out of the pump.

This particular method, used quite often when working with large surfaces, allows high daily work rates: in the case of Ferriere Tunnel estimated at about 500 m³ of coated surface-a-day, split over two daily shifts. This kind of work rate is particularly appreciated and in demand for works carried out along motorways, since it limits traffic flow problems, such as having to change lanes or long queues during rush hours. This also explains why the work on Ferriere Tunnel was carried out in almost record time, no more than 80 calendar days, equal to 60 work days. For instance, the MAPEGROUT GUNITE® was applied in less than 20 days and the approximately 600 tons of product used on-site were "worked" at a rate of 30 thousand kilograms-a-day, with peaks of 2000-2500 kg/hour. MAPEGROUT GUNITE®'s strong points are not just the way it serves its purposes, but also its easiness to use, which reduced the amount of natural "waste" product (i.e. the material bouncing off the surface onto the floor), and the improved appearance of the finished surface, which is smoother than previous applications using other products.



"The product referred to in this article is from the "Underground Technology" range, which is part of the general "Building Products" range. The appropriate technical chart is contained on the "Mapei Global Infonet" Cd and from the Internet site: www.mapei.com.

Mapegrout Gunite: single-component premixed non-accelerated cement-based grout applied using a dry spray to repair concrete.



TECHNICAL DATA

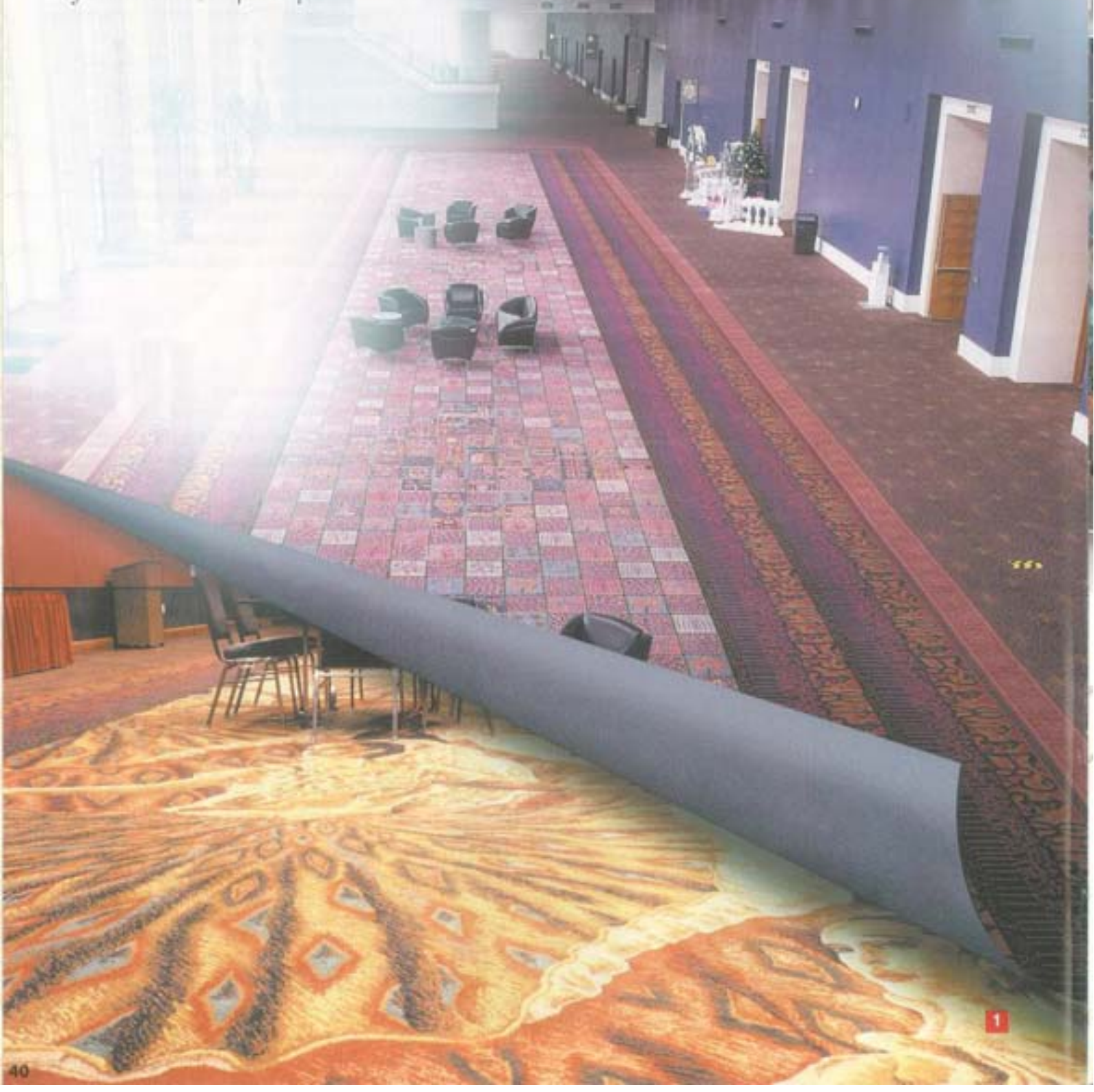
Ferriere Tunnel, north lane, A12 motorway, Genoa - Italy
Opened: 1971
Repaired: 2000
Work: repairs to the surface of the tunnel coating
Client: S.A.L.T. Società Autostrada Ligure-Toscana
Project: S.A.L.T. Technical department
Works Management: S.A.L.T. Technical Department
Contractor: A.B.C., Imperia
Installer: M.G.A., Liciana Nardi (MS)
Mapei Product: MAPEGROUT GUNITE
Mapei Co-ordinator: Carlo Campinoti and Enrico Grasso

TEXAN CONFERENCE CENTER



ULTRABOND ECO 220 adhesive was chosen for a striking installation in the Herry B. Gonzales Conference Center in San Antonio.

by Diana Chiodi, Mapei Corp.





At first glance it is a striking sight. It looks like a huge picture painted on the floor; in actual fact it is a highly effective installation inside the Henry B. Gonzales Conference Center in San Antonio, Texas. The picture (as can be seen in photo 1) is imprinted on the carpet and is part of a new covering which, drawing on a range of designs and elaborate art work, covers an overall area of 32,000 square metres.

The conference center had already been extended over previous years. About 34,000 square metres were added on during the first period of extension work from 1997-1999. A later phase, using Mapei products, was completed in Autumn 2001. The project was developed in the wake of an economic boom in the city of San Antonio, as employment figures shot up by 55,000 in just five years.

The local authorities therefore decided to take this opportunity to make the city more competitive, furnishing it with a new conference center and at the same time rewarding the community by creating even better job prospects.

Michael Schanzer, president and founder of Argosy Floor Covering Inc., told us how important it had been to opt for Mapei products. As Mr. Schanzer said: "I knew that I would need a large amount of adhesive, so I was not going to leave it to chance when it came to choosing the right product." He also went on to point out that: "We needed a product that had a good warranty, was installer friendly, and had a long working life with extended tacking properties that allowed for any adjustments required. Just as important was our working relationship with the manufacturer."

After comparing Mapei's products to those of six other manufacturers, Argosy Floor Covering Inc. opted for ULTRABOND ECO 220*, a multi-purpose carpet adhesive for epoxy coatings ideal for heavy-duty commercial installations. ULTRABOND ECO 220's properties were so impressive that Mr. Schanzer decided to use it for all his projects. ULTRABOND ECO 575* and ULTRABOND ECO 710* solvent-free adhesives were also used for some smaller areas of the center. The concrete substrate was smoothed over using ULTRAPLAN M20*, together with PLANIPATCH* fast-setting patching compound.

"I was not involved in the design of the Conference Center, but I felt personally attached to it. The size of the task at hand and intensity involved in making it come to life made me want to take part in every aspect along the way." The Conference Center project (some of whose premises can be seen in photos 2 and 3) was the largest pure wool project in the USA in the year 2000. The high-quality wool used came from South American sheep, which were carefully tracked and monitored from birth by the National Wool Institute.

"We worked with the inhabitants of San Antonio as living proof of the city's history, culture and lifestyle. We worked against this background in developing the main motifs of the final carpet design," so the architect from Kell Muñoz Architects, Steven Tillotson, told us. He was responsible for the overall carpet design.

Tillotson, and his assistant designers John Kell and Luis Trivino, decided to work with the artist Silvia Muñoz.

"It was a real challenge right from the start. We consulted with the staff at Options Taipei, the carpet manufacturer, and we realised we had to reduce the number of colours being used from 40 to 13 for each design," so Tillotson told us, referring to constraints imposed by the frame being used for manufacturing the Axminster carpet.

The work lasted four months and was carried out in separate phases by a team of 6-40 installers, eventually being finished in 2001. Thanks to the help of Mapei and the working relationship between Kell Muñoz Architects, Clark Construction, the general contractor, and San Antonio city officials, the floor covering turned out to be a seamless work of art.

"The products referred to in this article are manufactured and distributed in America by Mapei Corp. (USA) and Mapei Inc. (CDN).

For further information, consult the web site: www.mapei.com.



TECHNICAL DATA

Henry B. Gonzales Convention Center, San Antonio, Texas (USA)
Construction Work: installing an inside carpet
Year: 2000-2001
Project: Kell Muñoz Architects (San Antonio)
Works Management: Steven Tillotson from Kell Muñoz Architects
Carpet Designs: Silvia Muñoz
Installation Company: Argosy Floor Covering (San Antonio)
Material Installed: "Axminster" wool carpet from Options Taipei, Singapore
Mapei Products: ULTRABOND ECO 220, ULTRAPLAN M20, PLANIPATCH, ULTRABOND ECO 575, ULTRABOND ECO 710
Mapei Retailer: CSI, Inc.
Mapei Co-ordinator: Carol Hould, Mapei Corp.

MAPETHERM



The MAPETHERM system, launched onto the Italian market at the Saldue Show, was one of Mapei's main new products for 2003. The product of corporate research into the field of comfortable living, MAPETHERM is an external thermal insulation system involving the installation of insulating panels and a surface rendering with a reinforcement mesh, and the application of a coloured finish.

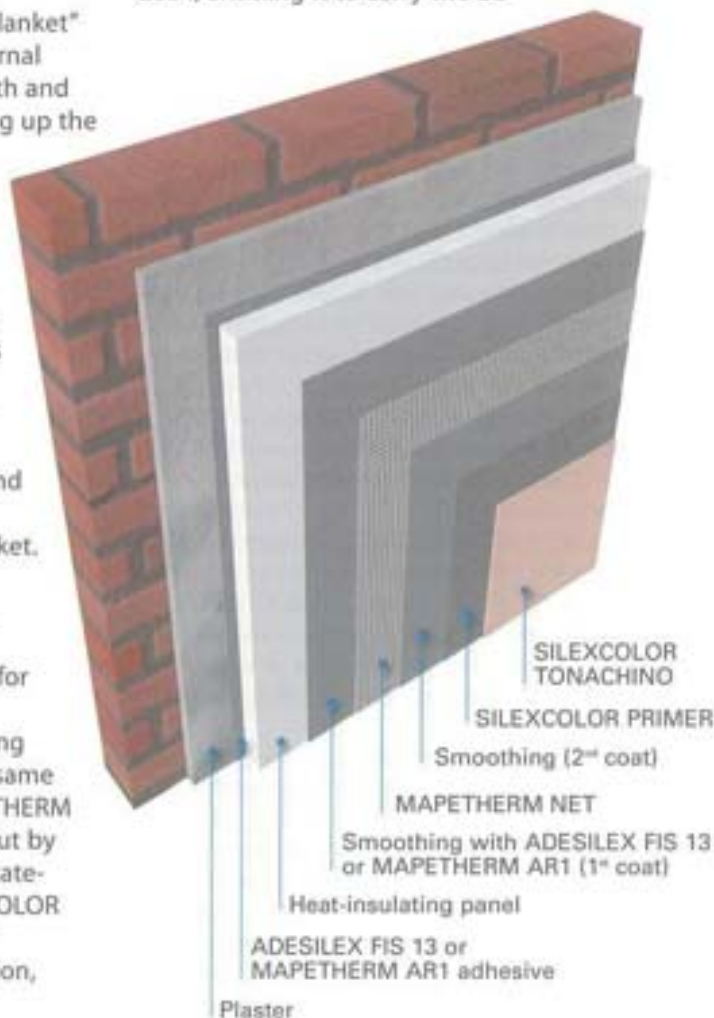
The characteristics and properties of this innovative system, guaranteed by the Mapei quality seal, are all to the benefit of customers and users, as well as designers and installers. More comfortable living is the main advantage to be gained from using MAPETHERM. The "blanket" it forms keeps the internal

surface temperature of walls high, creating a sense of warmth and comfort which could otherwise only be generated by turning up the heating. This translates into notable savings on energy consumption. The savings are even greater, bearing in mind reduced maintenance costs for the façade, that is strengthened by reducing the kind of heat tension that usually causes cracks to start to appear.

MAPETHERM is effective because it makes proper use of the heat inertia in the substrate and gets rid of any heat bridges to prevent mould and condensation from forming on the inside (without in any way reducing the amount of interior space).

The Mapei blanket system, based on an innovative design and working partnerships with some of the world's leading manufacturers, is designed for the upper bracket of the market. Dow extruded polystyrene panels are used together with Gavazzi fibreglass mesh, Fischer wedges, and Banti profiles. The system consists of bonding the insulating panel to the render using ADESILEX FIS 13 (adhesive in water dispersion for "blanket" insulating coatings) or MAPETHERM AR1 (single-component cement-based mortar for bonding and smoothing heat-insulation panels and blanket insulation systems). The same products can also be used for levelling by inserting a MAPETHERM NET between two successive coats. The finishing is carried out by applying SILEXCOLOR TONACHINO (modified potassium silicate-based mineral textured finish in water solution) over SILEXCOLOR PRIMER (modified potassium silicate-based primer in water solution). The system this produced guarantees good adhesion, smooth application, and constant protection for the entire

substrate, panel and accessories, allowing them to fit smoothly into the façade. EOTA 2003 certification is a further guarantee that all the individual components are fully up to standard and hence that the entire system is reliable, unlike many others on the market (only 30% of the systems on sale are certified). MAPETHERM has passed the tests set by the EOTA European Directive in accordance with ETAG (ETA Guidelines) 004 ed.2000, carried out at the ITC laboratories (*Istituto per le Tecnologie della Costruzione, Consiglio Nazionale delle Ricerche*); it was also awarded ETA 04/0061 European Approval in November 2004, entitling it to carry the EC



Advantages of the blanket

Buildings are upgraded

More durable facades

Heat bridges are eliminated

No reduction in interior living space

Reduction in fuel consumption



Reduced risk of condensation and mould forming

Greater comfort

All those interested can apply for these documents from the Mapei Marketing Department:
fax +39/02/37673214,
e-mail: marketing@mapei.it.

For further information on the products referred in this article, consult the web site: www.mapei.com.

system mark, the first product in Italy to obtain this recognition. The introduction of a top-range product like MAPETHERM onto a market like Italy's, that has been expanding all the time since 1993 and actually reached a level of 6 million square metres in 2002, was bound to be a success. To meet the requirements of designers, customers, installers and distributors, Mapei supplied the system complete with accurate information tools specially for everybody's requirements. Designers and customers have also been provided with a calculation CD, presented at the Mapei convention at Saiedue.

The company has produced a special brochure and a technical booklet for installing MAPETHERM designed to make the work of the installers and works manager easier (see photo under the heading of this article).





The "Hajós Alfréd" NATIONAL SPORTS POOL

Dedicated to the Olympic Champion Hajós Alfréd.

The "Hajós Alfréd" Hungarian National Sports Pool officially opened in December 1930 on picturesque Margaret Island, an oasis of greenery emerging from the waters of the River Danube, right in the heart of Budapest. On the very same day, the future European swimming champion and double Olympic water polo gold-medalist, Olivér Halasy, set the first national record for the 400 metres freestyle in the pool. The pool is named after "Hajós Alfréd", the Hungarian swimmer who was the Olympic champion in Athens 1896. Thirty years later the man the pool was named after actually created the designs for the pool itself.

The decision to build the pool on Margaret Island was made in 1929. The works were commissioned to the Stable Building Co. and actually began on 17th March 1930 over an area of 4,450 m², thanks to public funding from the government and city council. The pool was ready to open on 6th December.

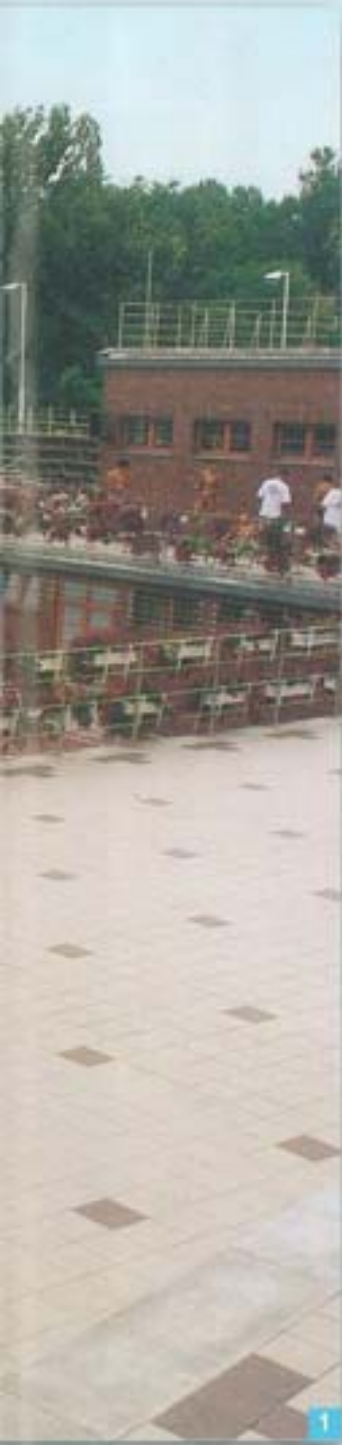
Plans for 2001

The pool management staff were faced with an exciting challenge when Hungary was awarded the chance to stage the 2001 European Water Polo Championship. It was soon clear that there was no way the entire pool could be reconstructed in time for this major sports event.

Photo 1.
The "Hajós Alfréd"
public swimming pool.

Photos 2 and 3.
Utilities area: Keraflex
and Ultracolor were
used in both the
refreshments and
showers areas for
installing and grouting
the tiles.

Photo 4.
One of the terraces:
paved with ceramic
tiles.



This is why it was decided to carry out some initial reconstruction work on the pool (entrusted to Tempero Rt.) and some of the utilities (work carried out by Pontiplast Kft.).

The Pool

The contractors only had about one and-a-half months to replace the pool claddings that were in a very poor state of repair. First they were removed and then a layer of NIVOPLAN® levelling mortar was placed over the concrete walls, that had first been carefully washed and cleaned. Bearing in mind the very tight work schedule, it was decided to use ADESILEX P4® fast-setting cement based levelling compound and a 2-mm layer of MAPELASTIC flexible cement based mortar. The corners and expansion joints were sealed using MAPEBAND® polyester reinforced rubber tape. The old tiles were replaced by ceramic panels fitted using KERABOND® cement based powder adhesive mixed with ISOLASTIC® flexible latex additive. The grouting was made from SEWAMENT 2® acid-resistant cement based mortar. The mobile joints were filled with MAPESIL AC® solvent-free acetic cross-linking mildew-resistant silicone sealant.

The Terraces

The basic structure of the outdoor concrete terraces covering an overall area of 2,300 m² had to be levelled before setting about the cladding work. The contractor, Pontiplast Ltd., prepared the substrate by applying PRIMER G® synthetic resin based primer in water dispersion and then a 3 mm to 1-1.5 cm layer of ADESILEX P4® fast-setting cement based levelling compound of average deformability. ADESILEX P4® was chosen for how quickly it is ready for traffic (after just 4 hours) and its liquid consistence, which means it does not need to be applied on both contact surfaces. This meant the project could be speeded up considerably using reliable technology. The



terrace cladding was made from 20x20 ceramic tiles. The joints were grouted using ULTRACOLOR® grey-coloured fast-setting/drying mortar.

Utilities

Unlike the pool, the changing rooms, showers, corridors and restaurant were only partly reconstructed. Only the walls of the changing rooms were renovated, without touching the floor. Here, as with the showers, the walls were covered with 15x15 cm vitreous ceramic tiles. PRIMER G® synthetic resin based primer diluted with water in a 1:3 ratio was used for the showers. KERABOND® cement based powder adhesive was used for laying the tiles, followed by a layer of ULTRACOLOR® mortar for the grouting. A 2-5 mm layer of NIVOPLAN® levelling mortar was used for the showers, together with MAPEBAND® polyester reinforced rubber tape and a 2 mm layer of MAPELASTIC flexible cement based mortar. The tiles were laid using KERAFLEX® cement based tight-bonding adhesive and grouted, as in the rest of the premises, with ULTRACOLOR®.

KERAFLEX* and ULTRACOLOR* were also used for the restaurant and kitchen, respectively for laying the tiles and grouting the walls and floor.

MAPESIL AC* solvent-free acetic cross-linking mildew-resistant silicone sealant was used for the utilities rooms and pool.

The Success of the European Championship

Thanks to the first rate management skills demonstrated by the administrators of the "Hajós Alfréd" National Sports Pool, and the enthusiastic support of the thousands of spectators who watched the matches, the 2001 European Water Polo Championship was a resounding success. The event was able to take place partly due to Mapei products, which helped ensure the National Pool was ready on schedule and can now also be used to host other prestigious sports events.



* The products referred to in this article belong to the "Products for Ceramic Tiles and Stone Materials" range.

The technical charts are available on the "Mapei Global Infonet" CD and from the internet site www.mapei.com.

The Mapei adhesives and grouts comply with EN 12004 and EN 13888 standards.

Nivoplan: levelling mortar for walls of thicknesses of 2-30 mm.

Adesilex P4 (C2F): fast-setting cement based levelling compound of average deformability for ceramic tiles.

Mapelastix: two-component flexible cement based mortar for waterproofing and waterproof bonding of swimming pools and balconies.

Mapeband: polyester reinforced rubber tape for the flexible sealing and waterproofing of indoor and outdoor expansion joints.

Kerabond (C1; C2 if mixed with Isolastic): cement based powder adhesive for ceramic tiles (for adhesive thicknesses of up to 5 mm).

Isolastic: flexible latex additive for mixing with Kerabond and Kerafloor (adhesive thicknesses of 5 and 15 mm respectively).

Sewament 2: cement-based mortar for grouting ceramic coatings (N.B.: Sewament 2 is a product from the special "Drainage" range).

Mapesil AC: solvent-free acetic cross-linking mildew-resistant silicone sealant, available in 26 colours and a transparent shade.

Primer G: synthetic resin based primer in water dispersion.

Ultracolor (CG2): fast-setting/drying mortar for sealing grouts of 2-20 mm, available in 26 colours, does not cause efflorescence.

Keraflex (C2TE): cement based tight-bonding adhesive with fair deformability and no vertical slip, ideal for ceramic tiles and stone materials.



TECHNICAL DATA

The "Hajós Alfréd" National Sports Pool – Budapest, Hungary

Project: reconstruction of the pool and utilities

Built: 1930

Reconstructed: 2001

Contractors: Tempero Rt. (for the pool) and Pontiplast Kft. (for the utilities)

Mapei Products:

for the pool – NIVOPLAN, ADESILEX P4, MAPELASTIC, MAPEBAND, KERABOND + ISOLASTIC, SEWAMENT 2 and MAPESIL AC

for the other premises – PRIMER G, MAPELASTIC, KERABOND, ADESILEX P4, ULTRACOLOR, MAPEBAND, NIVOPLAN, KERAFLEX and MAPESIL AC

Mapei coordinators: Bela Markovich, Mapei Kft.

Keraflex Maxi *White*

New product: Keraflex Maxi is now also available in white.

Mapei presented its new white version of Keraflex Maxi at the Marmomacc Trade Fair in Verona (see article on page 16). This is a high-performance, deformable, cement-based adhesive with extended open pot-time and no vertical slip, ideal for ceramic tiles and stone material; it is especially suitable for installing large porcelain tiles and natural stone.

The new colour to go with the old grey version is designed to meet special installation needs. First and foremost, for covering extremely clear-coloured screeds (particularly on walls): in this case the white adhesive prevents any unsightly marks from appearing when a grey-coloured adhesive is used beneath a lighter-coloured screed. This adhesive can also be used for installing transparent natural stones, provided they are not sensitive to moisture.

The special properties of the new white version do not in any way detract from those that made KERAFLEX MAXI one of Mapei's most popular and successful adhesives. This product has excellent rheological properties making it easy to spread on; nevertheless, it can also be used for installing large porcelain tiles and natural stone. It can also be applied in a thick coat without

requiring smoothing: surface defects are eliminated, so that the tiles are soaked properly. This new Mapei adhesive also conforms to European standards: according to ENI 12004, it is an improved (2) cement-based (C), slipproof (T) class C2TE adhesive with extended open-pot time (E). White KERAFLEX MAXI is ideal for installing all kinds of ceramic tiles (single and double-fired tiles, porcelain tiles, klinker and terracotta tiles etc.) of every shape and size, both inside and outside, on uneven substrates and renders without having to level the flooring beforehand, and in thicknesses of up to 15 mm. It is also recommended for installing stone material both inside and outside (provided it is stable and not sensitive to moisture) and for spot-bonding insulating material like polystyrene foam, rock and glass wool, soundproof polystyrene panels, cork etc. It can be used, for example, for bonding ceramic and stone tiles (provided, as previously mentioned, they are moisture-stable) to conventional substrates like cement-based screeds and heated floors, cement-based render or lime and cement-based mortar, and even gypsum board provided it is firmly fixed in place.



Other possible applications include installing ceramic and stone tiles on old floors (ceramic, marble etc.), laying floors subject to heavy foot traffic, laying floors and coatings over substrates waterproofed with MAPELASTIC and, finally, interior and exterior bonding of tiles or strips (porcelain, klinker, single-fired or terracotta tiles) with highly profiled ribs or lugs.

The KERAFLEX MAXI technical chart is available at the site: www.mapei.com.



Installation of klinker tiles outdoors.



Installation of marble-chip "graniglie" tiles outdoors.



Thickly applied porcelain wall tiles.



Installation of hewn back stones with buttering.



FLOORING GOES



Great care was taken over choosing the installation products for the floors of this primary school: Mapei's Eco range.

Architectural designers consider hard-wearing floors to be particularly suitable for spacious places like offices, clinics and schools, due to how easy to clean and resistant they are.

This is why linoleum was chosen to cover the floors of this recently built primary school in Cantù, a small town not far from Como. It was used for both the octagonal central hall, with three classrooms and the canteen leading of it, and the corridors leading through to the outside garden and utility rooms. A total of approximately 550 square metres of linoleum flooring were laid, chosen in two colours to distinguish the classrooms area and canteen from the communal parts (lounge, corridors and offices). Increasing attention to the quality and comfort of communal spaces (particularly those used by young children) and environmental protection meant that only low eco-impact products were chosen, starting with the bonding primers and adhesives for laying the floors, all supplied by

Mapei. So, after carrying out a careful inspection with a carbide hygrometer to check there was no damp in the screed (the humidity level must be no more than 2.5-3% for cement-based substrates), the substrate was prepared by cleaning it to get rid of any paint, wax or rust from the screed that might interfere with bonding. After completing this operation, ECO PRIM R* was applied, ideal for improving how levelling compounds bond to either absorbent or non-absorbent surfaces and for adjusting the absorption level of highly porous cement-based surfaces. This solvent-free primer is not inflammable and has a very low emission rate for volatile organic substances (VOC). This means it is not harmful to either the installers or the end-users of the places where it is installed. This product, like the rest referred to in this article (all from Mapei's Eco range) have been tested and certified by qualified international institutes, such as the German body TFI (Teppich Forschung Institut) and the American Carpet and Rug Institute (CRI).

Photo 1. Eco Prim R, ideal for improving how levelling compounds bond to all surfaces, was applied after cleaning the substrate to get rid of any paint, wax or rust from the screed. This primer, like all Mapei products used for installing the school floors, is low in emissions of volatile organic compounds (VOC) and is not harmful to either the installers or end-users.

Photos 2, 3 and 4. Ultraplan Eco was used to even out any differences in the thickness of the substrates. This is an



ultra-fast hardening self-levelling compound with low emission of volatile organic compounds (VOC). The photos show various stages in the process: the product is prepared for use by mixing it with water, before applying it to the substrate. 12 hours after applying the self-levelling compound, the surface is ready to have the floor installed.

Photo 5. The substrate was mechanically cleaned before applying the adhesive and linoleum sheets.

Controls carried out certify the extremely low emission rate of volatile organic substances and prove it has passed toxicity tests, a guarantee for both installers and end-users. ECO PRIM® can be applied to the substrate using either a brush or roller, and it must be left to dry properly for between 1-4 hours at room temperature and humidity levels, before applying the levelling compound. ULTRAPLAN ECO® was used the following day to even out any differences in the thickness of the substrates. This ultra-fast hardening self-levelling compound for thicknesses of 1-10 mm with low emission of volatile organic compounds (VOC) can only be used indoors and is applied by pump or flat trowel. Thanks to its incredible self-levelling properties, the product instantly gets rid of any imperfections that have formed, such as unevenness caused by trowel work. Smoothing by means of ULTRAPLAN ECO® is ideal for the installation of hard-wearing floors, as in this instance, or also textile, ceramic or wooden floors after 12 hours, although the length of time varies according to the thickness of the levelling compound, temperature or humidity level in the place where it is being applied. The substrate is mechanically cleaned before applying the adhesive or linoleum sheets. ULTRABOND ECO 540®, a harmless adhesive in water dispersion with low emission of volatile organic substances (VOC), specially designed for linoleum, was then used for bonding the flooring. ULTRABOND ECO 540®, which is easy to apply and sets quickly and safely, already has a hard, elastic film just 24 hours after hardening, so that it bonds well to all substrates. This adhesive is specially formulated for installing linoleum flooring in places where there is heavy foot traffic and wheelchairs and rollers are frequently in use,

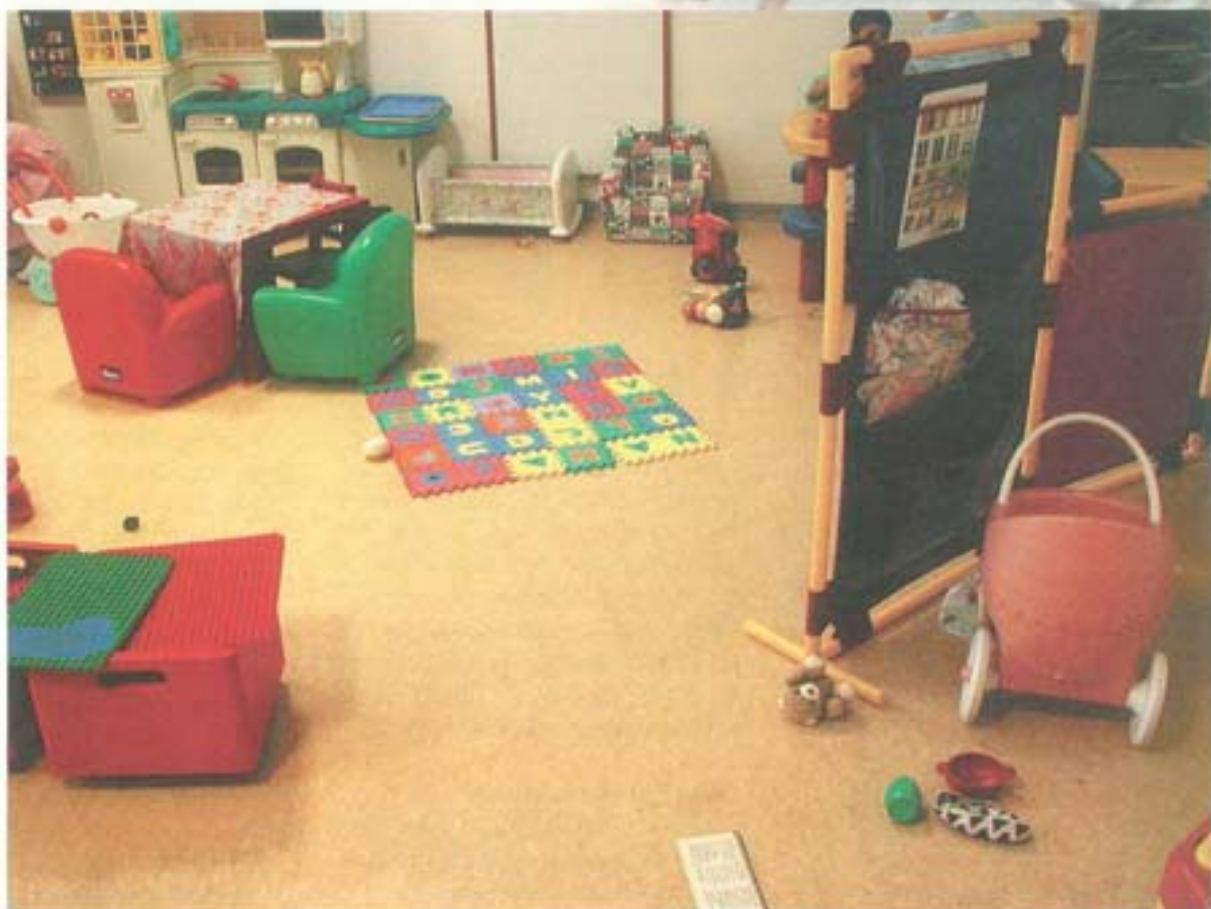


Photos 6, 7 and 8. Some stages in installing the linoleum floor: Ultrabond Eco 540, an adhesive in water dispersion with low emission of volatile organic compounds, was used for the bonding. The product is applied with a trowel and then the linoleum sheets is gradually installed.

such as hospitals. The coating used is Linosom Veneto by Tarkett Sommer. This exclusively natural anti-bacterial and anti-static product, resistant to minor burns and wheelchairs passing over it, comes in a thickness of 3.2 mm. After applying ULTRABOND ECO 540*, the linoleum sheets were carefully "massaged" with a roller, starting from the centre and moving outwards. This is to soak them properly and remove any air bubbles. The linoleum was then trimmed at the corners and edges to remove any excess material. Finally, the floors were finished off by heat-welding the joints and installing a semi-rigid layer of PVC.

*The products referred to in this article belong to the "Products for the installation of resilient, textile and wood floor and wall coverings" range. The technical charts are available from the "Mapei Global Infonet" Cd and at the internet site: www.mapei.com.

Eco Prim R: Neoprene primer in water dispersion with low emission of volatile organic compounds (VOC).
Ultraplan Eco: ultra-fast hardening (12 hours) self-levelling compound for thicknesses of 1-10 mm with low emission of volatile organic compounds (VOC).
Ultrabond Eco 540: adhesive in water dispersion with low emission of volatile organic compounds (VOC), specially formulated for linoleum flooring.



Photos 9, 10, 11 and 12. The linoleum sheets, chosen in two colours to distinguish the classrooms from the communal area, are carefully positioned and jointed. The linoleum is then trimmed to get rid of any excess material.

Photo 13. The different coloured linoleum sheets are perfectly jointed after installation.



TECHNICAL DATA

Scuola Materna Mirabello, Cantù (Como) - Italy
Works: installation of linoleum floors
Year: 2002
Architectural designer: Franco Borghi
Building firm: CBM Restauri, Arzago d'Adda (Milano)
Installer: Colombo Linoleum, Monza
Material installed: Linosom Veneto linoleum by Tarkett Sommer
Building Site Manager: Mr. Busà
Mapei Products: ECO PRIM R, ULTRAPLAN ECO, ULTRABOND ECO 540
Mapei Co-ordinator: Davide Ottolini

ULTRABOND ECO 540



ULTRABOND ECO 540 is an adhesive in water dispersion with low emission of volatile organic compounds (VOC) specially formulated linoleum floors. It is used for the internal bonding of synthetic and natural jute-backed linoleum flooring, cork linoleum, natural cork, natural coconut and latex-backed floors, and natural cork wall coatings on all absorbent and moisture-stable substrates used in building.

Technical Characteristics

ULTRABOND ECO 540 is solvent-free synthetic polymer-based single-coat adhesive in water dispersion formulated in a ready-to-use light beige paste.

It is not flammable and its VOC (volatile organic substances) content is virtually nil, so the adhesive is not harmful to either the installer or end-users of the places where it is installed. Like all other products from the Eco range, this adhesive causes very little environmental impact and maintains its distinctive properties over time. ULTRABOND ECO 540 is easy to apply and was specially developed for being used for installing floorings in areas subjected to heavy traffic and where wheelchairs are present.

Before applying the product, check the substrate is dry, absorbent, flat, mechanically sound, and free from cracks, dust, loose particles, paints, wax, oil, rust, gypsum residue or any products that might interfere with bonding. It is essential to ensure there is no rising damp present. Floating screeds over layers of insulation and screeds over grades must be separated by vapour barrier. Products from Mapei's Eco range are tested and certified by qualified institutes at home and abroad, such as the German body TFI (Teppich Forschung Institut) and the American Carpet and Rug Institute (CRI). The trademarks TUV and TFI guarantee low emissions of volatile organic substances and are proof that toxicity tests have been passed and that regular market controls are carried out.



For further information about the product described here, please

consult the relevant technical charts contained on the "Mapei Global Infonet" Cd and at the internet site: www.mapei.com.



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- ▶ deformable **S1**
- ▶ applied at a thickness of 3-15 mm



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Laying klinker tiles for outdoor use



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Mapei presents **Ultracolor[®] Plus** the grouting mortar which prevents the formation of mould in damp environments.

ULTRACOLOR Plus is the ultimate, definitive and radical solution for grouting joints without aesthetic defects, such as uneven colour and efflorescence, which is easy to clean and free from the formation of surface mould.

With **ULTRACOLOR Plus** the ULTRACOLOR technology based on a special, auto-hydrating hydraulic binder which guarantees perfect colour uniformity, is further integrated by two innovative technologies which are the fruit of MAPEI research: **Bioblock[®]** and **DropEffect[®]**.

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The **DropEffect[®]** technology, with a synergic effect thanks to the reduction of surface water absorption:

- Reduces the degree of dirtiness in the tile joints
- Improves the already excellent properties of ULTRACOLOR in eliminating the formation of dirty-white efflorescence
- Completely eliminates the difference in colour, exalting the already excellent aesthetic qualities of tile joints with ULTRACOLOR
- Completely blocks the formation of mould

ULTRACOLOR Plus :
No mould. No fungus. No problems.

*As always,
Mapei technology is working... for you*

With **Ultracolor[®] Plus** No mold. No mildew. No worries.

Ultracolor[®] Plus



Fast setting and drying, high performance, antiefflorescence, water-repellent grout for joints from 2 to 20 mm with DropEffect[®] and antimold with BioBlock[®] technology.

ULTRACOLOR Plus is available in the complete range of 26 colours of Mapei coloured tile joints, and is classified CG2 according to European Standard EN 13888.



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