

INTERNATIONAL

REALTÁ MAPEI



for you



MAPELASTIC SALES PROMOTION

Last April 1st the sales promotion in combination with the MAPELASTIC waterproofing mortar took off.

All Mapei retailers throughout the world will offer Mapei gadgets to those buying this product, the absolute waterproofing leader, confirmed by its sales data.

MAPELASTIC is a two-component, flexible cementitious mortar for the protection and waterproofing of concrete, swimming pools and balconies as well as reinforced concrete structures such as dams, bridges and many other.

In its ten years of life more than 20 million square meters have been applied.

The sales promotion is offered in various countries and under different conditions. In Italy customers will receive the new Mapei umbrellas.



EDITOR

Adriana Spazzoli

ENGLISH EDITING AND TRANSLATION

Consultass, Sabrina Mankouche

EDITORIAL ASSISTANT

Carla Fini

GRAPHIC DESIGN AND ART DIRECTION

Magazine - Milan (Italy)

COLOUR SEPARATIONS AND LAYOUTS

Overscan - Milan (Italy)

PRINTER

Arti Grafiche Beta - Milan (Italy)

Edited and published by:

MAPEI S.p.A.

Via Cafiero, 22 - 20158 Milan (Italy)

tel. ++39/02/376731 - fax ++39/02/37673214

Internet: <http://www.mapei.com>E-mail: mapei@mapei.it**PUBLISHER**

MAPEI S.p.A.

Realtà Mapei - Bimonthly magazine

Registered by the Tribunal of Milan

n. 363/20.5.1991

Realtà Mapei International is published

4 times per year

**Main cover photo:**

After 25 years of absence, Paul Anka - the unforgettable star of soft music - has returned to Italy thanks to the concert organized by Mapei on the occasion of the last edition of Cersaie (article on page 6).

TEAMWORK

Poland, the inauguration of the new Mapei plant page 2

NEWS

Paul Anka sings for Mapei page 6

Mapei and music page 14

"La Scala" the opera house page 15

TRADE FAIRS

Cersaie 2003 page 9

PROJECTS

Arcimboldi, a relief "Scala" for Milan page 16

Music Park page 18

New life for the Stucky Mill page 24

Departure, sweet departure page 28

A perfect collaboration page 34

North-West passage page 38

Success on the waves page 44

ART AND CULTURE

The "Spirala" theatre in Prague page 22

PRODUCT SPOTLIGHT

Ultrabond P990 1K page 23

Dynamon System: the evolution of admixtures page 42

EXPERT OPINION

Screeds for the installation of floorings page 32

STANDARDS

The TÜV/TFI certification page 37

MAPEI SPORT DIVISION

On the job with golf page 46

Articles appearing in this magazine may be reproduced in whole or in part after obtaining the permission of the publisher. However, the source must be cited.

www.mapei.com

The Mapei web 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.



the inauguration of the new Mapei plant

Another step abroad, this time involving Poland. Last September 12th, in fact, Mapei officially celebrated the opening of the Gliwice plant, in the Polish region of Slesia. The inauguration took place with the participation of the major Polish customers in addition to journalists and Polish and Italian authorities as well (among which Ugo Calzoni, General Manager of the ICE), arriving on location thanks to a private flight arranged by Mapei.

Veronica Squinzi, director of Mapei Polska Sp. z o.o., opened the ceremony by thanking the authorities, the employees of the company and Mapei S.p.A. that have made possible the

realization of this new project and, above all, the customers. Then the mayor of Gliwice took the floor, followed by Giorgio Squinzi, Directing Manager of the Mapei Group. *"In the process of internationalisation and growth of the Mapei Group, today is certainly a very important day",* commented Giorgio Squinzi. *"Poland has by now become one of the reference countries of our Group. With the inauguration of this plant and the other activities we carry out in Poland, this country is now ranked fifth among those in which the Mapei Group operates, for the importance of the assets that we have created and for the number of employees".*

Giorgio Squinzi then emphasized some strategic aspects of the development of the Group: *"We firmly believe in our strategy of being locals, as demonstrated also by the fact that the management of Mapei Polska, just like that of our other activities in Poland, is completely Polish. We believe to be on the right track; in Poland we will certainly have results even better than those that we have had until now, thanks to our new plant, and I believe that we will bring an important contribution to the growth of the Polish market in the field of chemical products for the building trade".* As stressed by Giorgio Squinzi, this has been an important step of the Mapei Group in Poland as a direct investment in its own business: *"...and it will not be the last – concluded Squinzi – because we are already thinking about future expansions of the Gliwice plant, in order to be able to be ever more*



Photo 1.
All the participants at the ceremony have received a complementary gift: a copy of an old map of Gliwice area with a Gliwice Town stamp made out of Mapei Ultracolor grout number 145.

Photo 2.
From the left: Giorgio Squinzi and his daughter Veronica with Ugo Calzoni at the ceremonial cutting of the ribbon.





Photos 3 and 4. During the day the guests were able to visit the new plant and observe all the phases of production.

competitive in this market”.

Ugo Calzoni, General Manager of the ICE, then took the floor: *“I would like to thank Giorgio Squinzi – he pointed out – for giving me the opportunity to return to Poland today, after a long time, for the inauguration of a factory. Over the last 10 years, this country has been the protagonist of a great developmental process”.* Today the Italian presence in Poland, as remarked by Calzoni, is a growth opportunity which is more important than ever.

After the cutting of the ribbon, there was the visit to the plant. The guests were able to observe all the phases of production, demonstrated by the Mapei engineers.

An international press conference was also dedicated to the numerous journalists present. The inauguration, taking place also in the presence of “Miss Mapei” (testimonial of



the campaign for the MAPEKLEJ cement adhesive, photo 5), included a series of side events. The guests enjoyed a concert of traditional music and another initiative of great attraction: a fashion show inside the plant itself. It was a special show: the models wore clothes realized in the colours of the Mapei grouts, with particular emphasis given to black, the “colour – non-colour” that has always been a sign of elegance and sophistication. This special collection was designed by the students of the local Institute of Fine Arts. Along with the promotional objective and the goal of providing pleasurable entertainment, the event was also an important opportunity for charity: all the proceeds of the fashion show were donated to the orphan children of an area institution.

The new plant is another milestone in the international expansion of the Group that includes 40 plants operating today worldwide. Mapei had already embarked in Poland in the year 2000 through the subsidiary Mapei Polska Sp. z o.o., equipped with its own network of specialized sales and with commercial offices located in Warsaw, still operative; Mapei Polska was the first Polish company to offer adhesives and grouts for tiles in compliance with the European standards EN 12004 and EN 13888.

“Slesia – explained Giorgio Squinzi – is a region with a solid and long-lived industrial culture and in particular the area of Katowice, in which the new plant has its headquarters, boasts of highly specialized technical universities and prepared personnel”. The choice of Katowice is positive also from the economic point of view. The area is in fact a Special Economic Zone, in which it is possible to enjoy tax incentives. Furthermore, it is located within a range of only 500 km from



Germany, the Baltic Countries, Byelorussia, the Ukraine, Russia, the Czech Republic and Slovakia.

The investment has amounted to 10 million euro and has been realized through an increase in capital of Mapei S.p.A. and Simest along with the aid of Pekao, the most important Polish bank that is part of the Unicredito Group. The structure extends over an area of 30,000 m² with 6,000 m² covered, of which 4,000 are intended for storage. The plant, already operating since April, produces powder adhesives for the installation of ceramics and stone materials, grouts and levellers, for a total of 100,000 tons yearly. The leading product is the MAPEKLEJ cement adhesive for ceramic tiles, the result of a specific research on the Polish market. Now the plant already produces many other products, and this will lead to a reduction in the imports by the other companies of the Group and to a much more rapid customer service. The production is also exported to the neighbouring countries.

The Group also boasts of another plant in Poland, the result of the acquisition of the Sopro GmbH and the Gorka Cement plant, one of the three worldwide producers of aluminium cements. The expansion of Mapei is not a simple delocalisation, with transfers abroad of resources and capital, but an expansion that does not involve the Italian reality, also in continuous reinforcement recently with an increase in the number of employees from 998 in 2001 to 1,036 in 2002. The next steps abroad will lead Mapei to Birmingham (Great Britain), San Bernardino (California), Stupino (Russia) and Nanking (China).

Among the initiatives that have brightened the day, there was a fashion show organized inside the plant in which the models wore clothes realized in the colours of the Mapei grouts.



In these pages we present some of the most prestigious projects realized in Poland using the Mapei products.



MAPEI POLSKA Sp. z o.o.



MULTI-SCREEN CINEMA - WARSAW

UNDERGROUND STATION - WARSAW



SPORTS CENTRE - GDANSK





MOKOTÓW ARCADE
SHOPPING CENTRE -
WARSAW



AUCHAN SHOPPING CENTRE - SOSNOWIEC



AWF STADIUM - CRACOW

LICHEN'S BASILICA



HESTIA INSURANCE
- SOPOT



AUCHAN SHOPPING CENTRE - MOKOTÓW - WARSAW



SUPREME COURT HOUSE -
WARSAW



PORTFOLIO

PAUL ANKA

sings for Mapei



The king of melodious songs performed in a show that Mapei offered its customers on the occasion of Cersaie.

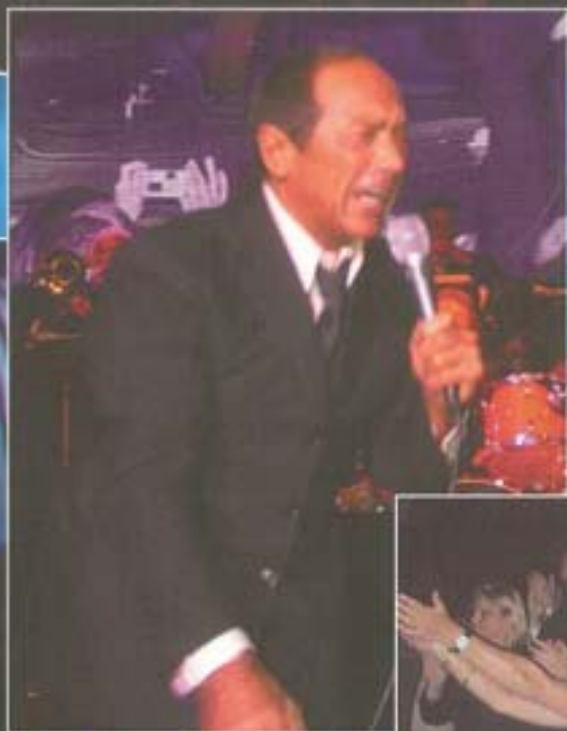
It was a tribute to a true symbol of the melodious song (from the 50's to the present day) and at the same time a precious occasion for the hundreds of guests invited: the concert of Paul Anka, the unforgettable American star, was the clou event organized by Mapei on the occasion of Cersaie 2003. The artist that made more than one generation dream with his songs, performed in Italy after an absence of 25 years, thanks to a long-time friendship with the Squinzi family that had wanted to give their guests this special occasion.

The concert that took place on Thursday, 2 October, at the Europa Auditorium (at the Palazzo dei Congressi di Bolognafiore) presented by Susanna Messaggio before more than 1,200 guests was a huge success, covered in detail by the press on the following days.

A very involving performance, that gave great emotions to all the guests present. Helped by the warm atmosphere, the enthusiasm of the public, the ageless vitality of a true stage professional (in addition to the king of song), the evening took off immediately and closed with applause in series for the artist and for the organization.

Unforgettable the performance of "My Way", a song that was also among the most beautiful performed by Frank Sinatra. And as a tribute to the guests he sang a particular version, paraphrasing the famous refrain with a new rhyme "...My way is... Mapei!", with the public entertained and enthusiastic, in the climate of involvement that those notes were capable of provoking. Everyone standing, then, to applaud him while Laura Pausini - special guest of the evening in private form for







her friendship with Paul – on the stage dedicated him a declaration of unparalleled esteem and admiration: *"... This man is a hero, he's like Leonardo da Vinci, like Alessandro Manzoni, that have created unforgettable works: he wrote My Way."*

And then more songs, more unforgettable successes, accompanied by particularly meaningful images that

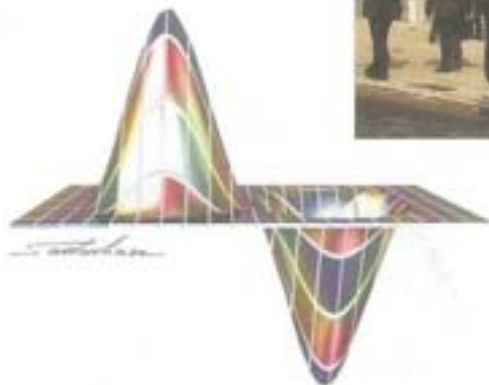
have represented the Mapei products in the world, projected onto the screen mounted on the stage. A chorus rose for the performance of "Diana", the true war-horse of Paul Anka, the song that made him become an idol of the teenagers when he was only 16 years old, selling more than 20 million copies all over the world. An ovation arose from the public upon hearing the first notes: many sang, many clapped their



hands in time, while Paul Anka neared to shake hands, greet, hug and celebrate together with the guests. Great emotion was called forth also by the beautiful images that Paul had gathered to recount the most significant moments of his life (like those of Frank Sinatra and Sammy Davis Junior), that followed one another on the screen leaving space also to moments of great intimacy between Paul and his five beautiful daughters: Amelia, Anthea, Alicia, Amanda and Alexandra. *"I have known Mapei for many years,"* then declared the artist. *"Dr. Squinzi and his wife have also recently come to Las Vegas to attend one of my concerts and on that occasion they asked me to perform here for their guests:"* The success of the evening demonstrated that the songs of Paul Anka are destined to remain in the history of music. From the beginning to today the famous artist has recorded as many as 124 albums, with 15 million copies sold and over 3 million alone of the Italian song "Ogni volta". Many have been his memorable successes of the 50's, among which we remember "Put Your Head On My Shoulder" (among the most applauded also during the evening organized by Mapei), "You Are My Destiny", "Lonely Boy" and "Puppy Love". This year for Paul Anka has truly been special: he celebrated his 45th anniversary of successes in the show business, and he performed in his native town, Ottawa (Canada), in which he had not sung for more than 20 years. In the past he has been called to perform at the White House and before numerous heads of state all over the world, and the French government bestowed him the title of Knight of the Order of the Fine Arts. Today Paul Anka continues to travel the world on tour, with a strong international following that shows no sign of weakening, just as in Italy. The enthusiasm that he inspired in Bologna, on the other hand, leaves no doubt on the subject. Paul, return soon... and besides you said it as well: *"Mapei is my way"* and the Italian public, together with others, is waiting for you.



Presented in fair: **Elastorapid**, the newest Mapei adhesive that has no equal on the market. Its characteristics satisfy all the top-level requirements of the EN 12004 and EN 12002 standards: it is classified, in fact, C2FTE/S2.



CERSAIE

New edition, new successes. The XXI fair appointment of Cersaie, the most important international show dedicated to ceramic tiles for the building industry and to bathroom fittings, closed its doors confirming its central role for the distribution system, architects and interior designers all over the world. There was a massive turnout of the public: during the week of the fair – from last 30 September to 5 October – 97,076 visitors arrived, of which 24,496 foreigners and 72,580 Italians (of the latter the great majority – as many as 46,758 – were professional operators). On the exhibitor front, there were registered 1,038 Italian and foreign companies (coming from 32 countries from all five continents). The exhibition spaces inside the twenty stands were fully booked, with a prevalence of the companies of ceramic tiles (517) over those of bathroom fittings (383).

There was witnessed a true explosion of new trends, capable of ranging from the ethnic to the mosaic, with great attention to large format and decoration. New trends, then, have emerged in the non-residential building industry, thanks to products with qualified technical characteristics such as, for example, porcelain tiles. In this edition of Cersaie Mapei presented a series of novelties, both in the area of products as well as in that of its image, highly renewed: the Group presented itself, in fact, with an **original look**.

The impressive stand by now known to the large public of the fair – designers, industrialists, engineers, retailers, journalists, and experts of the sector – was profoundly renovated. The intervention concerned first of all the use of blue in various shades with beams of silver light, together with a new colour (red) that underlines the name "Mapei" and, finally, a slogan that summarizes, in just two words, the heart of the philosophy of the Group: **"Mapei for you"**.

And it is precisely for the operators of a sector that must propose

solutions always new and adapted to changing demands that Mapei has studied and presented at Cersaie the newest two-component cementitious adhesive **ELASTORAPID**.

It is a special product, one of a kind, because it is **"all in one"** (see photo 1). This product is the great Mapei novelty of this fair. **ELASTORAPID** is a unique product that has no competition on the market because it is the only one that combines all the technical characteristics that an adhesive for ceramic tiles can have: cementitious adhesive (C) improved (2), fast setting (F) and resistant to slipping (T), with extended open time (E), of class C2FTE according to the European standard EN 12004. Furthermore, according to EN 12002 it qualifies as a highly deformable cementitious adhesive of class S2. **ELASTORAPID** stands out, therefore, because it is the only "all in one" on the market. It has also been realized in two





colours: white and grey.

The application of ELASTORAPID was demonstrated in two internal and external settings (see photo 2). In the first case the grey ELASTORAPID was used, applied to flooring for the installation of various types of materials, from ceramic tiles to marble, on two different types of substrates: on marine plywood and on industrial concrete. For the external setting, 30x30 cm porcelain tiles were installed on a TOPCEM substrate; the waterproofing was realized with MAPELASTIC together with a fibreglass mesh. For the installation on walls, external once again, ELASTORAPID was suggested (chosen, in this case, the grey colour), with which 30x60 cm porcelain tiles were installed. At the centre of the stand there rose a great fountain in the form of a sail, more than four metres tall: the fountain of MAPELASTIC, a product that this year has happily celebrated its tenth birthday (see photo 3). The great success of this waterproofing mortar over the course of the years is evidenced by its use in important works all over the world. Among those in demonstration at the stand we recall the "Rothschild Cellars" in St. Laurent Medor (France), the Thermal Baths of Sárvár (Hungary), the "Aquatic Centre" of Sarrebourg (France), the "Tesco multi-purpose Centre" in Olomouc (Czech Republic) and the "Thermal Baths of Saturnia" near Grosseto (Italy). The Italian, Hungarian and Czech references have been awarded, together with others, in the contest "2nd Mapei References Grand Prix". In the stand there were demonstrated various examples of the use of MAPELASTIC: in the installation of marble, ceramic tiles and mosaic.

Both ELASTORAPID and MAPELASTIC are part of the "Products for Ceramic Tiles and Stone Materials" line, for which the new catalogue was presented in the fair. This publication renews the previous one both from the

graphic point of view as well as from that of the contents. To the technical descriptions of the products there have been added numerous images of prestigious references, photographs that illustrate details of the installation and suggestive illustrations. Each product, furthermore, is accompanied by the image of its package.

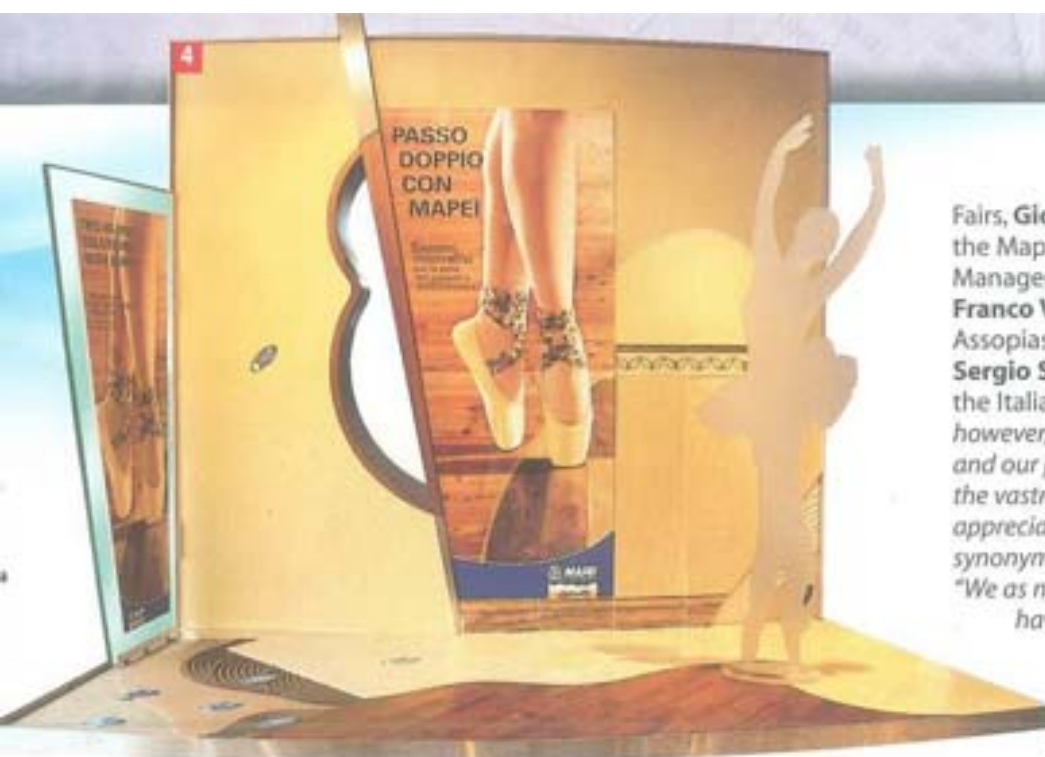
An area of the stand was dedicated to wood. This material often coexists with ceramic material not only in the realizations but also in the sales points. Mapei wanted to synthesize this pair in the philosophy of the "double step" (see photo 4): the possibility, that is, to install two different coverings (wood and ceramic) that are matched, using products of a single firm and using, moreover, the same product for the substrate (for example the special fast setting and

drying hydraulic binder MAPECEM or that of normal setting and quick drying TOPCEM).

In an area of the stand, therefore, African teak parquet, porcelain tiles and "botticino" marble were installed in combination. For the installation of the wood there was used a product recently put onto the market, but already of wide use in the construction sites

worldwide: ULTRABOND P990 1K. It is a ready-to-use, polyurethane one-component adhesive, elastic and solvent-free, for all types of wooden flooring and laminates. The porcelain tiles, instead, were installed with the newest two-component cementitious adhesive ELASTORAPID, in grey colour, and the botticino marble covering was installed with white ELASTORAPID. In the stand there was also exhibited a gallery of photos to illustrate some works realized by the Mapei subsidiaries worldwide: The Americas, the Far East, Spain, Poland, and Russia, to cite only a few countries. The "Mapei Gallery" testifies to the commitment of the Group beside the professionals of the building industry in the five continents, fruit of the philosophy of the internationality that has always characterized the firm. Mapei - present all over the world with 7 research and development laboratories and 41 plants - realizes its international vocation in a constant





technological research specific for the demands of the various markets, combined with a local Technical Service, training and dedicated communication.

International press conference

Consistent with the attention reserved for the foreign markets, there was also the initiative of the international press conference. To the foreign journalists, in fact, Mapei dedicated a moment of particular attention in the meeting that was held during the afternoon of 30 September.

The conference was promoted by Assopiastrelle in collaboration with ICE (National Institute for Foreign Trade), with the cooperation of Mapei. The role of the *made in Italy* in the international competition, the positioning of the Italian tile industry and the promotional instruments in favour of the small and medium-sized businesses, necessary due to the difficult situation of the sector, were at the centre of the discussion.

There is, in fact, a picture of zero growth, due both to the crises of the global markets as well as to the ever-greater aggressiveness of the competitors. As speakers there were invited **Sergio Sassi**, Chairman of Assopiastrelle, **Enzo Mularoni**, Vice Chairman with proxy to the Promotional Activities and

Fairs, **Giorgio Squinzi**, Directing Manager of the Mapei Group and **Ugo Calzoni**, General Manager of ICE, with the coordination of **Franco Vantaggi**, General Manager of Assopiastrelle (see photo 5).

Sergio Sassi remarked on the guiding role of the Italian ceramic industry: *"Italy proves, however, to be the reference country of the sector and our products, thanks to the innovation and the vastness of the range, are sold and appreciated all over the world, being synonymous with taste, style and quality."*

"We as national producers – emphasized Sassi – have higher manufacturing costs with respect to the competition, and thus our tiles are more expensive. To measure ourselves in terms of quantity, and in the medium-low

range of the market, is impossible. The road to follow must start from research and quality improvement: we have to propose creative and highly innovative tiles." A road that the Italian producers are already taking, with excellent results, in the sector of the residential building industry. *"The confirmation – continued Sassi – comes from the United States market, the most consistent for us. Well, last year we increased by 16% the exportations to the United States, where we control 30% of the business volume, despite the fact that our prices are 30-40% higher with respect to the competitors. This means that the buyers appreciate our quality."* There was not lacking, then, a comment on the delicate issue of the Chinese competition: *"We are for the free market – reaffirmed Sassi – but for an economy in which the rules are the same for everyone and this does not always happen."*

The Vice Chairman **Enzo Mularoni** drew a picture of the promotional strategies of Assopiastrelle, among which the magazine "Cer", the website www.italiatile.com, the image events and seminars promoted in collaboration with ICE and, finally, the special projects of St. Petersburg and Kobe. *"We propose a communication on several levels, including that of multimedia – stressed Mularoni – and we are proud that the two largest events worldwide, Cersaie and Coverings, take place under the aegis of Assopiastrelle."* Then **Giorgio Squinzi**, Directing Manager of Mapei, took the floor. *"The tiles must be that which a dress is for a woman, that she changes with the changing of the seasons. To respond positively to the challenges of the market – stated Squinzi – it is necessary to personalize the supply. So we have to aim firmly at the specialization of our products in order to be as personal as possible with the consumers and the operators."*

Finally the General Manager of the ICE, **Ugo Calzoni**, expressed his appreciation for the activity of the Ministry of the Industrial Activity and for the finance act that introduces for the





first time appropriations for the defence of the *made in Italy* on the international markets. Calzoni also addressed the China problem: "We need to protect ourselves from the imitation that threatens us and threatens the consumer, misleading him – warned Calzoni – for example with the use of the CE mark that doesn't mean 'Comunità Europea' but simply China Export." At the end of the conference there were awarded the prizes **Assopiastrelle Distributors Award** and **Ceramic Tiles of Italy Journalism Award 2003**. The first were awarded to four distributors: Fadalti SpA (Italy), Hermann Heidbrink GmbH & Co KG (Germany), Les Matériaux Reunis – Groupe Point P" (France) and Gavra Bvba (Belgium). The prizes to the Fadalti firm (with which Mapei has had a profitable collaboration relationship for several years) and to the Hermann Heidbrink GmbH & Co KG (customer of Sopro, a company acquired by Mapei at the beginning of 2002) were awarded by Giorgio Squinzi and accepted respectively by Luisa Fadalti and Giuseppe Cauz (photo 7) and by Hermann Heidbrink (photo 6). Fadalti, founded in 1960, is a firm that has realized a total turnover of 77 million euro in 2002 and that boasts 16 show rooms for approximately 15,000 m² of exhibition area and more than

250 employees. The Hermann Heidbrink firm was founded in 1921 and works with three show rooms for a total exhibition area of approximately 6,000 m². Finally the journalism award, reaching its seventh edition, was won by Branko Iljas of the Moja Kupaonica magazine (and accepted by his sister Maja Iljas). This acknowledgement rewards each year the best international articles on the fair and on the sector.

The next appointment with Mapei, both for the customers and for the designers, engineers and all the Cersaie visitors, is for the XXII edition that will take place from 28 September to 3 October 2004.

Roadshow

The latest novelty of Mapei at Cersaie was the presentation of the "Roadshow".

This initiative is part of the "Mapei for you" project (under the emblem of which was also realized the evening event of Paul Anka, see article on the preceding pages), with which the firm would like to become more personal with the retailers, designers, installers and all its customers.

For their training and professional updating Mapei has made available a brand-new motor-home (photo 8), presented in preview at Cersaie. It is an instrument for training and promotion thanks to which "field demonstrations" will be realized on the use of the products.

The first stop on the prearranged route was Sacile, last 10 November, followed then by an intense programme all over Italy.



Great
News

Elastorapid®

The unique

All in ONE

Installation on flooring
subjected to heavy
mechanical stress
(warehouses, supermarkets,
industrial flooring)

Installation on deformable
substrates (chipboard wood,
plywood, old wooden beam floors,
concrete façades, roofs and floor
slabs exposed to direct sunlight)

Installation on walls, also
diagonally, from top to bottom
without the use of spacer pegs

Extended open time with respect to
other fast setting adhesives, also during
summer weather

Installation of stone material that is
moderately sensitive to moisture and subject
to stains and efflorescence and require a fast
drying adhesive

Installation in restructuring works where
the flooring needs to be put in service
quickly (airports, supermarkets,
cold stores)



- Cementitious **C**
- High performances **2**
- Fast setting **F**
- No vertical slip **T**
- Extended open time **E**
- Highly deformable **S2**

**The new two-component adhesive
for ceramic tiles and stone material,
classified according to EN 12004
and EN 12002 norms**



MAPEI
ADHESIVES - SEALANTS
CHEMICAL PRODUCTS FOR BUILDING

MAPEI AND MUSIC

The company's commitment to the world of music continues.

Giorgio Squinzi announced this on the occasion of the presentation in Milan of a book with DVD on the history of the Scala: "We want to develop a series of activities in the world of culture, we want to help the Scala return as it was, more beautiful than before".

Mapei continues to be firmly present in the world of culture. And more specifically in the musical world. The reason for this age-old presence is simple enough: Mapei is bound to the world of culture because its technologies are present in the largest theatres of the globe. Now however this bond of Mapei broadens, enriches, evolves. We are in the middle of December. In Milan, at the site of La Scala Theatre Museum, in Corso Magenta 71, Riccardo Muti acts as sponsor for a publication on the history of the Scala, a rich volume signed by Lorenzo Arruga, Nicoletta Geron, Maria Elena Mexia, and equipped with a DVD.

Well, this work (223 years of history that is at the same time a memorial of this country) has been realized thanks to Mapei. "Our firm – said Giorgio Squinzi – has known how to restore the corridors of the Sistine Chapel in the Vatican, the floors of the Kremlin, Giotto's frescoes in the Basilica of St. Francis of Assisi damaged by the earthquake. And with our technologies we have participated in the works for the securing of the Mont Blanc Tunnel, we have realized the tallest twin towers in the world in Kuala Lumpur, the bridge that connects Denmark to Sweden, the Three Gorges Dam in China, the 240 kilometres of tunnels that will enable the passage of the Tokyo-Osaka Supertrain in Japan.

As a music lover such as I am, I would now like to help the Scala to return as it was, more beautiful than before." A challenging and passionate declaration, as can be well seen. Squinzi continues: "The attention that Mapei pays to the world of culture, a field in which it has chosen to develop a series of activities, is aimed at spreading and supporting the wealth of the Italian heritage, in the firm conviction that work can never be separated from art. Natural, then, our commitment side by side with the Scala, the Milanese symbol of musical culture, whose fame ranges worldwide. With



this work, a book and DVD, Mapei wants to offer all the enthusiasts of great music the testimony of the opera of the past, while waiting for the building of the Piermarini to open its doors."

The Directing Manager of Mapei has two great passions that have been inculcated into him by his father Rodolfo, the founder of the firm. The first passion is cycling, the second is the opera. Squinzi recalls: "The images of childhood are mixed with those of Fausto Coppi, who I saw race in Lugano in the world championships on the road after having won the fifth Giro d'Italia, and those of the Scala, where I went when I was just 13 years old to see Norma with Maria Callas, Giulietta Simionato and Mario Del

Monaco of whom I was quite a fan. And on both

occasions it was my father who took me."

In the cycling sport Mapei has sponsored a record team for ten agonistic seasons: in fact, for a good eight times it won the title of team number one in the world. Then at the end of last year it released everyone. With great regret Squinzi said, "for not being able to free cycling from the oppression of doping". In opera, this book with DVD represents the most important undertaking thus far, even if not the first. In fact it follows a slipcase of Verdi realized in 2000 for his centennial and one of Toscanini in 2001.

Furthermore, for many years Mapei has already undertaken numerous initiatives in the world of music.

In fact, from 1998 to 2001 it supported the *I Pomeriggi Orchestra* musicals at the Conservatory of Milan; from 1999 it supports the Cantelli Orchestra for which it has now passed among the Great Patrons of Record, and it is also a supporting member of the Giuseppe Verdi Symphony Orchestra.

For several years it has also taken part in the initiative of the Negri-Weizmann committee *Musica e ricerca insieme per la salute* (Music and research together for health); this year the concert was held in January at the Arcimboldi Theatre with Vengerov and the Scala Philharmonic. In 2002 it endorsed the Vidas project (Maurizio Pollini concert) for a hospice intended for the terminally ill patients that live alone and have also belonged to the Leonard Bernstein association among the promoting members.

Indeed, the future of the cultural-musical sector will without doubt witness an ever more active presence of Mapei.

Alberto Mazzuca

"LA SCALA" THE OPERA HOUSE



The slipcase *"La Scala Teatro d'Opera"* (La Scala, The Opera House), including a book and a DVD, was baptised in December, with the participation of Maestro Riccardo Muti, the superintendent of the Scala, Carlo Fontana, and other celebrities of the world of music and culture in general. The appointment between Mapei and the Milan of culture took place at the Busca Hall, the current site of La Scala Theatre Museum, in Corso Magenta. This publication that pleases professionals, opera-lovers and lovers of the Scala in particular, was desired by Mapei and realized by "La Scala Bookstore" of Milan. Particular credit should be attributed to those who, even though concerned with the performance of their own industry, do not forget the Italian cultural past. Speaking of culture, among the many feathers in the cap of our country, one certainly cannot overlook the music, the great composers and the Scala. The Scala, that during this period has temporarily abandoned its site to become more beautiful, more contemporary, more "unique" than ever. And if the past cannot return, Mapei thought well to help the memory to think to the future. This publication has a simple slipcase with an elegant style. The musical part of the DVD is edited by Lorenzo Arruga, journalist, musicologist and writer, while the book can also boast of the editing and expertise of Nicoletta Geron, a well-known journalist in the Italian musical world. The montage of the video footage bears the name of another specialist in the sector: Maria Elena Mexia.

The slipcase should not be lacking in the library of anyone who loves music in general, and the cultural world of Lombardy in particular. Yes, because the time gone by can be found in the DVD, through the viewing of historical footage, sketches and unfindable drawings. And finally, that which makes the DVD precious is the view of a Scala – from its birth throughout the iconography – that no longer exists. No sadness nor regret, the one which we will have again will be even more beautiful and functional, but it will no longer be "that" Scala: a theatre that, due to the quick reconstruction after the war, had some defects but was loved also for these and was the symbol of the revival. Well, with this DVD "that Scala" returns to life and we see it pulsating before our eyes. Through the sketches of the most celebrated works that have had their world premiere precisely at the Scala, one can relive the emotions of the period. So there's an entire world – or rather – musical world that has made the Scala a unique theatre. There is precious footage of great orchestra conductors, and there is one in particular that leaves nobody indifferent and is capable of touching even the most hardened musical heart: the "Va pensiero" by Nabucco



di Verdi, conducted by Arturo Toscanini on the occasion of the reopening of the reconstructed Scala after the war. The conducting of the great Toscanini we all recognize, but the choice of the footage of a Milan, wounded and destroyed by the bombs, that flows along the notes is worthy of a great director.

The DVD begins with a prologue showing the dawning of the theatre and the interior of the same, where some opera composers are greatly honoured such as Rossini, Bellini, Donizetti, Verdi, and Puccini that have made the Italian music famous worldwide. Some operas are also honoured that were performed in this hall in world premiere to then become world-famous. Next there are some historical "firsts" remembered by great performers and more music with Toscanini, la Callas, Strehler, Visconti, Mozart, Muti...

A world within the world, where there are no discontinuities and where the musical circle knows no limits. The DVD ends with two unedited interviews with Maestro Riccardo Muti and the superintendent Carlo Fontana, in which they talk of the past, present and future of the most beautiful theatre in the world.

The book that accompanies the DVD has its own charm: slim, essential, complete. Unputdownable, it pleases the professionals by providing all the information they need, and it interests the neophyte who feels at ease thanks to the elegant simplicity with which it is written and designed.

Valeria Pedemonte

ARCIMBOLDI

A RELIEF "SCALA" FOR MILAN



The Arcimboldi Theatre was inaugurated officially on January 2002, and for the next three seasons it will host the lyric program of the Scala currently under restoration.

Almost record times for the delivery of the Arcimboldi, the theatre that will substitute the Scala for three years in the heart of the melomania worldwide: just 27 months of construction site starting from the beginning of October in 1999 and ending in January of 2002 with the delivery of the structure to the Municipality of Milan by Pirelli Real Estate. All this for a musical theatre of over two thousand seats, considered to be the second largest in Europe, cost a total of 85 billion old Italian Lira. The hall can host 2480 spectators and is fan-shaped with an auditorium on two levels of 1524 seats and two balconies of seven rows each. It has a maximum depth of 35 metres and a maximum width of 49 metres with an average height of 22 metres. The stage has a proscenium that measures 16 metres in width and 12 in height, exactly like that of the Scala. Even the acoustics, given the fundamental importance that it has in a space of this type, has been carefully studied together with a specialist coming from Paris, Daniel Commins. The design bears the prestigious signature of Architect Vittorio Gregotti that had wanted to create a place where concentration and listening were favoured rather than referring to the conception of the nineteenth-

century model that saw in the theatre also, and above all, a lounge and a social ceremony room; here instead the interpersonal relationships are concentrated in the large and luminous foyer. The architectural structure of the Arcimboldi Theatre has simple volumes, light renders, a foundation in black stone and a majestic inclined glass front that welcomes the spectator. The stage tower is 33 metres tall and is a structure without pillars that is held on rings. To realize it the sequence of the concrete pourings could never be interrupted, resulting in 24-hour

Photo 1. Maestro Muti directs the Philharmonic of the Scala on the stage of the Arcimboldi Theatre.

Photo 2. Architect Vittorio Gregotti before the majestic inclined glass front of the Theatre.





Photo 3. In the large atrium some bags of Nivorapid wait to be used for the levelling of the internal surfaces.

Photo 4. A wide view of the auditorium on two levels. The hall can host 2480 spectators.

installation of the floorings and coverings. KERABOND*, moreover, when mixed with the ISOLASTIC* latex produces a high performance adhesive of class C2 in compliance with EN 12004, that is highly deformable, of class S2 in compliance with the EN 12002 standard. For the grouting of the joints KERACOLOR FF* was chosen, a product easy to apply and particularly suitable for the grouting of the joints of floorings in ceramic tiles. Finally, for the fixing of the rubber ADESILEX G19*, a two-component polyurethane adhesive, proves to be particularly suited for surfaces subjected to heavy traffic such as those of a highly frequented theatre. 

work shifts. The Arcimboldi has revolutionized the musical life of the Milan residents and the very ritual of the Scala, becoming the theatre of the city-region, an area of over three million inhabitants that stretches as far as Como and Varese. In fact, great importance has been given to the structures for the welcome and reception of the spectators: in addition to the shuttle bus from Duomo Piazza and the nearby Greco station, for those who arrive by car a parking lot of 800 stalls has been created, to which another 1200 stalls on three levels will be added. With regard to Mapei, it has had an important role within the construction site of this large project thanks to the supply of a wide range of products among which ADESILEX P4* as mortar for realizing walls in brick blocks, while the levelling of the surfaces was performed with NIVORAPID*. The MAPEFILL* grout, thanks to its excellent adhesive properties, was used to anchor the metal structures to the concrete. GRANIRAPID*, an two-component adhesive system satisfying class C2F standards, and KERABOND*, a class C1 cementitious adhesive, were used for the

**The products cited in this article belong to the "Building Specialty", "Products for Resilient, Textiles and Wood" and "Products for Ceramic Tiles and Stone Materials" lines. The Mapei adhesives and grouts conform to the EN 12004 and EN 13888 standards. The relative technical data sheets are available on the "Mapei Global Infonet" CD and on the website www.mapei.com.*

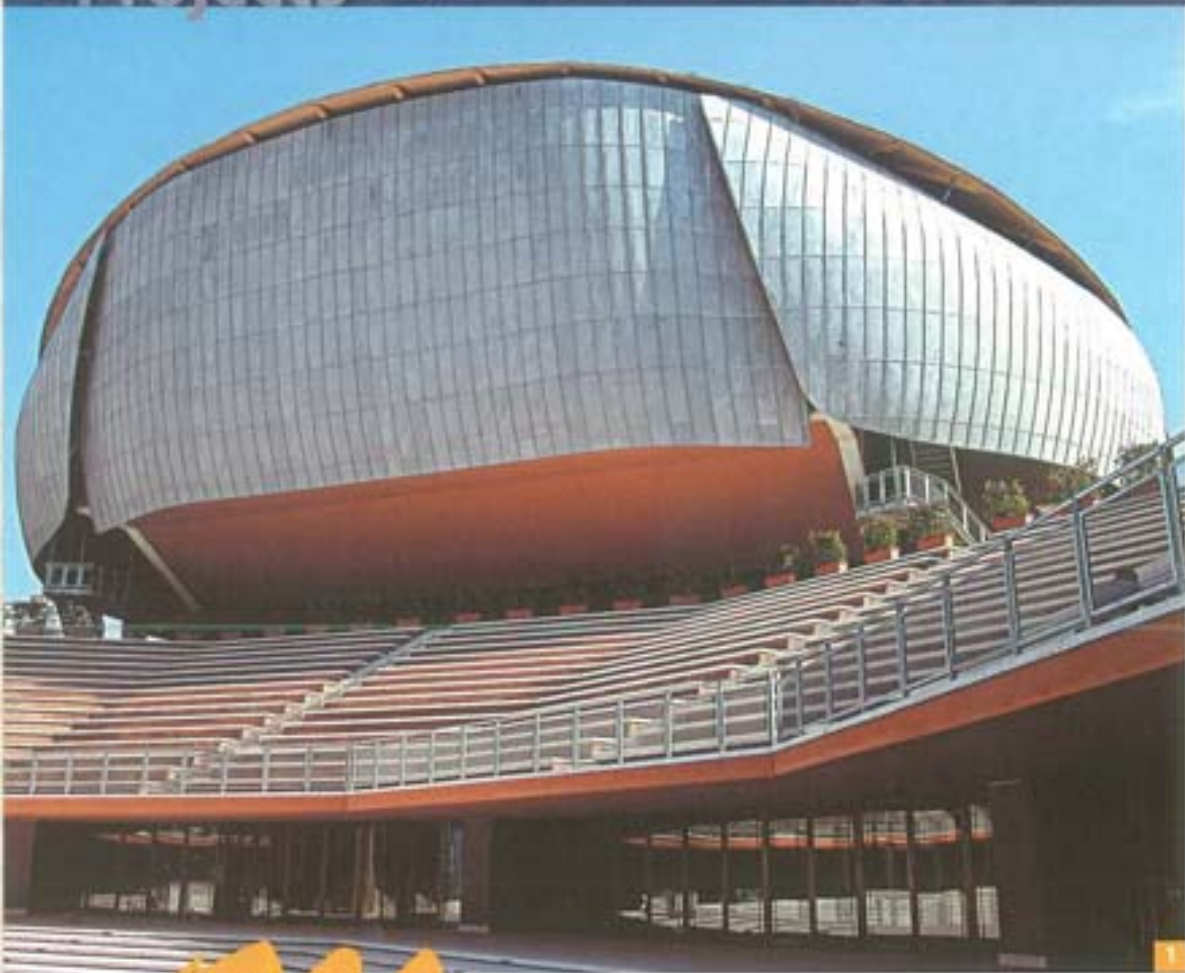


- Adesilex G19:** two-component polyurethane adhesive for rubber and PVC flooring.
- Adesilex P4:** mortar for building cellular brick or concrete block walls.
- Granirapid (C2F):** two-component adhesive system with rapid setting and hydration for fixing ceramic tiles, natural and artificial stones.
- Isolastic:** flexible latex additive to be mixed with Kerabond, Kerafloor and Adesilex P10.
- Kerabond (C1):** cementitious powder adhesive for ceramic tiles; satisfies class C2 standards if mixed with Isolastic.
- Keracolor FF (CG2):** cementitious grout for grouting joints up to 6 mm.
- Mapefill:** expansive grout for anchors.
- Nivorapid:** ultra-fast drying thixotropic cementitious levelling mortar for horizontal or vertical surfaces.



TECHNICAL DATA

Arcimboldi Theatre, Milan, Italy
 Year of project with Mapei products: 2001
 Designer: Studio Gregotti
 Works manager: Arch. D'Amato
 Construction company: Pirelli Real Estate
 Installation firm for the interior floor: Privedil
 Mapei products: ADESILEX P4, GRANIRAPID, ISOLASTIC, KERABOND, KERACOLOR FF, MAPEFILL, NIVORAPID, ADESILEX G19
 Mapei coordinator: Andrea Peli



Architect Renzo Piano, designer of the Music Park.

Photo 1. The dome that covers one of the finished halls. The covering is formed by very thin lead sheets.

Photo 2. From above one can perceive, already during the construction phase, the impressiveness of the project.

Music park

Three large concert halls immersed in the greenery bring great music to Rome in the new Auditorium.

The Music Park Auditorium, by design of Architect Renzo Piano, since its inauguration has proven to be not only a large project but also an extraordinary example of collaboration between designers, firms and the Municipality of Rome. In fact, since the demolition in 1936 of the Augusteo Theatre, the city has not been able to offer an adequate venue to one of the most ancient musical institutions of the world: The National Santa Cecilia Academy. The Roman Auditorium is truly an extraordinary work both for its forms as well as its dimensions, as can be perceived by glancing at some figures: 55,000

m² of area, 40,000 m² of squares and gardens, 7600 seats in total, 696 covered parking spaces, 350,000 m³ of construction. The spaces dedicated to music included in a 3-hectare roof garden deserve a separate discourse: the Great Hall for symphonic concerts of 2700 seats; the Medium Hall, designed both for concerts as well as multimedia shows, with 1200 seats; the Small Hall, a multi-purpose theatre of 700 seats; and the open-air Cavea of 3,000 seats. The three concert halls have an external covering in very thin lead sheets, the supporting structure in cement with the roofing in Austrian pine, while

Photo 3. For the execution of the screeds in the three concert halls, the rehearsal hall and in other rooms, Topcem Pronto was used.

Photo 4. The levelling of the terraces of the halls was performed with Nivorapid.

Photo 5. To reinforce the walls in reinforced concrete subjected to new loads, it was necessary to apply, on almost the entire perimeter of the walls, MapeWrap carbon fibre fabric.





Photo 6. After having applied the Mapewrap carbon fibre fabric, the epoxy putty Mapewrap 11 was spread to seal the joints between the fabric itself.

Photos 7 and 8. The quadriaxial Mapewrap C Quadri-AX fabric was confined with the insertion of carbon rods with diameter of 10 mm, inserted for the entire width of the fabric into the concrete walls for a depth of 2 cm.

the interior of the halls is in American cherry wood that offers an excellent sound insulation.

Realization of screeds and levelling of the halls

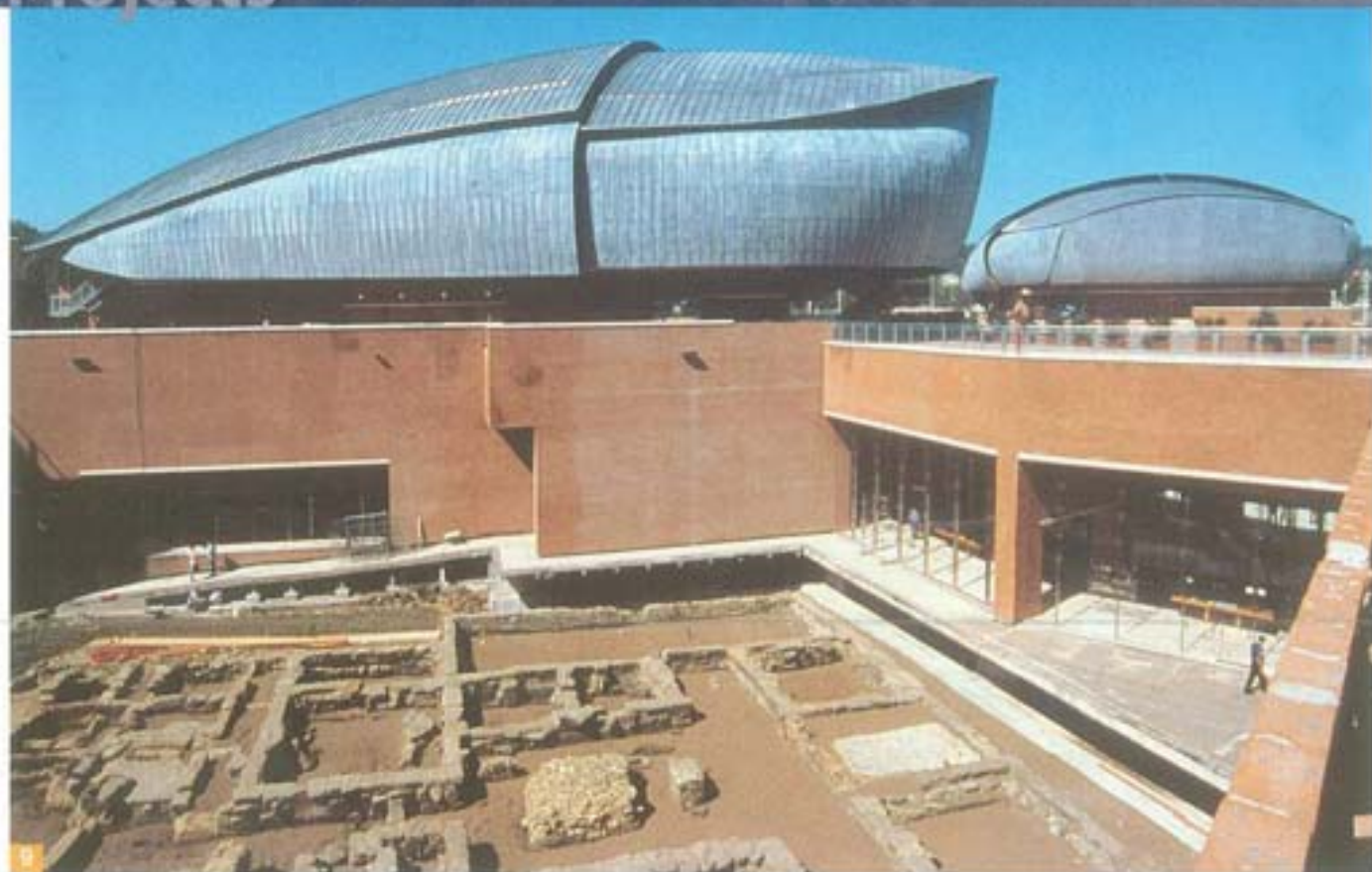
Mapei also collaborated on the project, contributing with its own engineers and providing a vast range of products both for the repair of concrete and the reinforcement of structures as well as for the execution of screeds and levelling on all the surfaces of the three concert halls, the rehearsal hall and other rooms. For the latter operation the cycle of the works carried out started with the pressure cleaning of the substrate with a high-pressure water jet machine, and then the epoxy adhesive EPORIP® was applied by brush as an adhesion primer and waterproof barrier. For the execution of the screed the pre-packed mortar TOPCEM PRONTO® was used, ideal for the formation of screeds on new and existing concrete slabs where fast drying and short installation times are required. The levelling of the terraces of the halls was performed with

NIVORAPID®, particularly recommended precisely for the levelling of steps, corners and holes in flooring, for a thickness of 2 cm.

Concrete repair and reinforcement of the structures

For that concerning the repair of the concrete, Mapei intervened in the early part of 2001, performing injections with the epoxy resin EPOJET® to repair some cracks that were starting to form and for structural reinforcement, and using the MAPEFILL® grout to anchor the new reinforcement bars onto the existing pillars. On a good part of the intrados of the beams and of the concrete slabs there was performed, directly by the Impregilo employees at the suggestion of the Mapei engineers, the scarification of the surfaces to make them rough, followed then by a brush treatment of the reinforcement bars with the anticorrosive mortar MAPEFER®. After the drying, the next step was the application of the repair mortar: various products of the Mapegrout line were used, chosen on the basis





of the needs presented by the work. Consequently the work preceded with MAPEGROUT THIXOTROPIC*, characterized by high mechanical strength; MAPEGROUT T40*, very workable and easily applied onto vertical surfaces; MAPEGROUT FAST-SET*, ideal where a very quick setting is necessary; and finally,

in carbon fibre for a height of approximately 1.5 m. With the consultancy of Prof. Balsamo and Prof. Braga, the Mapei engineers elaborated the working drawings for the correct dimensioning of the fabric and to provide the contracting firms, the Speco of Naples and the Addressi Service of Itri, with the

Photo 9. During the construction works there was also discovered an archaeological area, visible in the foreground of the picture.



MAPEGROUT HI-FLOW*, when the work conditions imposed the use of this particularly fluid mortar. In some cases it was also necessary to use the EPORIP* resin as an adhesion primer. To fill cavities and cracks STABILCEM* was used, while MAPEFINISH* was used to finish and level the surfaces. Mapei also performed a structural reinforcement operation in the Great Hall (seating capacity 2700 seats) to adapt the reinforced concrete walls at the level of the foundations, subject to new loads caused by overhanging lofts, and to prevent possible cracking. For this it was necessary to apply, on almost the entire perimeter of the walls, fabric

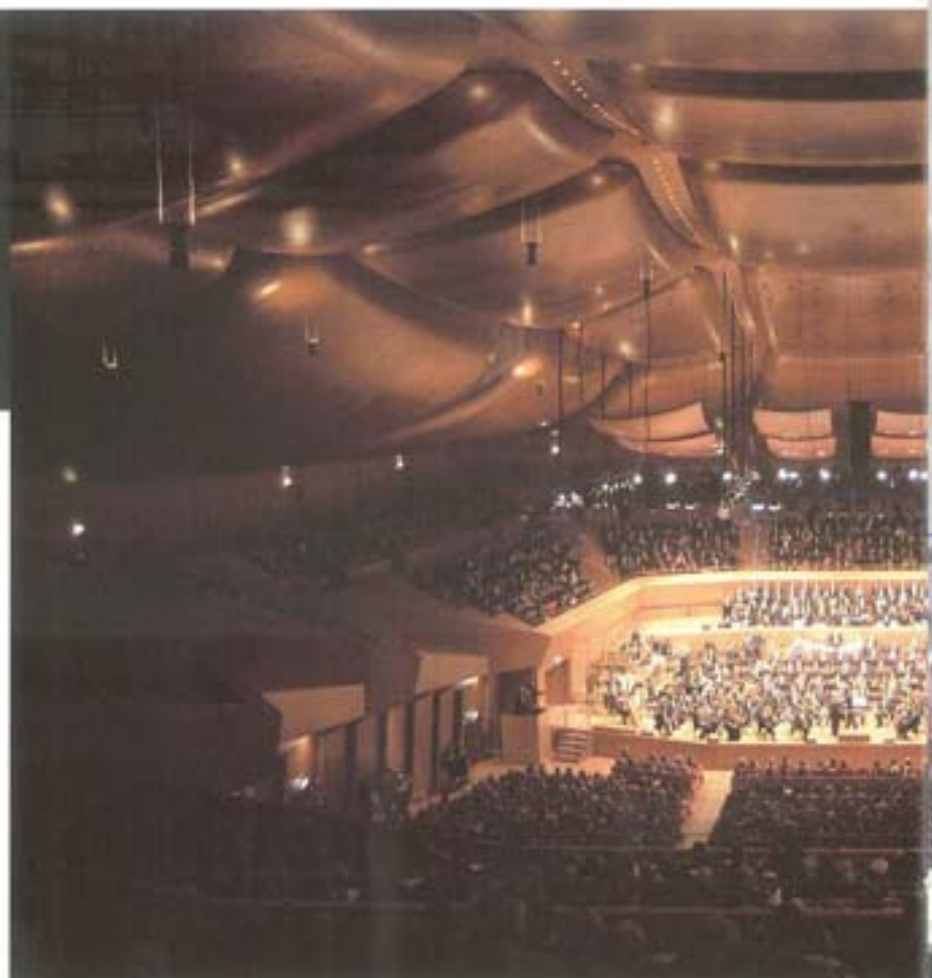


Photo 10. Myung-Wiung Chung, principal conductor of the Orchestra of the National Santa Cecilia Academy. This important musical institution has discovered a new venue in the Auditorium.

Photo 11. A picture of the stalls and of the stage of the Great Hall during a performance.

operational instructions for the installation. The intervention consisted in the on-site installation with the dry system of the unidirectional MAPEWRAP C UNI-AX, applied in two overlapping layers installed longitudinally on both the internal and external sides of the walls.

In correspondence with the internal corners of the walls the quadriaxial fabric MAPEWRAP C QUADRI-AX was applied vertically, functioning as confinement of the longitudinal fabric. The quadriaxial fabric was itself confined with the insertion of carbon rods with a diameter of 10 mm, inserted for the entire width of the fabric in the concrete walls for a depth of 2 cm. Before installing the fabric, the surfaces were treated with MAPEWRAP PRIMER 1*, on which the epoxy putty MAPEWRAP 11* or MAPEWRAP 12* was spread (preferably during the summer periods thanks to its workability) and immediately after MAPEWRAP 31*, an adhesive specially formulated for the impregnation with the dry method of the MapeWrap fabric.

*The products cited in this article belong the "Building Specialty" line. The relative technical data sheets are available on the "Mapei Global Infonet" CD and on the web site "www.mapei.com".

Epojet: superfluid epoxy resin for injection.

Eporip: epoxy adhesive for bonding cold joints and monolithic sealing of cracks in screeds.

Maferfer: anticorrosive cementitious mortar for reinforcement bars.

Mapefill: expansive grout for anchoring.

Mapefinish: two-component cementitious mortar for finishing concrete surfaces.

Mapegrout Hi-flow: controlled-shrinkage, fibre-reinforced mortar for concrete repair.

Mapegrout Fast-set: controlled-shrinkage, fibre-reinforced mortar with rapid setting and hardening for the repair of concrete.

Mapegrout T40: medium strength (40 MPa) thixotropic mortar for the repair of concrete.

Mapegrout Thixotropic: controlled-shrinkage, fibre-reinforced mortar for the repair of concrete.

MapeWrap 11: normal setting, thixotropic epoxy putty for levelling concrete surfaces.

MapeWrap 12: slow setting, thixotropic epoxy putty for levelling concrete surfaces.

MapeWrap 31: medium viscosity epoxy adhesive for impregnation with MapeWrap "dry system".

MapeWrap C Quadri-AX: balanced high strength quadri-directional carbon fibre fabric.

MapeWrap C Uni-AX: high strength unidirectional continuous carbon fibre fabric.

MapeWrap Primer 1: epoxy primer specific for the MapeWrap system.

Nivorapid: ultra-fast drying thixotropic cementitious levelling mortar for horizontal or vertical surfaces.

Stabilcem: superfluid expanding cement binder for injection slurries, mortars and concrete.

Topcem Pronto: ready-to-use, pre-packed, normal-setting mortar with controlled shrinkage for fast-drying screeds (4 days).



TECHNICAL DATA

Music Park Auditorium, Rome, Italy

Project: concrete repair, structural reinforcement, realization of screeds and levelling of the surfaces of the halls

Customer: Auditorium Roma S.C.R.L.

Design: Arch. Renzo Piano - R.P.B.W. Genoa

Acoustics design: Eng. Gerhard Muller

Consultants: for the Municipality of Rome Prof. Braga; for Mapei Prof. Balsamo

Construction company: Impregilo-Colombo Costruzioni

Contracting firm for the screeds: Edil Pav of Sandro Sigismondi, Frosinone

Contacting firm for the installation of the carbon fibre fabric:

Speco, Naples; Addressi, Itri (LT)

Works management: Eng. Pelati

Year of project: 2000-2001

Mapei Products: EPOJET, EPORIP, MAPEFER, MAPEFILL, MAPEFINISH,

MAPEGROUT HI-FLOW, MAPEGROUT FAST-SET, MAPEGROUT T40,

MAPEGROUT THIXOTROPIC, MAPEWRAP 11, MAPEWRAP 12,

MAPEWRAP 31, MAPEWRAP C QUADRI-AX, MAPEWRAP C UNI-AX,

MAPEWRAP PRIMER 1, NIVORAPID, STABILCEM, TOPCEM PRONTO

Mapei technical assistance: Eng. Leonardo Butò

Mapei coordinators: Pino Mancini and Renato Soffi

Photos by Moreno Maggi; photos of construction process (pp. 18 and 19) by Pino Mancini.

Suggestions of an antique Verona at the "Spirala" Theatre in Prague



A round stage, placed at the centre of the theatre and completely covered in slate, acted as the background to an unusual representation of "Romeo and Juliet" by Shakespeare.

The occasion of the enactment of an unusual musical version of the Shakespearean tragedy "Romeo and Juliet" at the "Spirala" Theatre in Prague provided the opportunity to create a particular scenography. The director of the performance, in fact, decided to position the stage at the centre of the auditorium, thereby simulating an urban view of the seventeenth-century Verona, scene of the story of Romeo and Juliet. The peculiarity was that of covering the entire round-shaped stage with tiles in Indian slate, very similar to the pavement of the period. The limited time for the execution of the work made it necessary to realize the scenography on-site and, as a consequence, it was necessary to resort to special products for the installation of the covering. The stone was bonded onto double panels, reinforced in order to support the weight of the material, themselves mounted onto steel frames that formed a framework all around the stage. For the execution there was first used MAPEPRIM SP, as a base primer in order to give the maximum adherence to the support panels, and then GRANIRAPID, specific for the fast-setting bonding of natural stones, with which the tiles were installed. To finish, the joints were performed with ULTRACOLOR, a special mortar that is also fast-setting.

Only in this way was it possible to carry out the works quickly, safely and within just a few days, during the nighttime hours of early September, in order to give place to the "premiere" in the evening of 21 September 2001.



Ultrabond P990 1K



ULTRABOND P990 1K is an extremely innovative polyurethane one-component adhesive, ready-to-use, elastic and solvent-free, for all types of wooden flooring and laminates. The characteristics that make this new product so interesting are mainly three: the first is that it is a one-component polyurethane, the second is the absence of solvents that allows for its use

without the risks of allergies for the installers, and the third consists in the innovative packaging that cancels the waste, allowing for the full and total use of the product. ULTRABOND P990 1K, in fact, is sold in a package composed of an aluminium bag contained in a plastic bucket.

When the work is finished, to preserve the unused product it is sufficient to close the bag well, letting out as much air as possible to prevent the formation of a surface film. Its range of application includes the bonding of wooden flooring, prefinished wood or laminates of any size and type; the installation may be performed on: cementitious screeds, screeds in MAPECEM, TOPCEM, TOPCEM PRONTO and the like, existing wood flooring, ceramic tiles, marble terazzo tiles, etc., anhydrite screeds. Furthermore this adhesive is suitable for use with underfloor heating systems.

Technical characteristics

ULTRABOND P990 1K is an adhesive based on hydro-hardening polyurethane resin prepared according to technology developed in the Mapei laboratories. It has the characteristic of being a ready-to-use one-component product that does not require the addition of a hardener and subsequent mixing. The unused product, if stored correctly, can be reused for other applications.

As already noted, it is a hypoallergenic adhesive that can also be used by installers that are allergic to epoxy-polyurethane products. It is easy to apply even at low temperatures and has a yield 20-30% greater than that of the traditional two-component products, thanks to its low viscosity and the fluidity of the adhesive under the trowel even at low temperatures.

There should also be stressed the excellent rib stability, even with high temperatures, that makes the adjustment of the wood during installation easier; furthermore the expansion of the adhesive, very limited, does not modify

the flatness of the installed wooden flooring.

The comfort aspect is also important: the absence of solvents and of substances that can emit unpleasant odours guarantees the comfort and convenience of its use by the installers. Also from the comfort point of view, for the benefit of the customer, there should be emphasized the sound absorption ability of this adhesive, which forms an elastic layer that reduces the trampling noises.

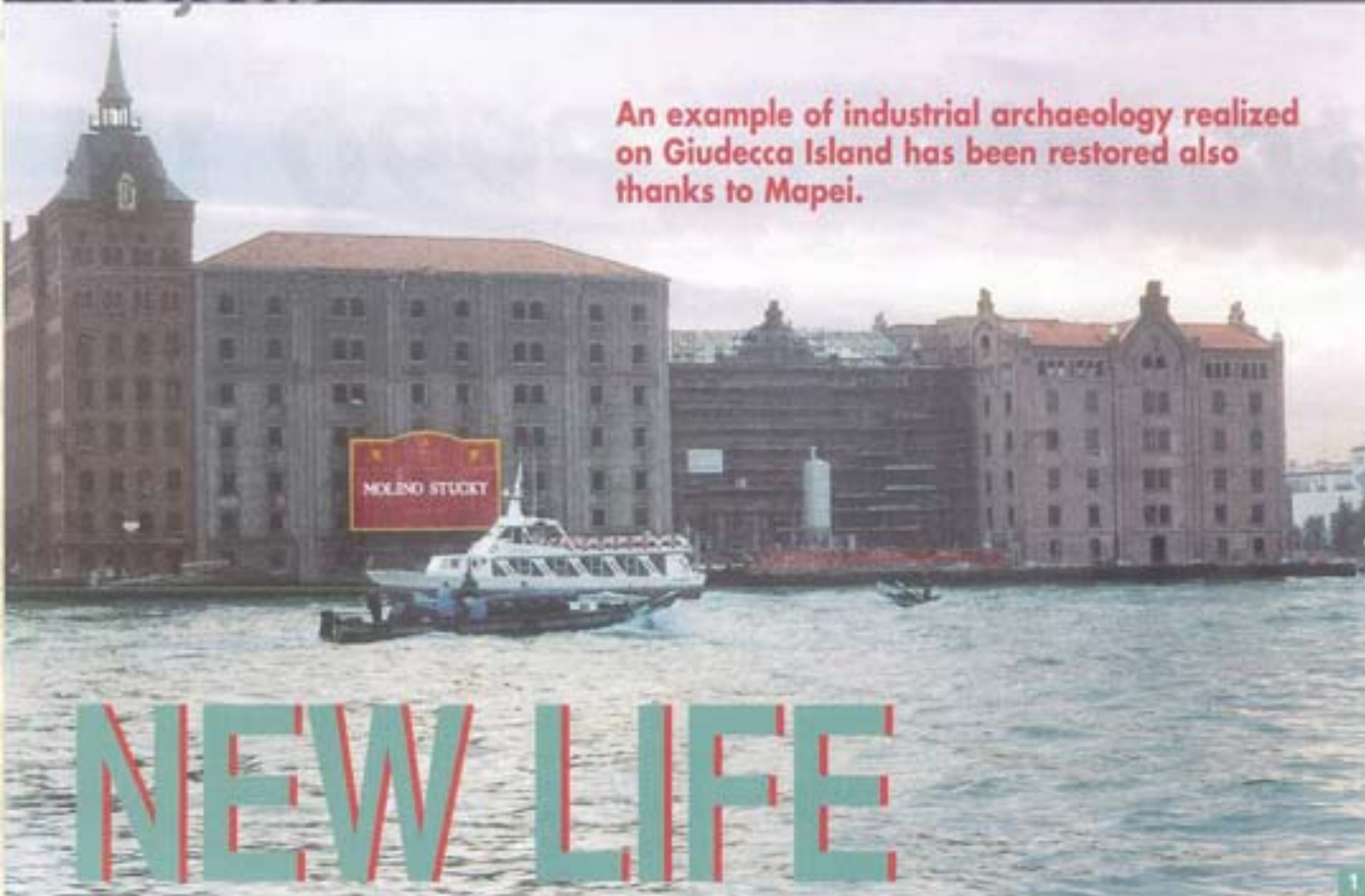
Application procedure

As a first step it is necessary to carefully check the substrate to verify its condition and to make it suitable for the installation of the parquet. In the case of cementitious screeds, these must be cured, dry, flat and mechanically sound. The surface must be free of dust, loose particles, oil residues, paints, etc. The substrates that are not solid enough should be removed or, where possible, consolidated with a primer such as PROSFAS, PRIMER EP, PRIMER PU60. Cracks can be repaired with products such as EPORIP, EPORIP TURBO, EPOJET.

Excessively rough or uneven surfaces can be smoothed with a levelling compound with high mechanical strength, such as FIBERPLAN, ULTRAPLAN, ULTRAPLAN MAXI, NIVORAPID and others, to be chosen in relation to the thickness required. For existing floorings in ceramic tile, marble, etc., it is necessary that these are clean with any grease removed carefully before proceeding to the bonding. There shouldn't be applied any adhesion promoter, such as PRIMER KL, before the bonding because the two products are not compatible. In the situations in which there is an existing wooden flooring, it is necessary to check that the existing boards of the floor are well secured to the substrate. Use abrasive paper to remove the layer of varnish or wax until reaching clean wood and vacuum up the dust. Proceed subsequently to the bonding. In the case of anhydrite substrates, after sanding down and vacuuming the dust, apply PRIMER MF and proceed to the installation after 3-4 hours, but not more than 12 hours later. Alternatively, overlay with fresh sand and the day after, upon complete hardening, vacuum up the excess unattached sand and then proceed to the bonding. The floorings are set to light foot traffic after about 12 hours.



An example of industrial archaeology realized on Giudecca Island has been restored also thanks to Mapei.



NEW LIFE for the Stucky Mill

The recovery of the area

Mills existed in Venice already in 1353, and the stories tell of windmills on the San Giorgio Island, in San Nicolò del Lido and in Castello, one seems to have operated in the Moranzani channel, some were built on barges and anchored to the banks while others were solid constructions. The advent of the steam engine and of the cylindrical mills started a process that witnessed the emergence of impressive complexes precisely like the Stucky Mill. This is the period in which there was a diffusion of industrial settlements in the lagoon cities, in addition to the Stucky Mill, the Cotton Mill and the Junghans watch factory, and infrastructures were built such as the trans-lagoon railway that connects the city with the inland. The Swiss Giovanni Stucky, after having operated a mill in Treviso, realized quite early that a large firm had to settle on the sea in order to exploit the advantages of the maritime and fluvial transport. Thus he moved to Venice and, in December 1882, poured the foundations of the Mill on the fields of the Giudecca Island, the largest Venetian island located in front of San Marco. In 1895, the Architect Ernst Wullekopf was commissioned to handle the transformation and enlargement of the

original mill.

After the presentation to the Municipality Committee, where some modifications to the original design were required, the German architect realized a huge mill similar to a medieval castle, imposing a style very different with respect to that dominant on the island at that time and that recalled in its forms and grandeur the large commercial buildings of Northern Europe. Unfortunately, after the last post-war era began the decline of the construction and the Mill, not being able to follow the technological development imposed by the market, became obsolete. During the 50's the installations of the Stucky Mill were definitively closed. From then the building, despite numerous designs and various proposals that however risked to radically alter the original solidity, was abandoned to neglect. None of the recovery attempts were successful until when, in 1988, a restriction of the Superintendency transformed it into a national monument, and the Ministry for the Cultural and Environmental Heritage decided to attribute the entire structure of the Mill with the restriction provided for by law 1089 of 1939. During the Eighties a resolution of the Venice city council established its

Photo 1. The grandeur of the Stucky Mill viewed from San Marco.

transformation into a residential, hotel and cultural complex. This decision, in addition to a very thorough historical study of the industrial structure and of its evolution in the urbanistic context, determined the choices and the development of the design of reuse and restructuring of the existing Mill. Without having to resort to

peculiarity of the city and of its artistic and architectural constraints. Mapei was called to intervene in the part dedicated to the residential zone where approximately one hundred apartments were obtained.



Photo 2. All the floor screeds were realized in cement and polystyrene hardened superficially with the water consolidating compound PROSFAS.



Photo 3. The installation followed a determined sequence that included first the spreading of two sheets of polyethylene with a thickness of 0.15 micron used as a waterproof shield to protect the flooring from the humidity present in the cement and polystyrene floor screeds.



Photo 4. On top of the polyethylene sheets were placed tongue and groove waterproof chipboard panels of 22 mm, with a perimetral joint of one centimetre.

Photo 5. The final phase, the fixing of the African teak wood-blocks of the parquet, was performed with Ultrabond P990 1K, the new hydro-hardening one-component polyurethane adhesive of Mapei.

demolitions and without adding new constructions, it was possible to hypothesize the reuse of the Mill making only internal additions, and the new functions did not distort the pre-existing spaces. Thus a part was divided up and dedicated to a residential area, the first large volume of the Mill was transformed into a hotel, another part became a shopping centre capable of exploiting the ease of access of the goods by means of channel, while a congress centre was obtained from that which was once a pasta factory.

Analysis of the project

Well, an impressive and particularly challenging project for the designers, engineers, and companies that have worked on it and for the products used in a restructuring that proved to be difficult not only for the long state of abandonment of the building but also for the

The recovery must absolutely maintain intact the external supporting structure in bricks with an as-cast finish effect. This imposed weight limits in the realization of the various inhabited floors, for which from the first floor to the fifth and last floor, all the floor screeds were realized in cement and polystyrene superficially hardened with PROSFAS*, a water consolidating compound of Mapei ideal for the reconstruction of the cementitious substrates and for the hardening of the cementitious screeds. After this necessary operation the floorings of the apartments had to be parquetted. To execute the work the firm of Angelo and Luigi Cattaneo was contacted, the qualified Milanese parquet installers that installed prefinished parquet in two-ply African teak (approximately 11x70x450 mm) interposing a waterproof chipboard of 22 mm. For the dimensions of the job, consisting in



Photo 6. A picture of the finished and polished parquet.



approximately 2400 square metres of parquet, the work progressed in lots, starting from the fifth floor and moving downward.

The installation operation followed a determined sequence that involved first the spreading of two sheets of polyethylene with a thickness of 0.15 micron, used as a waterproof shield to protect the flooring from the humidity present in the floor screeds in cement and polystyrene. This phase was then followed by the free laying of the tongue and groove waterproof chipboards, with a perimetral joint of one centimetre. Finally for the fixing of the African teak wood-blocks of the parquet ULTRABOND P990 1K*, a very new hydro-hardening one-component polyurethane adhesive of Mapei was used.

The installation system described above is not very common if compared with the fixed system, but in difficult conditions such as those of the Stucky Mill where there are inconsistencies and considerable humidity

present in the screed, the technique in question is the only one that can ensure good results both for that which concerns the aesthetic aspect and the durability over time.

Furthermore it does not excessively penalize the noise reduction since that which is called the "hollow sound" that is produced by trampling is notably

dampened by the elasticity of the adhesive used. The wood panel, both chipboard and multi-ply interposed between the screed and the parquet, can easily handle cementitious substrates thanks to its mechanical characteristics. Indeed, technically its resistance to shear stress on the surface is decidedly superior and when the thickness is sufficiently high with respect to the parquet, as in the specific case, a certain stability and inertia is also obtained. Thus any small movements of acclimatization of the flooring just installed do not give rise to problems of swelling of the walking surface.

The Mapei products

To ensure greater work safety, the Cattaneo business chose to fix with the ULTRABOND P990 1K* adhesive of Mapei, a hydro-hardening one-component polyurethane adhesive completely free of solvents. The product is characterized by a strong adhesion together with a considerable permanent elasticity capable of totally absorbing the natural movements of the parquet both upon installation and with the change of the seasons, without transferring particular strains or stresses to the panel, allowing it to remain always flat without having to endure stresses of any type. Even at winter temperatures (in fact it was installed from December to February) the adhesive guaranteed its performance, demonstrating to suffer the low temperatures less than the two-component products, also with regard to the spreadability. ULTRABOND P990 1K*, presented at the last Saiedue in Bologna by Mapei, is a new generation adhesive, ready-to-use and specially designed for the fixing of wooden flooring, prefinished and laminated of any size and woody species onto cementitious screeds, existing wooden floorings, ceramic tiles, marble. Thanks to the particular aluminium bag with hermetic closure in which it is contained, ULTRABOND P990 1K*, if it is not used and if conserved in a suitable manner, it is reusable for other applications avoiding unnecessary product waste. Hypoallergenic, it can also be used by installers that are allergic to epoxy-polyurethane products. Easy to apply even at low temperatures, it has a yield 20-30% greater than that of the traditional two-component products, thanks to its low viscosity and the fluidity of the adhesive under the trowel. The expansion of the adhesive, very limited, does not modify the flatness of the installed wooden flooring, while the absence of solvents prevents the propagation of unpleasant odours; it is sound absorbing and forms an elastic layer that reduces



Photo 7. The ceramic tiles of the bathrooms were installed with the adhesive Keraflex, characterized by high adhesion and no vertical slipping. Keracolor FF was used for the joints.

Photo 8. The Granitapid quick-setting adhesive system was used to fix the marble tiles and reassembled stones in the main entrance, while Keracolor GG was chosen for the joints.

the trampling noises. Before being applied it is necessary to carefully check the substrate to verify its condition and to make it suitable for the installation of the wooden flooring. ULTRABOND P990 1K* is spread with the Mapei notched trowel for wood and must be recovered with the within 60 minutes. The floors are set to light foot traffic after approximately 12 hours and are polishable 3 days after the installation. The Mapei adhesives have also been used in other rooms of the residential zone. To install the ceramic tiles in the bathrooms of the apartments, both on the floorings and on the walls, the KERAFLEX* adhesive was chosen, characterized by zero vertical slipping, while the grouting was performed with KERACOLOR FF*.

For the installation of the marble slabs and artificial stone materials

that cover the central entrance of the residential building there were instead used GRANIRAPID*, a quick setting two-component adhesive system, and KERACOLOR GG* for the grouting.

The contribution given by the Mapei products has also enabled the achievement of excellent results, even with quite problematic initial working conditions.

The Fire

On April 15 – during the writing of this article – there was a serious fire of the Stucky Mill that unfortunately destroyed the wing in restoration that overlooks the internal canal. No damage was suffered by the residential part, in which were obtained the more than one hundred apartments and where Mapei had worked (already delivered last year to the customer), but the facade, the turret and the part destined to become a large hotel (to be delivered in 2006) have been seriously devastated. Despite this tragic event, the restoration work will continue and certainly within a short time the impressive facade of the Stucky Mill will return to sparkle on the canal of the Giudecca as remembered by many Venetians.

INFOFOTO

**The products cited in this article belong to the "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings" and "Products for Ceramic Tiles and Stone Materials" lines. The relative technical data sheets are available on the "Mapei Global Infonet" CD and on the website www.mapei.com.*

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

Granirapid (C2F): two-component adhesive system with rapid setting and hydration for the installation of ceramic tiles, natural and artificial stones (thickness of the adhesive up to 10 mm).

Keracolor FF (CG2): cementitious grout for grouting joints up to 6 mm.

Keracolor GG (CG2): cementitious grout for grouting joints from 4 to 15 mm.

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

Prosfas: silicate-based solvent-free consolidating compound for cementitious substrates.

Ultrabond P990 1K: one-component ready-to-use, polyurethane adhesive, elastic and solvent-free, for all types of wooden floors and laminates.



TECHNICAL DATA

Stucky Mill in Venice

Year of project: 2002

Customer: Molino Stucky Venezia S.p.A

Design: Centro Ricerche e Restauro Palazzo Cappello, Studio Ass. Arch. Francesco Amendolagine e Giuseppe Boccanegra

Works manager: Arch. Giuseppe Boccanegra

Project, structural analyses and calculations: Eng. Enzo Siviero, Eng. Luigi Rebonato, Eng. Giuseppe Colbertaldo

Systems design: Eng. Mauro Strada and Eng. Lamberto Borsoi, Società Steam

Construction company: Restauri Edili Fassi, Venice; Edilizia Edilizia Lombarda, Milan

Parquet installation contractor: Angelo e Luigi Cattaneo, Zelo Buon Persico (MI)

Mapei products: GRANIRAPID, KERACOLOR FF, KERACOLOR GG, KERAFLEX, PROSFAS, ULTRABOND P990 1K

Mapei coordinators: Paolo Alberti, Mauro Orlando, Gioglio Zanardo



Departure, sweet departure

The French Railways have started a plan of restoration of the stations to make it so that the growing mobility of the population finds an outlet in an integrated system made of multiple railway networks. Recently, in fact, both the Gare du Nord in Paris and the Gare du Arras in the city of Arras have been object of modernization and enlargement, mainly in the zones of traveller transit and interchange.

The Gare du Nord

The Gare du Nord is, in terms of importance, the first in Europe and the third in the world. Its restoration is the symbol of the program of revival of the stations planned by the Arep (the agency of the French Railways for the study of the stations, planning, research and exchange terminals).

To optimise the circulation of the travellers – more and more numerous – a new and vast interchange area has been built.

It involved connecting together in a fluid manner the local, national and international networks that make up this complex railway junction. The new area, that has taken the place of an old parking lot, was studied in order to support the strong stresses caused by the intense and constant foot traffic.

For this construction site Mapei products have been chosen, with the consultancy of Philippe Latrace of Mapei France SA. The works were realized over an area of 20,000 m².

The coverings in reconstituted marble

For the coverings, the white reconstituted marble Microtecnica of Quarella and the Artic White reconstituted marble of Rover were used. These were installed with GRANIRAPID*, a two-component adhesive system with rapid setting





Photo 1.
A picture of the inside of the new pavilion of the Gare du Nord in Paris, a structure in steel and glass that expands on various levels, with a system of stairs and footways that ensure the vertical and horizontal connections.

Photos 2 and 3.
Two moments of the installation of the tiles in reconstituted stone: grey Granirapid was used, using the double backbuttering technique.

Photo 4.
For the internal floorings large-sized tiles were chosen, 60x60x1.2 cm, suitable for the dimensions of the surrounding spaces.

and hydration for the installation of ceramic tiles, natural and artificial stones. The installation was performed on the cementitious screeds, using the double backbuttering technique. For the joints white KERACOLOR FF® was used, a cementitious grout for the grouting of joints up to 6 mm. The white Keracolor harmonized perfectly with the colouration of the tiles and also allowed for the realization of joints with a resistance suitable for the multiple aggressions that these surfaces will have to support. "In compliance with the dictates of the specifications – explained Philippe Latrace, regulation manager at Mapei – the Upec classification of the flooring realized is U4 (wear resistance), P3 (flexion and strong impact resistance), E3 (porosity) and C1 (resistance to acidic and basic stains):"



Photo 5.
Thanks to its adhesive and quick drying characteristics, Granirapid allowed for the immediate placing into service of the flooring: it is, in fact, set to light foot traffic after only 24 hours.

Functionality and savings

There are essentially two factors that have orientated the choice of the coverings and of the products used: the flooring had to aid the legibility of the spaces and limit the needs for lighting. This double need led to favour light-coloured floorings. The choice fell, on the one hand, on a line of tiles that allowed to vary the



adhesives and the aggregates and, on the other hand, on tiles with a high quality finish, for the corners and surface uniformity in particular. Furthermore, a covering was desired with an intermediate cost, between that of asphalt and that of stone. Having adopted the solution of the reconstituted stone slabs, there was recommended the application in factory, and then on-site, of "stain-resistant" products. The works were completed at the end of 2001.

The Gare d'Arras

The station of Arras was also part of the modernization program organized by the Snct railways public corporation and directed by the Arep agency. Here the restoration concerned the whole of the spaces that welcome the travellers and their companions: the zone for ticket sales, that of interchange and that of access to the tracks and the new buffet of the station.

Rapid interventions

For the renewal of the coverings MAPECEM® and GRANIRAPID® of Mapei were chosen because these two solutions guarantee a rapid and secure system, taking into consideration the high stresses to which this construction site is subjected. The installation firm Taillez used MAPECEM® to realize the screed adhering to the pre-existing cement substrate.

This fast setting and drying binder allows for the realization of screeds ready for the installation of ceramic tiles and natural stones already after 3-4 hours. This has reduced the times of closure of the various spaces of the station, and thus the inconvenience for the travellers was limited.

The characteristics of MAPECEM®, in particular the extremely short drying time (residual moisture less than 2% after 24 hours), make it suitable for a subsequent covering in reconstituted stone.

Difficult bondings

The covering in reconstituted stone of large size and reduced thickness is particularly sensitive to water. The slabs of reconstituted stone Quarella were placed by double backbuttering, using the two-component adhesive mortar GRANIRAPID® with improved resistance. This product is particularly indicated for the installation of stones of any porosity.

Together with GRANIRAPID® the additive PLANICRETE® was used, a synthetic rubber



latex for improving adhesion and mechanical strength of cementitious mortars.

The groutings were realized with the cementitious mortar KERACOLOR FF®.

A high-stress construction site

The floorings of the station, a long narrow rectangle between a vast clearing and the railway, are subjected to multiple stresses.

These are then increased with the arrival of the TGV that has caused an increase both in the foot traffic as well as in the frequency and intensities of the vibrations.

For these reasons, the excellent technical performances of MAPECEM® and GRANIRAPID® (adherence, drying and strength) have proven to be indispensable for the success of the project.

The photos have been kindly granted by the Occom studio, which we would like to thank.



Photo 1.
Granirapid was used for the installation of the reconstituted stone tiles.

Photos 2 and 3.
Some of the environments of the station of Arras concerned in the restoration in which the old floorings were replaced.

*The products cited in this article belong to the "Products for ceramic tiles and stone materials" line. The relative technical data sheets are available on the "Mapei Global Infonet" CD and on the website www.mapei.com. The Mapei adhesives and grouts conform to the EN 12004 and EN 13888 standards.



Granirapid (C2F): two-component adhesive system with rapid setting and hydration for the installation of ceramic tiles, natural and artificial stones (thickness of the adhesive up to 10 mm).

Keracolor FF (CG2): cementitious grout for grouting joints up to 6 mm.

Planicrete: synthetic rubber latex for improving adhesion and mechanical strength of cementitious mortars.

Mapecem: special hydraulic binder for the preparation of rapid drying screeds with controlled shrinkage.

TECHNICAL DATA

Gare du Nord – Paris, France

Project: enlargement of the station with a new interchange area for the travellers; installation of floor covering on an area of 20,000 m²

Year of project: 2001

Design: Arch. Dutilleul

Construction company: France Sol

Material installed: reconstituted stone tiles
Microtechnica of Quarella and Artic White of Rover

Mapei Products: GRANIRAPID, KERACOLOR FF

Mapei coordinator: Philippe Latrace, Mapei France SA.

Gare d'Arras – Arras, France

Project: restoration of various internal zones and installation of new floorings

Year of project: 2001

Project area: 800 m²

Construction company: Taillez

Material installed: Quarella reconstituted stone tiles

Mapei Products: PLANICRETE, MAPECEM, GRANIRAPID, KERACOLOR FF

Mapei coordinator: Philippe Latrace, Mapei France SA.



SCREEDS FOR THE INSTALLATION OF FLOORINGS

by Luigi Coppola and Paola Di Silvestro, Mapei Technical Assistance

The screed is a building element, generally with a thickness between 1 and 8 cm that is made with mortars prepared with cement or anhydrite-based binders; depending on how it is laid for instance bonded to a supporting substrate, or on an isolation layer or on a thermal or acoustical insulation layer, it is denominated respectively as "bonded", "isolating" or "floating". It can be used directly as a walking surface or be covered with floorings of any type (ceramic, stone material, resilient, wood, etc.).

The screed must guarantee the installation, within the times desired, of the type of covering foreseen and ensure the durability of the work under the various working conditions (internal or external; in floorings for public, commercial or industrial use; etc.). It must therefore guarantee, together with the other elements and functional layers that make up the substrate, the functionality of the floor system and contribute to the performance of the designed functions. Independently of the type of covering that it must receive, in order to be suitable for the installation of a flooring, the screed must be flat, smooth, clean, free of cracks, compact, cured, dimensionally stable and mechanically strong. Furthermore, the residual moisture must be consistent with the values required for the installation of floorings sensitive to humidity as well as homogeneous over the entire thickness. For the cement-based screeds, humidity values less than 2% are considered acceptable in the case a wood flooring is to be installed and less than 2.5-3% in the case PVC, rubber or linoleum must be installed.

The durability of a flooring is thus affected by the quality of the screed, but often designers and firms neglect some fundamental rules for the ideal preparation of the installation substrates. The characteristics of the hardened screed depend on those of the product used for the manufacturing, as well as on the method of preparation and application of the mixture. The choice of the product to be used must take into consideration, in addition to the purchase price, the use in service, the worksite conditions (internal or external, thickness to be achieved, etc.), the type of flooring to be installed and the setting time.

In general, times required to lay the floorings are rather long when a traditional cementitious screed is used: at least 7-10 days per centimetre of thickness at a temperature of approximately 20°C. Thus the installation of the ceramic tiles is often performed just a few days after the realization of the substrate. The risk is that possible cracks of the screed, caused by the inevitable hygrometrical shrinkage of the mortar, may also crack the flooring.

Therefore binders are needed that allow for the preparation of mortars for substrates characterized by long workability times and easy application, but that at the same time permit the installation of the covering materials within a few days. In order to satisfy the need to deliver finished floorings in very short times, at the Mapei laboratories of Research and Development over the last twenty years products have been perfected such as MAPECEM and TOPCEM, special hydraulic binders that are mixed at the worksite with various aggregates and allow for the realization of screeds with much less shrinkage, high mechanical strength and rapid drying times and, thus, respectively short times for making the work operational.

In particular, the substrates realized with TOPCEM are suitable for the installation of ceramic tiles after just 24 hours of curing, after 2 days for the installation of stone materials sensitive to humidity and after 4 days for the installation of floorings in wood, PVC, rubber and linoleum. Considering the ease of the installation, that can even be performed with a pump, the workability and the setting times that are not excessively short, TOPCEM is particularly suitable for the realization of screeds extended over large areas, where a limited time is available before opening the floor to traffic.

MAPECEM is a special hydraulic binder with rapid setting and drying that, under normal temperature conditions, is suitable for the realization of screeds for the installation of the ceramic tiles after 3-4



Tab.1

	TOPCEM	TOPCEM PRONTO	MAPECEM	MAPECEM PRONTO
Residual moisture (%):				
- after 24 hours	<3,5	<3,5	<2,0	<2,0
- after 3 days	-	-	<1,6	<1,6
- after 4 days	<2	<2	-	-
Levelling compounds execution	1+4 days	1+4 days	4 hours	4 hours
Waiting time before the installation of:				
- ceramic	24 hours	24 hours	3+4 hours	3+4 hours
- marble	3 days	2 days	3+4 hours	3+4 hours
- wood	4 days	4 days	1 day	1 day
Compressive/Flexural Strength (N/mm ²):				
- after 24 hours	> 8/3	> 10/3	> 30/5	> 30/5
- after 3 days	-	-	> 40/6.5	> 40/6.5
- after 4 days	> 15/4	> 15/4	-	-
- after 7 days	> 22/5	> 22/5	-	-
- after 28 days	> 30/6	> 30/6	> 45/7	> 45/7

NOTE: for the installation of wooden floorings it is important to ensure, by measurement with a carbide hygrometer, that the residual moisture is less than that required by the manufacturer of the wood.

MAPECEM PRONTO are, therefore, the ideal solution where there are difficulties for the storage of the raw materials (aggregates, cement, etc.), for example in maintenance work in old city centres.

The drying and curing times being independent from the aggregate quality, the proportions and the quality of workmanship, TOPCEM PRONTO and MAPECEM PRONTO are particularly recommended in the case of the installation of floorings sensitive to humidity (wood, PVC, linoleum, etc.). TOPCEM, MAPECEM, TOPCEM PRONTO and MAPECEM PRONTO can be used for the formation of screeds that incorporate heating apparatus without the addition of admixtures.

The main characteristics of the screeds realized with TOPCEM, TOPCEM PRONTO, MAPECEM and MAPECEM PRONTO are provided in Table 1.



hours and that are dry (residual moisture less than 2%), and thus suitable for the laying of flooring sensitive to humidity, after 24 hours. The application may also be performed with a pump.

Thanks to these characteristics and to the very high mechanical strength, MAPECEM is particularly recommended for the restoration of floorings in supermarkets, shops, shopping centres, airports, and in any other structure where it would be impossible or too costly to interrupt the normal activities.

Using this type of binder for the realization of the screeds, particular attention must be dedicated to the control of the aggregate/binder ratio and the use of the correct quantity of water, as well as the choice of the aggregate, that must be clean, free of impurities and be graded appropriately for the thickness to be realized (for example, in the case of TOPCEM and MAPECEM, varying between 0 and 8 mm for thicknesses of 4-5 cm). In addition, humidity of the aggregate reduces the amount of water to be added to the mixture in order to obtain the correct "no slump" consistency.

To resolve the problem, common in many areas, of the difficulty in finding good quality aggregates with the correct grade, and in order to avoid errors in the proportioning and problems related to the workmanship, the Mapei laboratories have also developed the MAPECEM PRONTO and TOPCEM PRONTO products, ready-to-use pre-packed mortars - to be mixed only with water - for screeds with quick or rapid drying (1-4 days respectively) with limited shrinkage. TOPCEM PRONTO and

Tab.2

Comparison of the drying times of screeds based on different binders			
Screed type	Thickness (mm)	Residual moisture content suitable for the installation of parquet (%)	Minimum waiting time before the installation of parquet (days)
Cement-based	40	2	28
Anhydrite-based	40	0,5	28
Topcem-based or manufactured with Topcem Pronto	40	2	4
Mapecem-based or manufactured with Mapecem Pronto	40	2	1

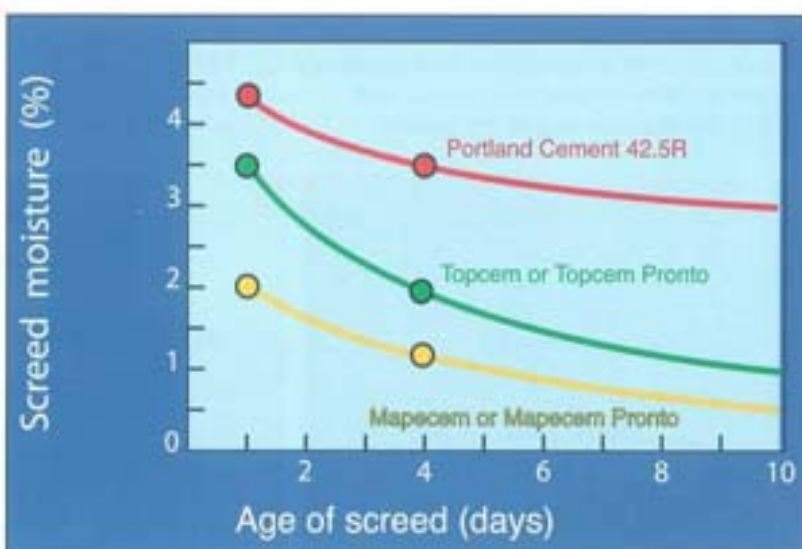


Fig.1 Effect of the type of binder a pre-packed mortar on the drying of the screed.



A perfect collaboration

A new Magna Steyr plant has been completed near Graz.

There emerges in Lannach, in the Austrian region of Stiria, a new plant of the Magna Steyr Group that marks another step in the collaboration with the well-known carmaker Daimler Chrysler. This site, in which some components will be produced for the Daimler Chrysler automobiles, goes alongside numerous other production centres and centres for research and development

belonging to the group and present in Austria. Here the works realized with Mapei products were performed in 2002 and concerned the substrate and floor coverings of the offices and the communal rooms. A Mapei engineer followed the progress of the works, together with the principal of the installation firm Wolfgang Wegl, with whom he elaborated a suitable intervention programme.

Photo 1. The new site of the Magna Steyr Group in Lannach.

Photo 2. Sophisticated architectural solutions for the interior.

Photo 3. Application of primer Primer G with roller.

Photo 4. Levelling of the gaps and of the deeper joints with Nivorapid FF.





Photo 5. Application of Ultraplan levelling compound with a Putzmeister pump.

Photo 6. Smoothing of Ultraplan with a double-rubber squeegee for large surface areas.

Photo 7. Upon completion, the surface proves to be perfectly smooth.

The interventions required

The substrate of concrete slabs had – mainly in the joints – considerable gaps up to a centimetre in height, with a “corrugated iron” effect. In order to proceed to the subsequent bonding of the covering, therefore, it was necessary to level the entire surface area. Before starting the works, the installation firm performed an estimate of the residual moisture, present in the substrate, which was calculated with the gravimetric dry residue method.

Preparation of the substrate

The examination of the gaps was performed, in

conformity with the Austrian regulation ÖNORM B2232, by means of graduated rod and wedge. To obtain a surface suitable for the anchoring, the entire substrate in concrete was mechanically cleaned in order to eliminate every factor capable of reducing the adhesion. Next, the residue due to the abrasive action was vacuumed up, and the substrate was then primed with PRIMER G*, diluted in water 1:2, in order to thus guarantee an excellent adhesion of the levelling compound to the substrate. The deeper joints and the uneven surfaces were levelled with NIVORAPID FF*, a fast-hardening thixotropic levelling compound. With a single coat it was thus possible to





Photo 8. View of the flooring of the offices covered in linoleum.

source of excellent references: the covering proved, in fact, to be bubble-free and perfectly bonded over the entire surface area. It was not necessary, moreover, to resort to subsequent and costly finishes.

In this plant, which Mapei helped to realize thanks to its perfect collaboration with the Wegl installation firm, we hope many novelties come to light for the upcoming generations of automobiles.

eliminate even the gaps of 1 cm. In some areas, in the presence of particularly pronounced depressions, it was necessary to finish the substrate with a second coat of NIVORAPID FF*, applied on the previous coat while it was still damp. Due to the thickness of the levelling layer, a separation joint was placed in correspondence with the walls.

Application of ULTRAPLAN smoothing compound

To obtain a more rapid and functional process, ULTRAPLAN* smoothing compound was applied with the "Putzmeister SS EV TM 100" pump equipped with a pre-blender, which allowed for the attainment of an excellent result after a quick adjustment. The smoothing process was performed with a double-rubber squeegee for large surface areas, paying particular attention so that the material was applied in crossed coats. As the last intervention, the final step was to de-aerate the surfaces with a spiked roller. The result fully satisfied both the contracting firm as well as the Mapei engineer: already at first glance the substrate proved to be perfect, prepared to a fine art.

Bonding of the linoleum

The flooring was covered with 5,300 m² of Linoson, a linoleum of the Inku firm. In conformity with the Austrian regulation ÖNORM B 2236-1 "Bonding of floor coverings", the choice of the adhesive rests with the contractor taking into account the covering to be bonded. The rolls of linoleum and the adhesive were kept for 24 hours in the environment to be covered so that they could become acclimatized.

The adhesive AQUACOL T*, chosen for this installation, was applied with the n. 2 notched trowel, and the flooring was immediately installed on the fresh adhesive. The excellent characteristics of the product, such as the quickness of the setting and its good adhesiveness, were capable of guaranteeing a perfect installation. To prevent the lifting of the edges, the individual rolls of linoleum were always placed leaving between them a joint as wide as a sheet of paper. About 35-45 minutes after the installation a spiked roller was passed to massage the surface and thus prevent the formation of air bubbles and craters. The sealing of the joints was performed with the appropriate cordon after 48 hours.

The advantages that Mapei was able to offer in presenting a global solution, in terms of range of products and technical solutions, in this construction site prove to be evident. Both for the contracting firm as well as for the installation firm the result obtained represented a

*The products cited in this article belong to the "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings" line. The relative technical data sheets are available on the "Mapei Global Infonet" CD and on the website "www.mapei.com".

Aquacol T: adhesive in water dispersion with very low emission of volatile organic compounds (VOC) for textile floor and wall coverings.

Nivorapid FF: ultra-fast drying (4-6 hours) thixotropic cementitious levelling mortar for horizontal or vertical surfaces for thicknesses from 1 to 20 mm.

Primer G: synthetic resin-based primer in water dispersion with very low emission of volatile organic compounds (VOC).

Ultraplan: ultra-fast hardening (12 hours) self-levelling smoothing compound for thicknesses from 1 to 10 mm.



TECHNICAL DATA

Plant of the Magna Steyr Group, Lannach (Graz), Austria

Project: levelling of the substrates and installation of the floor covering in the offices

Year of project: start of works, 2001; end of works: May 2002

Customer: Magna Liegenschaftsverwaltung GmbH (Magna Group)

Design and construction supervision: Arge Bürogebäude Lannach

Project manager: Eng. Kordon

Installation firm: Wegl Wolfgang GmbH, Graz

Material installed: 5,300 m² of Inku linoleum

Mapei Products: PRIMER G, NIVORAPID FF, ULTRAPLAN, AQUACOL T

Mapei Retailer: Wegl Wolfgang

Mapei coordinators: Alois Beiler, Helmut Schweda, Josef Zimmermann and Rudolf Scholz, Mapei GmbH

Mapei: the first manufacturer of adhesives for the building industry with the TÜV/TFI certification

Mapei introduced as early as January 2002, the first among the manufacturers of adhesives for the building industry, its line of eco-compatible products with the certification of the TÜV and the TFI. The new certification provides for the application of criteria of classification a great deal more demanding with respect to those adopted until now.

Already since 1999 Mapei has its products checked and certified on the basis of the emission of volatile organic compounds by the German research institute with headquarters in Aquisgrana TFI (Deutsche Teppich-Forschungsinstitut).

The extra mark "TÜV-Dot-Com" is a guarantee of the safety of the products and a sign of transparency towards the consumer.

The particularity of the TÜV/TFI mark involves, in addition to greater transparency, above all the severe verification criteria adopted and the continuous control not only of the products but also of the entire production. The concession of the TÜV/TFI licence (TÜV Dot Com mark TFI) occurs for each product individually. Only those products that satisfy the following requirements are licensed for the application of the TFI mark and the TÜV Dot Com logo.

• The **certification of the product:** through the TÜV/TFI as testing office, it must be verified and classified among the group of products for installation with very low content of

volatile organic compounds, according to the criteria of the design group 10 ("Installation systems") of the ecological coverings association "Gemeinschaft umweltfreundlicher Teppichboden e.V.":

• A system of quality and environmental management as implied by a **constant control of the products in the company's own quality control laboratory.** On this subject it should be specified that Mapei has, in its own laboratory, as many as five rooms for the analysis of the volatile organic compounds for the purpose of guaranteeing a control at predetermined intervals and when particular demands require it. The consistent quality of the production is controlled and approved at the same time also by the TÜV/TFI testing office.

• To this there are added the **controls at regular intervals** by the TFI: at least every 6, 18 and 30 months, after the first certification samples are taken from the market and tested in their laboratories.

The certification must be renewed every three years. Anyone can personally verify the authenticity of the statements "very low content of volatile organic compounds" and "noxiousness control": The TÜV mark contains a ten-digit "Dot-Com" code, with which the individual products and certifications are registered. This data can be found on the Internet, at the web page www.tuv.com, by inserting the

"Dot-Com" code. Thus the consumer also has the possibility to be informed at any moment on the specificity of the certification.

Mapei, first among the manufacturers of adhesives for the building industry, offers its customers products that are extremely safe. An installer is obligated by law to ensure the suitability of the product for the precise area of application. It has often been ruled that the installer pay the costs following claims since, despite the use of an optimum adhesive, emissions have occurred. Using a TÜV certified product, these installers have fulfilled in part their obligations since this mark is a guarantee of constant quality control. Considering that both the GuT association as well as some detergent industries certify their products with the TÜV/TFI mark, the German consumers have the opportunity to use, from the material for the installation to the covering up to the detergents, a secure system, eco-compatible and TÜV certified. Mapei hopes above all that in the future the state commissions require exclusively the use of TÜV certified products.

NORTH-WEST PASSAGE

Three working phases, distributed over two-year cycles: this is the structure of the projects that have characterized the accomplishment of a tunnel of 960 metres, with relative intersections and interchanges, at the border between Italy and Switzerland. A work that has required the use of considerable quantities of concrete and, as a consequence, of quality admixtures.

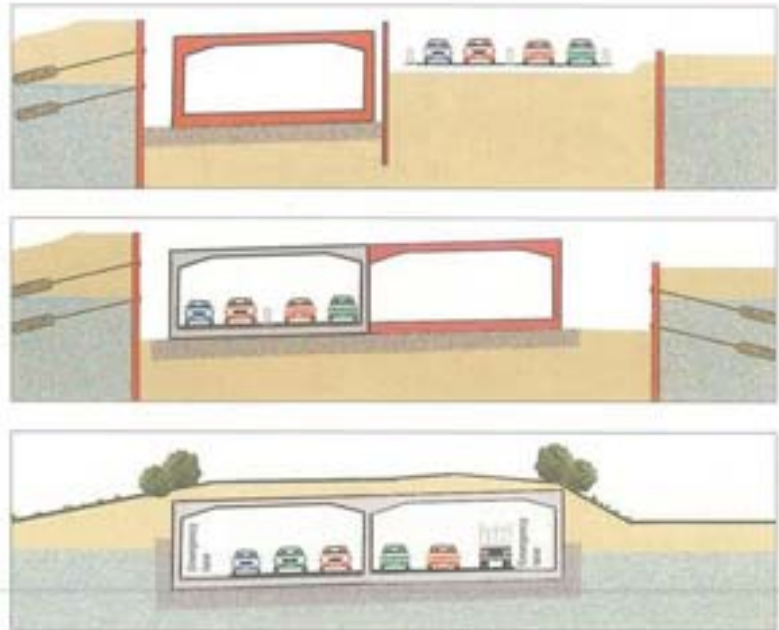
The expansion of the motorway infrastructures closely concerns many European countries, including Switzerland that boasts of the high quality of its motorway network. One of the principal arteries that passes through it is the motorway A2 Lucerna-Chiasso: this, through the tunnel and the rotary of the San Gottardo, connects Lombardy to Lucerna, continuing then towards the heart of Europe. In this section, the works for the construction of the Schlund tunnel have been particularly interesting. Commissioned by the Cantonal Department of the Public Works of Lucerna, it is in reinforced concrete with a total expansion of 960 metres and is realized under the natural level of the ground. The tunnel provides for two carriageways, composed of three lanes for each direction with each lane being from 3.5 to 3.75 metres wide. In the design prerequisites it was desired that the tunnel be constructed completely under the level of the countryside plane with a reduced vertical cross-section and a limited visibility of the covering. The particularly soft soil conditioned the design; thus a box-shaped cross-section with a flat covering was chosen. The works for the construction of the rooms

and of the carriageways, assigned to the firm RGE A2 TWS (with the construction supervision of the Community of the Engineers of Schlund), were divided into three primary phases, distributed over two-year cycles: phase 1 that provided for the construction of the east passage was completed from 1998 to 2000; phase 2, regarding the realization of the west passage, began in 2000 and finished in 2002; phase 3, instead, started after the others, concerned the realization of the three-lane carriageways, plus the emergency lanes. The expansion works have also entailed the creation of an interchange with roundabout intersection: the structure of the Lucerna-Horw junction included a bridge that acts as a support for a roundabout intersection, equipped with seven access ramps. The construction of the interchange was assigned to the firms Arge Wakter-Porr AG and CST Luzern AG. The bridge that supports the road system of the junction has very deep foundations and an elevation above the countryside plane that ranges from two to six metres: the access ramps, in prestressed reinforced concrete, connect directly to the bridge without joints.



LUZERN

KRIENS



Concrete: the protagonist

In the realization of works in reinforced concrete of these dimensions the true protagonist is the concrete. There have been, in fact, considerable quantities used both for the tunnel (approximately 80 thousand cubic metres placed on-site), as well as for the bridge of the roundabout intersection (10 thousand cubic metres). In these cases the importance of the "durability" of the work is clear, with "durability" understood as the retention of the structural integrity and of the

quality of the performances over time. In order to realize a functional and resistant structure it is of fundamental importance to use durable concrete, manufactured by the producer on the basis of the requirements of the norms. It is also necessary to render the quality of the mix as independent as possible of the conditions existing in the construction site, the quality of



The Schlund tunnel, 960 metres long, with three lanes in each direction in addition to an emergency lane.



the labour and the available pouring and compaction systems. This is possible by using a mix that, once unloaded by the concrete truck mixer, is capable of compensating for possible deficiencies and errors caused during the pouring phase. An effective solution is the use of admixtures for concrete; in fact these influence the rheological properties in a different manner, on the basis of their nature: with the retardant admixtures longer setting times are obtained, and thus as a consequence there is a decrease in the limit of flowing and plastic viscosity; with the superplasticising admixtures the water/cement ratio is reduced by 30-35%, thus improving the waterproofness and the mechanical performances of the hardened concrete.

The performances of the Mapei products

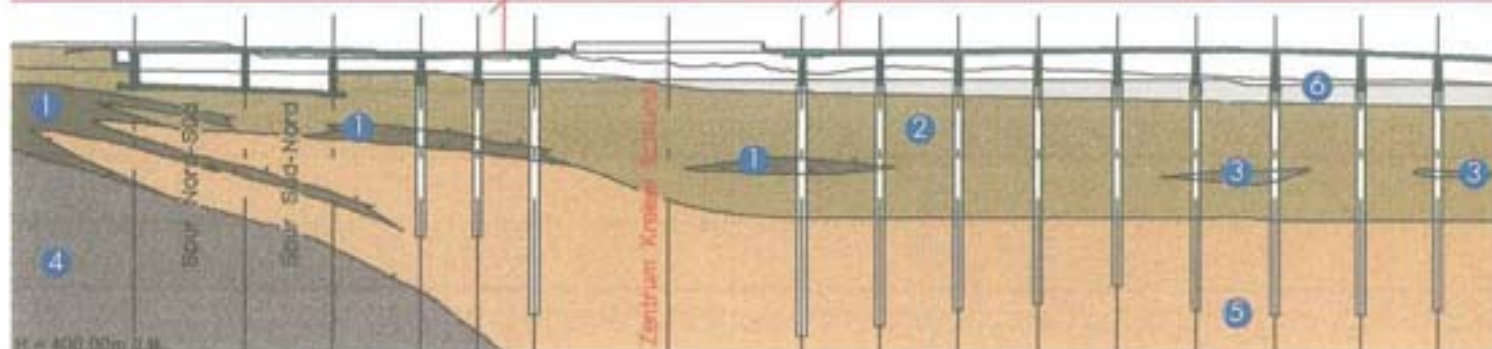
In the case of the Schlund tunnel and the roundabout, the Transportbeton AG of Lucerna supplied the concrete. The Swiss firm mixed the concrete with Mapei admixtures, thanks to

the numerous and important references and to the optimum results obtained worldwide. In the Helvetian construction site four products of the Admixtures line were chosen: MAPEFLUID N100*, MAPEFLUID R104*, MAPEPLAST PT1* and MAPETARD*. In fact, their characteristics make them suitable for the realization of infrastructures and civil engineering projects in general that have to deal with the aggression of the atmospheric agents and resist freeze-thaw cycles.

MAPEFLUID N100* is a superplasticising liquid for concrete. Particularly suitable for applications that require a moderate hydration speed of the cement at short curing ages, it is indicated for interventions such as that in question, where working with ready mix concrete to be pumped in successive phases. In addition to the superplasticising effect, MAPEFLUID N100* guarantees a modest retardant action on the hydration of the cement. For this reason, the admixture is destined to the realization of reinforced concrete constructions exposed to aggressive agents, with unconventional compressive strength classes, and that require a reduction in the thermal gradients due to the hydration of the cement. MAPEFLUID R104* is another retardant superplasticising admixture for concrete: like the previous admixture, it is a liquid product. Characterized by a low loss of workability, this product also presents various advantages: it increases the mechanical strength, reduces the water permeability, increases the workability, saves processing time and thus reduces

Ramp
Lucerna exit

Elevated roundabout





In the photos above:
The Lucerna-Horw junction, composed of a roundabout intersection supported by a bridge and equipped with seven access ramps, during the construction (left) and when works were almost finished (above).

In the drawing:
The section of the roundabout shows the geological structure of the ground on which the work was realized:

1. sedimentation of fluvial detritus
2. flooding sedimentation
3. peat moss
4. rock
5. older lake and delta sedimentation
6. artificial embankments.

Central Junction Ramp



costs, MAPEPLAST PT1* is instead an air-entraining plasticiser: it is a surface-active admixture studied to incorporate microbubbles of air in mortars and concretes exposed to freeze-thaw cycles. As a consequence, it is particularly suitable for realizing constructions such as those in question and for civil engineering structures in general. MAPEPLAST PT1*, in fact, is always used for the realization of structures that have to resist continuous thermal cycles; the production of concretes containing MAPEPLAST PT1* is undoubtedly important also considering the recent European technical regulations (EN 206), that prescribe explicitly the englobing of a specific volume of air in the cementitious mixes destined for works exposed to the environmental classes with freezing.

MAPETARD*, finally, is a plasticiser for concrete

"The technical data sheets of the products cited in this article are available in the Mapei "Admixtures for concrete" binder. The relative technical data sheets are available on the "Mapei Global Infonet" CD and on the website www.mapei.com.

Mapecfluid N100: superplasticiser for concrete with modest retardant effect.

Mapecfluid R104: superplasticising retardant for concrete.

Mapecplast PT1: air-entrainer for concretes and mortars.

Mapetard: retardant for concrete with plasticising effect.



with retardant effect: a liquid admixture, it gives a low loss of workability. With areas of application similar to those of the admixtures cited, MAPETARD* is also recommended when there is required a greater workability of the mixture and a moderate hydration speed of the cement. In the Helvetian construction site, therefore, the use of Mapei products guaranteed an easy execution of the pours (thanks to a greater workability of the mixture) and an improvement of the mechanical performances of the hardened concrete mix.

TECHNICAL DATA

Schlund tunnel and roundabout intersection, A2

Lucerna-Chiasso Motorway (Switzerland)

Project: expansion works with the construction of a tunnel and a roundabout intersection in the 6 Kriens-Horw section

Year of construction: start of works 1998, end of works 2002

Customer: Cantonal Department of the Public Works of Lucerna

Construction supervision: Community of the Engineers of Schlund

Construction company:

- for the tunnel: RGE A2 TWS

- for the roundabout: Arge Wakter-Porr AG and CST Luzern AG, Lucerna

Concrete supplier: Transportbeton AG, Lucerna

Mapei Materials: MAPEFLUID N100, MAPEFLUID R104, MAPEPLAST PT1, MAPETARD

Mapei Retailer: MoBau Partner AG, Weinfelden

Mapei coordinator: Fredy Liniger

DYNAMON SYSTEM

THE EVOLUTION OF ADMIXTURES



know-how), model the admixture's properties in relation to the specific performances required for the concrete. The particular quality of the products of this line has already been acknowledged on an international level, such as in the Fairs of Europe and the East and, in particular, at the IBF of Brno (in the Czech Republic), where DYNAMON SX was awarded the gold medal as best product presented in the fair.

This admixture is a modified acrylic-based superplasticiser for concretes characterized by low water/cement ratios, high mechanical strengths and long maintenance of workability. Thanks to their elevated workability (consistency class S4 or S5 according to the EN 206-1 standard), the concretes manufactured with DYNAMON SX are easy to place in the fresh state and have high mechanical

performances in the hardened state. To DYNAMON SX goes alongside the superplasticising integrator of fine graded aggregate for ready mix concretes, DYNAMON SX 14,

Dynamon System is the result of an evolution of the admixtures of the Mapefluid line, already present all over the world for quite some time. This revolutionary line of superplasticising admixtures for concrete is based on the DPP (Designed Performance Polymer) technology, the new chemical process that can, through the complete designing and production of monomers (an exclusive Mapei





2

characterized by low loss of workability with an elevated reduction of water in the mixture. DYNAMON SX 14, furthermore, is completely different from the traditional naphthalenesulphonate-based (NS) or melaminesulphonate-based (MS) superplasticising admixtures condensed with formaldehyde. DYNAMON SX 14, in fact, is a new admixture for non-sulphonate acrylic polymer-based concretes, completely free of formaldehyde. The success of the



Mapecfluid X line first and then of the Dynamon line is evidenced by its use, in the construction sites worldwide, to handle very specific problems.

Thanks to their use versatility due to the very high technological content, these superplasticisers have enabled (only to cite a few examples):

- 1) the realization of the pouring (350,000 m³) of the spillway of the largest dam in the world (Three Gorges Dam - China), resolving in an excellent manner the problems of the thermal gradients in the mass pourings (photo 1);
- 2) the execution of pillars in Self Compacting Concrete with very high mechanical strength ($R_{ck} = 80 - 95 \text{ N/mm}^2$) for the World Trade Center in San Marino, realized by design of Norman Foster & Partners (photo 2);
- 3) the pouring of on-site and precast structures of the High Speed railway line under construction on the Milan-Bologna section (photo 3) and the Milan-Turin section (photo 4).

The admixtures of the Dynamon line combine excellent properties of water reduction and workability retention that place these materials at the top of the performances of the superplasticisers for concrete. For more information, consult the Mapei web site www.mapei.com in the "admixtures for concrete" section.



4



Success on

In Canada, the B.C. PacifiCat Ferries have received their baptism by sea, among the thousand islets scattered along the coasts of British Columbia. The installation of the floor coverings on the boats was realized with Mapei products.

"A success of monumental dimensions": when he was asked to speak about the installation of the floorings of the B.C. PacifiCat Ferries (a naval company of British Columbia), the head of the installation firm Jim McAdie did not hesitate to respond like this. In these boats the installation of the floor coverings was completed using the most suitable product: the ULTRABOND G19® of Mapei. *"Thanks to this adhesive we did not loose even one square centimetre of the installation – emphasized McAdie – on a total surface area of 2,220 square metres".* McAdie represents the second generation of the principals of Raeco (Western) Limited, a company that provides and installs specific products for naval coverings.

Custom-made solutions

The installation of the floorings of the ferries of the Canadian company proved to be quite challenging due to the special aerodynamics connected with the naval design.

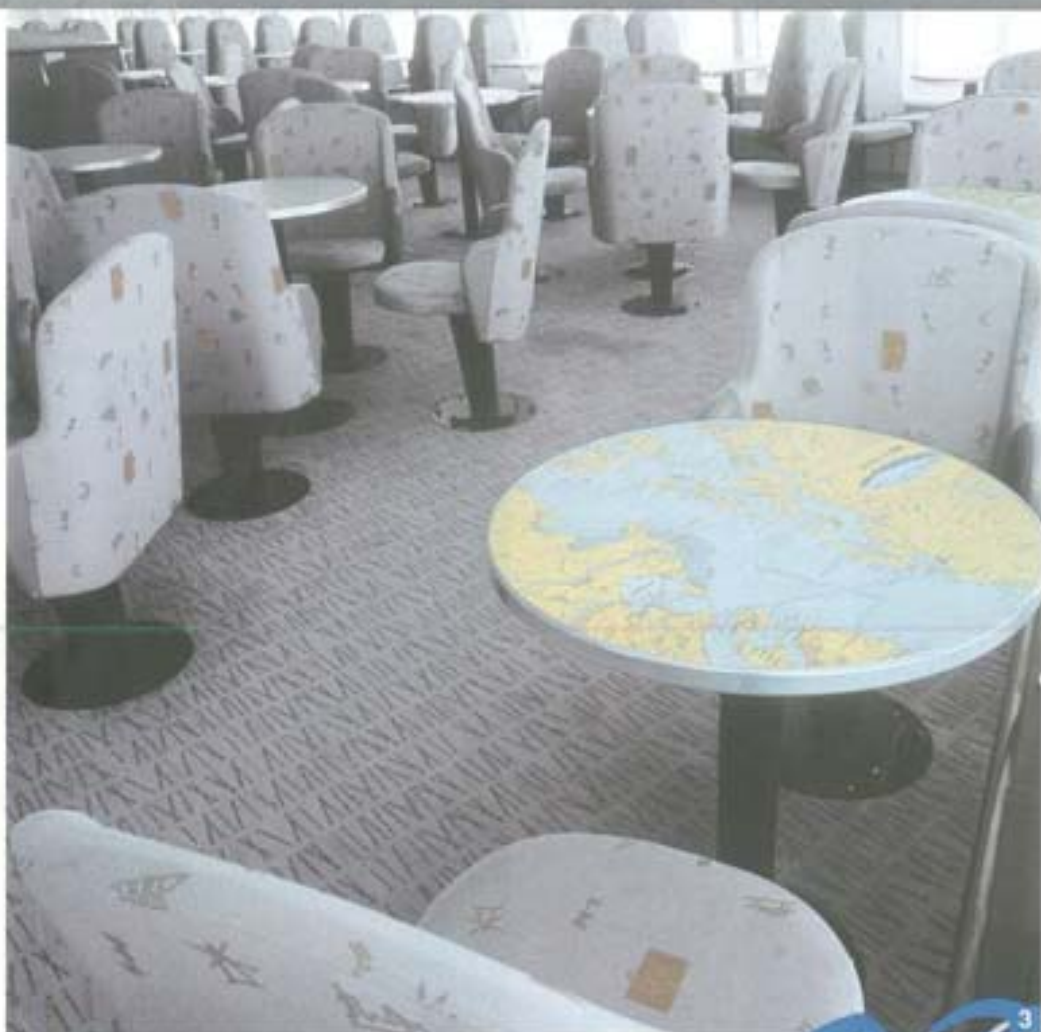
As a substrate there were installed aluminium panels with a series of tongue and groove joints. Due to the planimetry of the ship, in the design there remained inclinations and holes along the panel that runs all around the ship.

McAdie and his team found a solution to these problems that otherwise would have compromised the final installation, entailing problems of adhesion. *"We knew that we couldn't use a normal deck mastic – recalled McAdie – because it is difficult to make something adhere to an aluminium panel.*

We needed a layer of connection that ensured the flexibility necessary in this type of installation and at the same time the adherence to the panels. ULTRABOND G19®, a universal two-component polyurethane adhesive, was used with success both as a levelling compound and as an adhesive.



2



3

n the new waves

Photo 1
The elegance of one of the B.C. Pacific Ferries. The floor coverings of the passenger lounges were realized with the installation of carpeting and vinyl.

Photo 2
In the foreground, the Amtico vinyl flooring (imitation hardwood) in the refreshment area.

Photo 3
The floor covering in carpeting.

Applied on various layers, ULTRABOND G19* served as a layer of connection above the aluminium, as a levelling layer (to fill in the cracks) and as an adhesive for the various floor coverings.

The materials used

The installation concerned floor coverings in carpeting for heavy foot traffic and Amtico vinyl (imitation hardwood) in the passenger lounges, light Colorflake in the toilets, Altro 35 vinyl in the food preparation zones, Pirelli rubber floorings in the spaces destined for the crew, Wooster anti-slip coverings and Bolar gratings on the landings of the stairs. The auto decks in aluminium were also covered so as to ensure an anti-slip surface. Even with a rough sea, the sailing couldn't be smoother.



*The product cited in this article is realized and distributed on the American market by Mapei Corp. (USA) and Mapei Inc. (CDN). For more information consult the web site www.mapei.com.



TECHNICAL DATA

B.C. Pacific Ferries, British Columbia, Canada
Project: installation of the floor coverings
Year of project: 2001
Construction company/retailer: Raeco (Western) Limited
Materials installed: aluminium panels, carpeting for heavy foot traffic, Amtico vinyl, Colorflake, Altro 35 vinyl, Pirelli rubber, Wooster anti-slip covering and Bolar gratings
Mapei Products: ULTRABOND G19 (this product is similar to ADESILEX G19 distributed on the European market, a polyurethane adhesive for floorings in rubber and PVC)
Mapei coordinators: Roger Collins and Luigi Federico

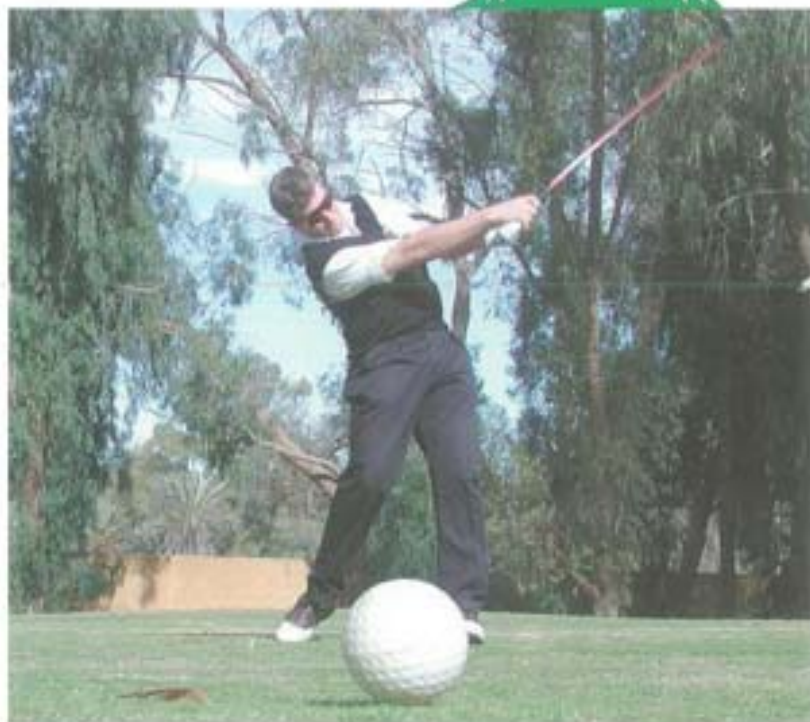
On the job with **GOLF**

Many sports are currently experiencing a negative trend, characterized in general by a drop in participants and a decrease in public interest.

The Italian golf is certainly in an opposite trend: the number of

players is in constant growth and there is an increasing number of initiatives aimed at implementing in an ever more varied manner the support of the players, to take this sport to the popularity levels that already characterize it in other countries. Thus the golf world is astir, and even its agonistic component is experiencing a phase of reorganization at the national level. The Italian Golf Federation, in fact, has recently begun a specific project of assistance and support aimed at the 30 best professional golfers of our country.

For the realization of the project, under the charge of Alessandro Rogato, team manager of the National Team, a pool of highly specialized multi-sport support has been formed, in which take part, in addition to some national experts, three working groups: Psicosport, centre of study and assistance in the area of sport psychology; Equipe Enervit, a research and assistance group that deals with sporting dietetics; and Sport Service Mapei. Our Castellanza structure has been assigned to follow the physiological aspects and the physical preparation of the golfers. "In modern golf nothing can be left to chance" explains Franco Impellizzeri, project manager for Sport Service Mapei. "For this reason, the Federation has decided to provide the best national athletes with the support of a pool of specialists that operate, through an approach rooted in solid scientific basics, in an integrated manner with the national technical



staff, for the purpose of dealing with all the problematic issues in the most rational manner possible. We are obviously proud that our structure has been chosen among those proposed to provide assistance for the physical preparation of the athletes. It is an occasion that allows us to invest the multiple experiences matured over these years, and at the same time it enables us to broaden them further.

"High level golfing is very demanding for the athletes: in the agonistic phase the rhythm of the tournaments is almost weekly, with relative continental or transcontinental movements. In each tournament, on Thursday and Friday there are the qualifications that are both performed on 18 holes, occupying approximately 6 hours a day. Those who pass this phase (the so-called "cut") participate in the finals on Saturday or Sunday (another 6 hours on the course). To this there must be added any "mini-tournaments" by invitation (ProAm) organized by clubs and/or sponsors on the Wednesday before the official competition, in which the best golfers of the tournament usually participate. On Monday or Saturday, for those who did not pass the "cut", the golfers return home to travel once again on Tuesday towards the venue of the new tournament..."

Our involvement with the National Team golfers began at the end of



December last year. During the week before Christmas 28 athletes, including 21 men and 7 women based at the Castelconturbia Golf Club (Novara), were subjected to a meticulous series of evaluations at our Castellanza centre where, after a thorough medical examination, each golfer was subjected to a cycling, running or walking stress test (according to his or her individual habits), aimed at the assessment of their general cardiovascular efficiency and the identification of their aerobic qualities. On the basis of the results obtained along with the individual needs and talents, programs of individualized physical preparation were designed, supporting the preparation schedules with specific demonstrative sessions in the gym and with a CD-rom, realized by the experts of our Centre, with the examples for the correct execution of each exercise. "The objective is obviously not that of making each golfer become an athlete conforming to the stereotype of the decathlete," specified Ermanno Rampinini, manager of the assessment laboratory of Sport Service Mapei. "It is nevertheless necessary to ensure that each of them has the physical prerequisites that allows them to express themselves best in the game: in addition to a suitable aerobic foundation, it is advantageous to possess a good articular mobility (especially concerning the scapulohumeral track, particularly stressed in the swing, the shot that the golfer performs when the hole is very distant) and a good general muscular tone, indispensable for stabilizing the execution of each shot. Great attention must then be given to the preventative measures concerning the particularly stressed osteo-articular structures, such as

the spinal column and, once again, the shoulder".

In mid-January there was a second team training session at Agadir, in Morocco, where Francesco Panza was present for Sport Service Mapei: "The objective was that of performing a primary verification of the implementation of the formulated proposals and the work programs planned with each athlete. Among our National Team golfers I met with an excellent level of motivation: for those who play golf only on the weekend it may be pleasant to pass a few hours on the green; but when it becomes a daily commitment of about six hours, over which it is indispensable to maintain a consistently high level of concentration, it is also necessary to have a good degree of motivation in order to then be willing to also carry out a specific daily program of physical preparation." Our experiences show that, in sports just as in any other ambit, the work based on a serious planning of every aspect always bears its fruit over time.

The National Golf Team is certainly well

orientated from this point of view. And we are proud to be by its side contributing our technical-scientific know-how in the sport. 

The benefits of golf

On behalf of our top golfers there is an ever greater interest in the optimisation of their general physical form – accomplice perhaps, at least in part, that Tiger Woods who is monopolizing the international agonistic scene with a physique worthy of the best sporting stereotypes – that tends to emphasize the importance of the athletic component as a prerequisite for the pursuit of high performance even in this sport. The health benefits of golf, on the other hand, are already known, being those typical of long-lasting activities – so-called aerobic activities – that produce positive effects particularly on the cardiovascular system: the stimulation of the aerobic metabolism of an average-level player is not elevated as regards the intensity; sufficient however to help maintain a considerable physical efficiency if played with regularity and, above all, if supported by a correct preparatory activity based on exercises of stretching and articular mobility (to improve respectively the muscular extensibility and the range of movements), in addition to the general tonification of the muscular system. Against an reduced intensity of physical effort on average, there is the decidedly considerable duration of the exercise even on the non-agonistic level: the classic "short" course, of nine holes, takes a golfer usually more than two hours, in comparison with the 5-6 hours required to cover the classic 18 holes. Finally, the fact that golf is an activity with a strong game component and that it is played out in the open air undoubtedly entails benefits from the mental point of view as well, acting as an effective antidote for stress.

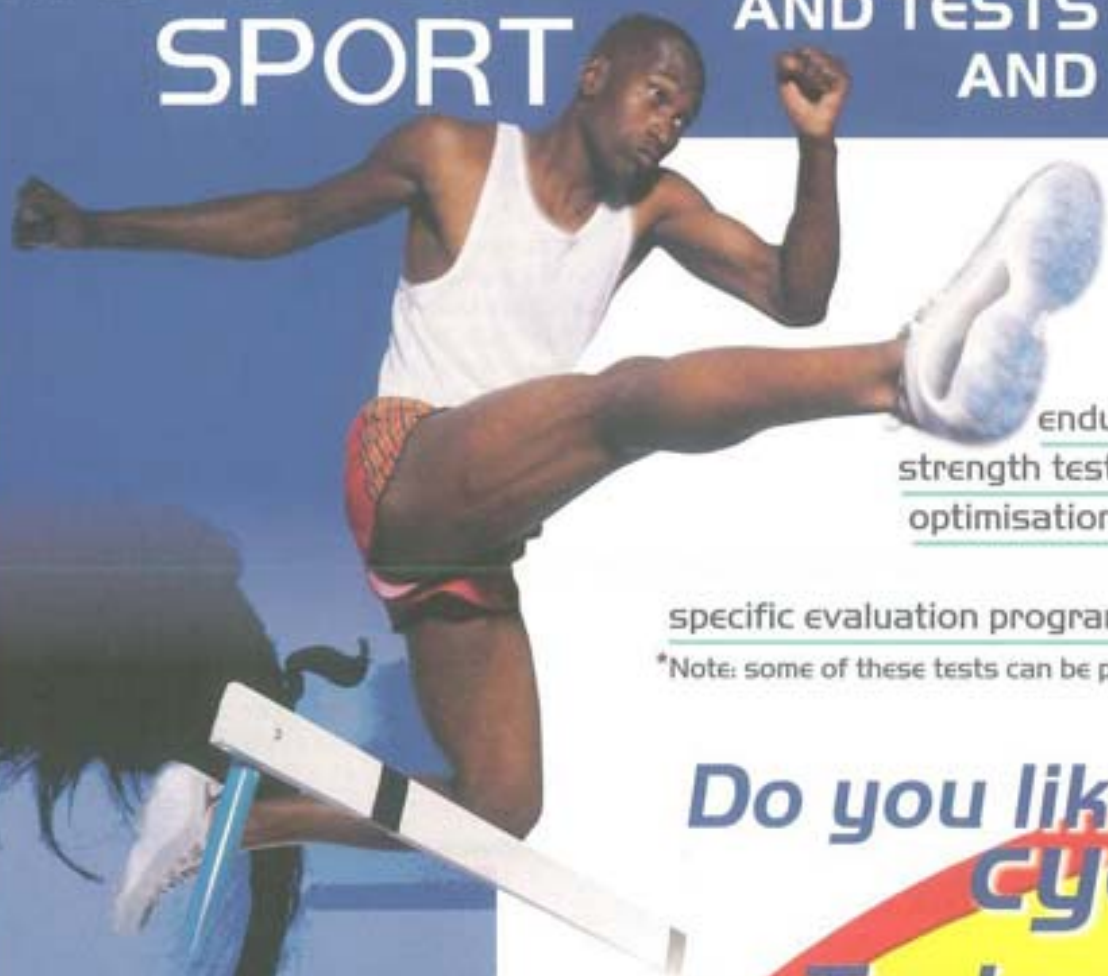


In the top photo, a golfer of the Italian National Team involved in the team training session in Agadir. Below, the sequence of a swing.



MAPEI SPORT

TRAINING PROGRAMMES AND TESTS FOR SPORT AND WELLBEING



> Services:

- sports medicine
- endurance evaluation tests
- strength tests (isokinetic and jumping)
- optimisation of bike riding position
- training schedules
- specific evaluation programmes for soccer teams

*Note: some of these tests can be performed on the training field

Do you like
cycling?
Train with us!

WPT

Web Personal Trainer
is on-line!

At a very affordable price you can download your personal training schedule provided by a unique system for a day-by-day interaction feedback: it will be like having your very own personal Mapei Sport Trainer every day



Assistance for sport
Sport research
Educational sports science



SPORT SERVICE MAPEI

Via Don Minzoni, 34

21053 Castellanza (Varese) - Italy

Halfway between Milan and Malpensa airport

Tel. +39 0331 57 57 57

Fax +39 0331 57 57 00

www.mapeisport.it

 **MAPEI**

for you

WPT is on our website

www.mapeisport.it

T H E W A T E R P R O O F E R



The flexible cementitious membrane and waterproof tanking system

Mapelastic®

used successfully for over 10 years to waterproof swimming pools, balconies, terraces...

For more than **ten years**, we have successfully **waterproofed** and **protected** more than **20,000,000 m²** of surfaces thanks to the **simple application procedure** and the **reliability of the system**, used every day by thousands of professional users **all over the world**



Balconies

Bridges

Swimming pools

Terraces

Water storage tanks

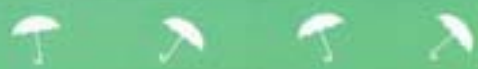
Dams

Tunnels

Jetties

Cooling towers

Viaducts



MAPEI S.p.A. - 20158 Milan (Italy)
Tel. +39 02 37673.1 - Fax +39 02 37673.214
E-mail: mapei@mapei.it - www.mapei.com



Ultrabond P990 1K

One-component
polyurethane
adhesive
for the installation
of wood flooring

- EASY TO APPLY
- CONVENIENT
- FLEXIBLE
- BONDING
- LOW HAZARD
- INNOVATIVE PACKAGING

Now
also available
in 600 cc soft
aluminium cartridge

New



1
**POUR DIRECTLY ONTO THE SUBSTRATE
LIKE A NORMAL ADHESIVE**
The bag can be easily rolled over the sides of the bucket



2
EASY TO USE
The adhesive can be easily and quickly
spread with a suitable trowel



3
AIRTIGHT CLOSURE
Guaranteed by the band that
comes with the packaging



4
**ENVIRONMENTALLY
FRIENDLY**
Once emptied,
only the bag
is thrown away



MAPEI

ADHESIVES • SEALANTS • CHEMICAL PRODUCTS FOR BUILDING