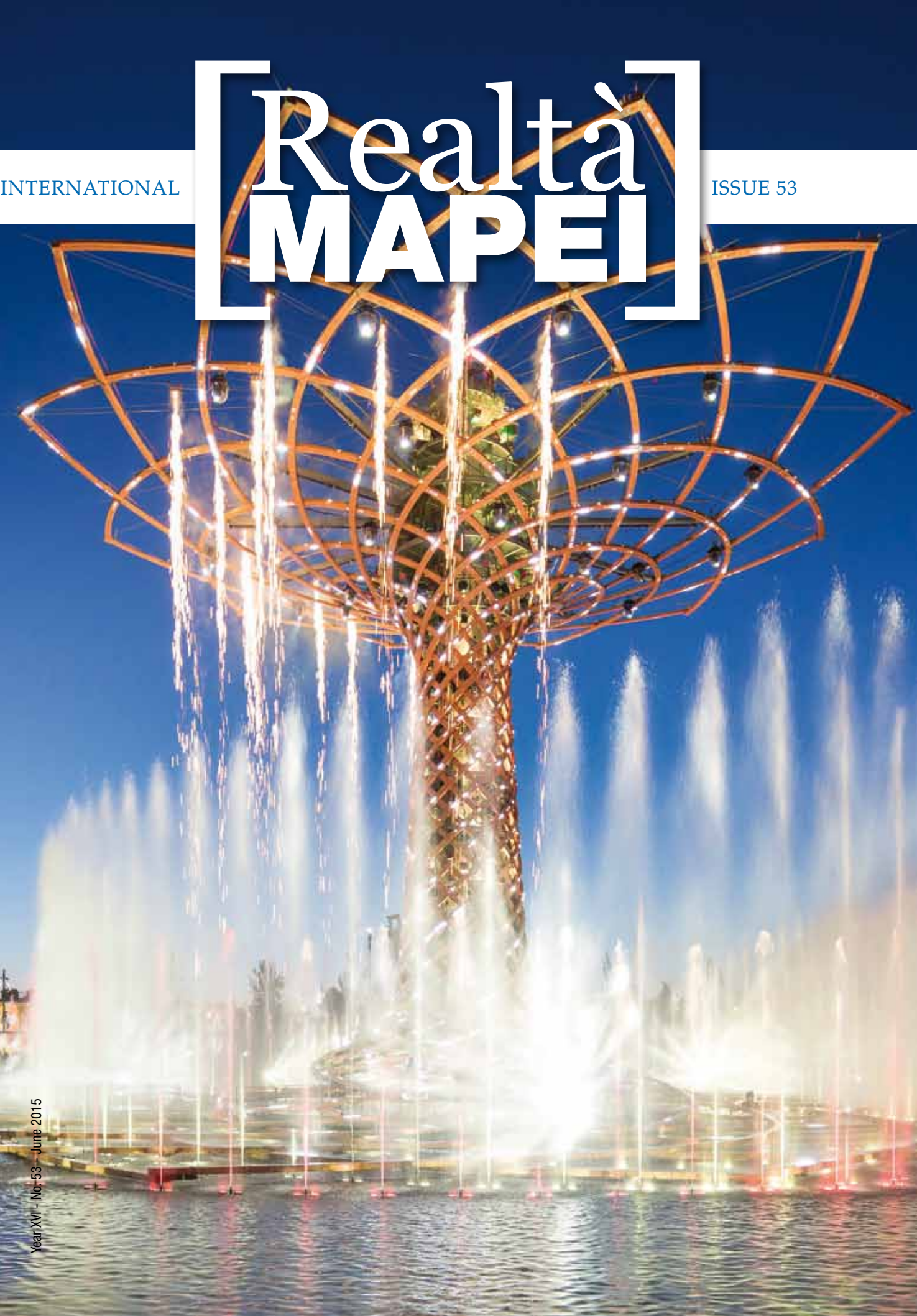


INTERNATIONAL

Realtà MAPEI

ISSUE 53



EXPO 2015:

A CHANCE TO MAKE THE WORLD'S MOUTH WATER



LEFT. Giorgio Squinzi, CEO of the Mapei Group, and Diana Bracco, President of Expo 2015 SpA and General Commissioner for the Italian Pavilion.



ABOVE. Giorgio Squinzi and Letizia Moratti, who was Mayor of Milan from 2006 to 2008, at Expo Milan 2015's official presentation in 2008.

Expo Milano 2015 has had my complete support right from the very start and, even though I am disconcerted about the five years wasted arguing that caused delays, I still believe that this World Expo is destined to be a great success and wonderful showcase for Italy. Expo is the first major event to be held in Italy since the beginning of the economic recession in 2007 and for Italy it is a vital opportunity that must be fully exploited.

As somebody from Milan, Lombardy and Italy, I cannot help but be proud of an event that is destined to be a unique opportunity for promoting Italy and made-in-Italy manufacturing around the world. A great challenge that allow Italians to show off a very cutting-edge country to the rest of the world.

What visitors see at Expo is not just a major thematic exhibition on a very specific topic - "Feeding the Planet, Energy for Life" - of great strategic importance.

The Expo is also a great showcase for Italy as it strives to get by and the hope is that Expo will make this nation a truly appetising prospect for the rest of the world. Expo could be a driving force that helps boost internal consumer trends and a launch pad for raising Italy's GNP. In accordance with our company guidelines based around "action", Mapei has tackled the challenge presented by Expo, first and foremost by supplying its own products and technology to companies working on the construction of the national pavilions, clusters, service areas and entrance routes to the exhibition site.

A contribution that has also taken the form of carefully targeted sponsorships, like those for the United States Pavilion and Consorzio Orgoglio Brescia for constructing the 'Tree of Life' and also by being involved in the creation of the 'Seme dell'Altissimo' art piece.

Even in its own specific field, Mapei supplies just the right

products for buildings where food and drinks are being processed, distributed and consumed.

Expo also helps showcase the Great City of Milan and reinforces Mapei's relations with the city and the things at which it excels and for which it is famous worldwide.

As well as me, other business people have had great faith in this event (even back in 2008) and helped bring it about. Among all these people, special thanks go to two women from Milan, who have worked with great tenacity and passion to ensure this challenge could be taken on successfully. The former is the Lord Mayor back when the initial bid was made, Letizia Moratti, who worked tirelessly to ensure the city was awarded this World Expo. The latter is Diana Bracco, the President of Expo 2015 SpA, General Commissioner for the Italian Pavilion at Expo and Vice-President of Confindustria (Confederation of the Italian Manufacturing and Service Companies) for research and innovation.

It is highly significant and augurs well that Expo 2015 was devised and carried out thanks to the vital contribution of two women. After all it is women who have always been responsible for techniques and arts involved in food and its preparation all over the world, the real "feeders" in our society.

A key role that Ms. Moratti and Ms. Bracco, each carrying out their own specific tasks, have honoured to the very best of their ability in order to "nourish" Milan and Italy and make them even greater.

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EXPO MILANO
2015'S MAP**

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COVER STORY

The Tree of Life, one of Expo 2015's main attractions, was completed thanks to Mapei's contribution. The Company sponsored the Consorzio Orgoglio Brescia's building activity to complete the Tree of Life.

Illustrations by Carlo Stanga.

EDITOR IN CHIEF
Adriana Spazzoli

**EDITORIAL CONTRIBUTORS
AND ENGLISH TRANSLATION**
Federica Pozzi, Federica Tomasi,
Martyn Anderson, Nicholas John
Bartram, Tiziano Tiziani

**PRODUCTION AND EDITORIAL
COORDINATOR**
Metella Iaconello

PHOTOGRAPHIC RESEARCH
Davide Acampora

GRAPHIC DESIGNER
Studio Magazine - Milan (Italy)

PRINTED BY
Rotolito Lombarda - Pioltello (Italy)

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

PRESIDENT & CEO
Giorgio Squinzi

**OPERATIONAL MARKETING
DIRECTOR**
Adriana Spazzoli

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CREDITS
Alessandro Brambilla, Marco
Bonometti, Diana Bracco,
Confindustria, Consorzio Orgoglio
Brescia, *Corriere della Sera*,
Collezione Peggy Guggenheim,
Luca Guidoboni, Gianni Dal
Magro, Alessandro Della Savia,
Ibermapei, Enzo Laiacona, Empio
Malara, Luca Mondazzi, Mapei
Sport, Leonardo Da Vinci Museum
of Science and Technology, Emilio
Pizzi, Philip Reeker, Carlo Stanga,
Fermin Vázquez.



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Dear readers,

This special edition of *Realtà Mapei International* is intended to provide you with a guide on a very unusual journey, allowing professional people like you working in the building industry to take a virtual tour around an array of projects, many of which were designed by leading architects, all demonstrating extraordinary creativity in the use of materials and, in any case, always drawing on modern and innovative technology.

Everything is aimed at providing information about Expo's main theme "Feeding the Planet. Energy for Life".

Expo 2015 is, and will continue to be so until it closes, a job opportunity for thousands of young people, who have found temporary work or, better still, have actually been able to express their own skills and training, thanks to all the different activities organised by Expo, particularly in the field of building. This comes at a particularly tricky moment for Italy that currently has an acceptably high unemployment rate, particularly among young people.

Expo 2015 is, first and foremost, a building project that comply with LEED standards. Every single pavilion has been designed ready to be recycled or disposed of in accordance with environmental friendly regulations.

Energy-saving, close relation between building and nature, food production even in tricky climatic conditions, and the issue of food and water as a challenge for the conservation of the planet and survival of mankind with dignity and well-being: these are the main themes emerging on this journey across the planet.

Because, after all, Expo 2015 is not an Italian project, it is a global project encompassing (in a little "pocket" of land of just over 2.5 km²) everything associated with the great issue of fighting famine and drought.

All along the streets of Expo 2015, the pedestrian paths, canals, in and around its pavilions, a vast array of scents, flavours, colours and languages come together and melt to let us know that we are in a very special world, a world made up of the 65 Nations

that really believed in this great issue of "Feeding the Planet. Energy for Life" and have challenged each other here to come up with different solutions.

Expo 2015 is also a great opportunity for communicating and communicating freely. There are two great works of art at opposite ends of the Decumano, the "Seme dell'Altissimo" by Emilio Isgrò to the east and Daniel Libeskind's important installations to the west. There are beautiful works of art, paintings and sculptures, whose main themes are food, culinary traditions, and beverages, clearly on display in lots of pavilions, such as the Zero Pavilion, the Intesa San Paolo Pavilion ("The Waterstone"), the Italy Pavilion, and Eataly restaurants.

For *Realtà Mapei International*, thanks to what we have been told by customers of ours who have worked at the Expo and also our ever-present technicians, we have decided to draw on the "eyes" of lots of different photographers and, above all, the Italian illustrator Carlo Stanga's creative "hand".

But Expo 2015 also comes in the form of entertainment, such as the shows of light offered by the Tree of Life or performances by the Cirque du Soleil, providing their own rendition of food not only as a form of sustenance but also of conviviality.

Food and water with all their peculiarities run right across all religions, telling us not of inequalities and terrible wars but rather forms of peaceful co-existence, such as can be seen in the Nepal, United Arab Emirates, Vatican, Iran, Japan and UNO Pavilions.

At the Expo food is the first subject of communication for thousands and thousands of children of all ages and academic levels (from kindergarten to high schools), who throughout this academic year have created some beautiful projects now on display like masterpieces in a number of pavilions and, in particular, in the Italy Pavilion.

Children who do not only meet up along the Cardo and Decumano chasing the giant puppets dressed up like ordinary fruit and vegetables, but also inside a number of pavilions, where they enjoy tasting some unusual types of food or perhaps just jump up and down on gigantic fishing nets like in the Brazilian Pa-

vilion, while learning how to respect and save food and water, precious resources that cannot be found everywhere to the same extent.

And what about the way food has been treated as a sensorial form in the wonderful exhibition "Fab Food. The Factory of Italian Taste" set up by Confindustria (Confederation of the Italian Manufacturing and Service Companies) in the Italy Pavilion?

Here at Mapei, too, we have decided to get involved in this great issue of food. And we have tried to communicate in a different way our everyday experiences working on buildings all over the world, where food and drink need to be conserved, processed, manufactured, distributed and consumed partly based on

specific, specially drawn up projects, but also thanks to suitable building products that are properly certified.

Nothing new or special, just a way of feeling involved together with you, in this great and unique project called Expo Milano 2015 that has livened up the city of Milan with a vast array of side events and projects. In conclusion, I would like to invite you all to suggest an idea, come up with a message or send a greeting so that this great Expo 2015 is more than just a wonderful project that comes to an end when autumn arrives. Write us at our email address realtamapei@mapei.it and we will continue to work together on both small and big projects.

Enjoy your reading or, better still, your visit with us!

Adriana Spazzoli

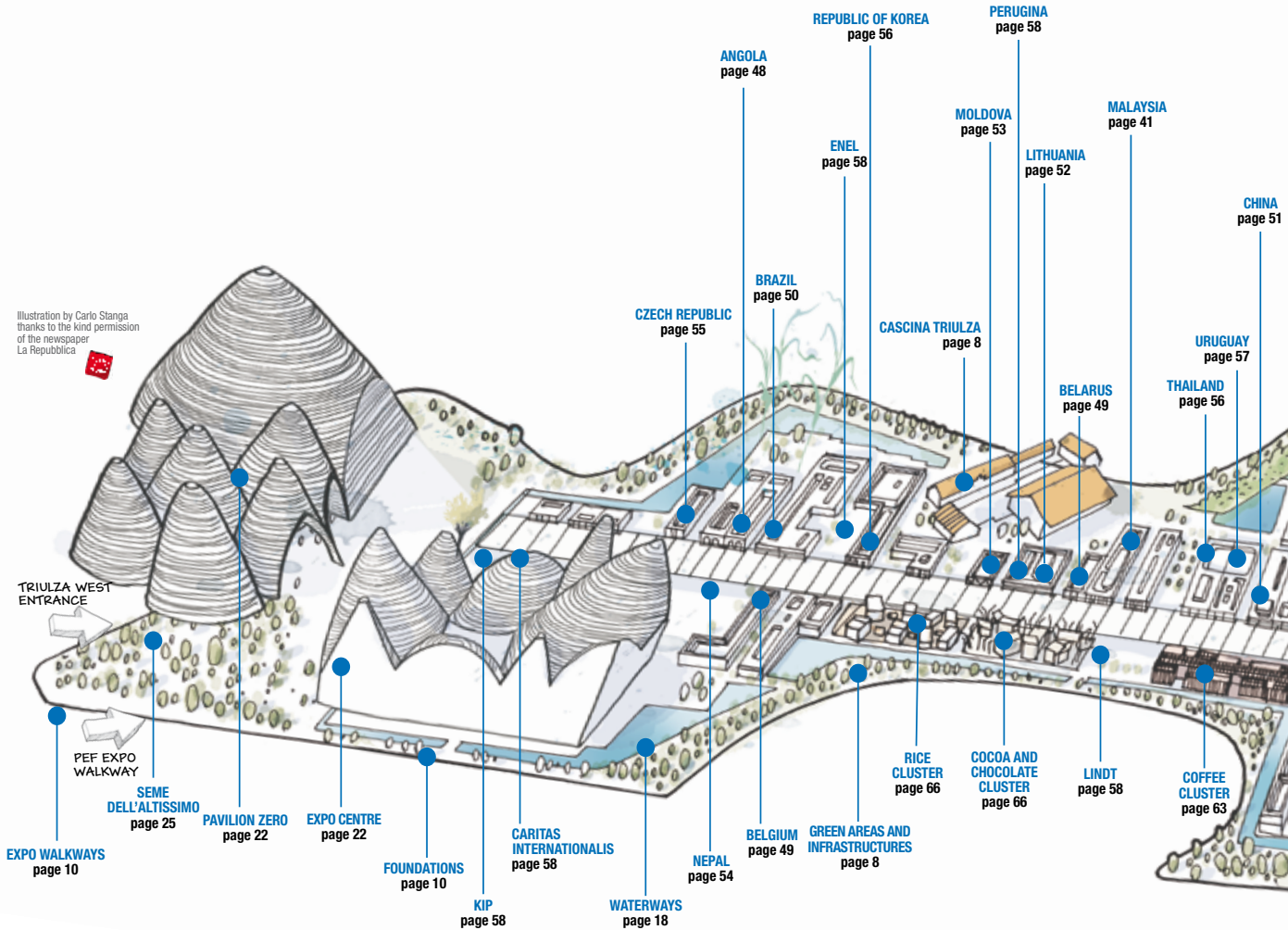


The *Realtà Mapei International* team (including Editor-in-Chief Adriana Spazzoli, Federica Pozzi, Metella Iaconello, Tiziano Tiziani, Federica Tomasi, Davide Acampora, and Barbara Mennuni) visited Expo a short while after its opening, together with colleagues from Mapei SpA's Marketing Department and Technical Services coordinated by Massimo Seregni.

IN

EXAMPLES OF WORK CARRIED OUT ON THE EXPO MILANO 2015 EXHIBITION SITE USING MAPEI PRODUCTS

Illustration by Carlo Stanga thanks to the kind permission of the newspaper La Repubblica



OUT

EXAMPLES OF WORK CARRIED OUT BEYOND THE BOUNDARIES OF THE EXPO MILANO 2015 EXHIBITION SITE USING MAPEI PRODUCTS



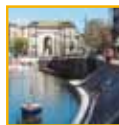
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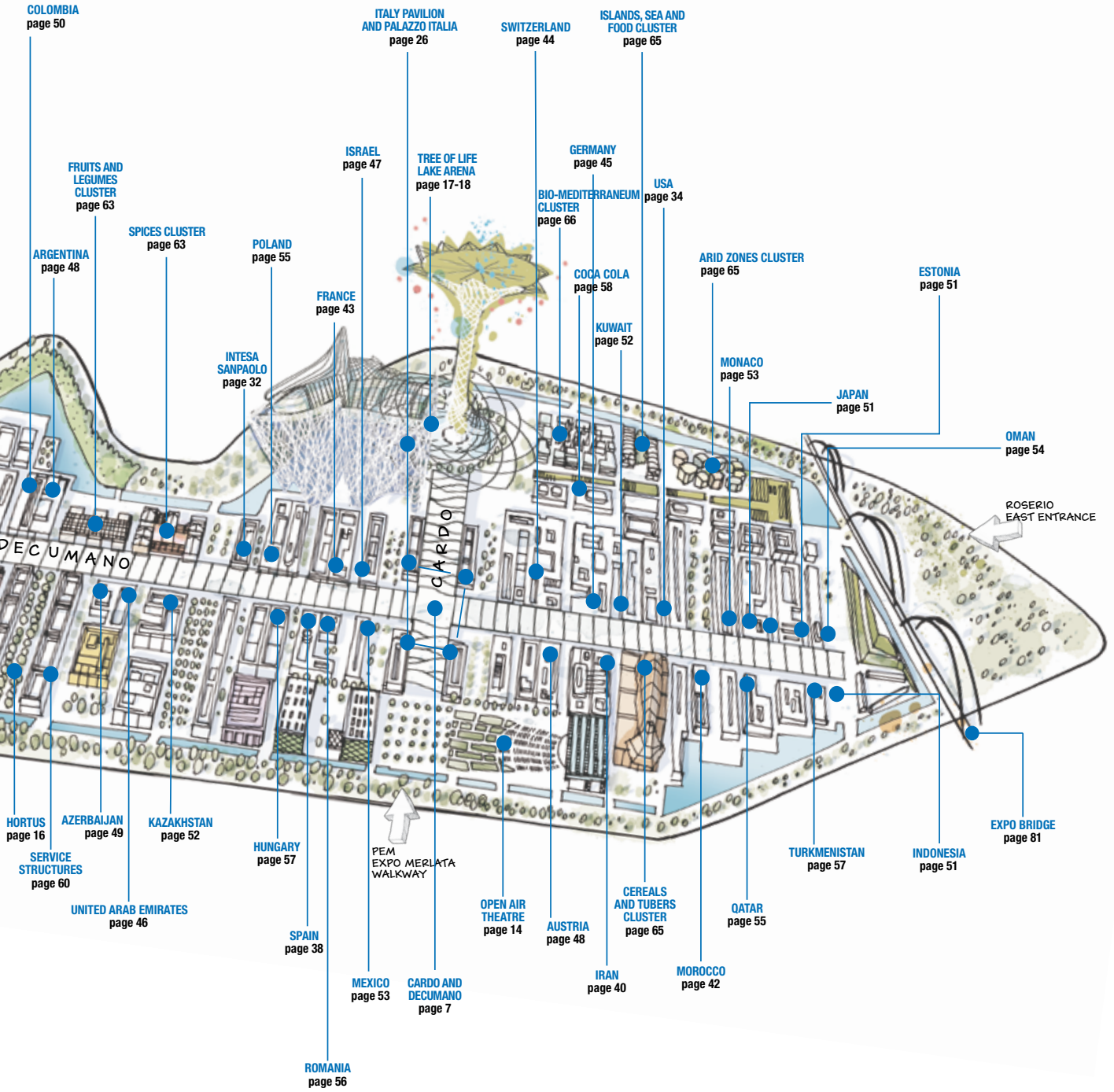
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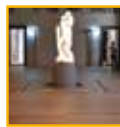
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EXPO 2015

FEEDING THE PLANET ENERGY FOR LIFE

An overall area of one million m², 440,000 m² of parklands and greenery, 145 nations taking part and 24 million visitors, who, in addition to the Expo site, are also able to look around the city of Milan, which, over the six months from May to October, is staging 100 events-a-day. These, in a nutshell, are the facts and figures for Expo 2015.

Who would have thought that an abandoned area of land, which was what this exhibition site looked like just two years ago, would now (after being an incredible open-air building site covering one million square metres employing 3500 workers and expert technicians on a daily basis) have “magically” turned into Expo Milano 2015?

Lots and lots of people, particularly over the last few hectic months of work, have kept a careful eye on pictures of the building site paying testimony to the speed at which operations have been progressing: everything from individual constructions to infrastructures, canals and thousands of tall trees planted along the outskirts of the site.

EXPO MILANO 2015 IS NOW HERE

After the Italian National Exhibition held in 1881 and the World Expo in 1906, Milan is once again hosting an Expo. Expo 2015 is a world exposition with its own brand new and highly innovative traits: not just an exhibition but, above all, an opportunity to get everybody actively involved in something that affects us all very closely and which is the guiding thread running right across the event: “Feeding the Planet, Energy for Life”.

This edition of the Expo is based around a new concept that is very thematic, sustainable, technological and carefully focused on visitors, who, together with the countries taking part, are asked to propose and come up with their own suitably innovative solutions.

The central theme “Feeding the Planet, Energy for Life” involves five main Thematic Routes that connect the spaces within the exhibition site. Each of these routes offer different interpretations of the central theme and can be tailored according to visitors' interests.

Participants

145 nations taking part, 3 international organisations (UN, EU, Caricom), 16 organisations from civil life (ActionAid, Alliance 2015/Cesvi, Caritas, Famiglia Salesiana DBN/VIS, Fairtrade International, Fondazione Triulza, Lions Clubs International, Oxfam, Save the Children, WWF, WAA-Amia/Conaf, Eso/Onda, Veneranda Fabbrica Del Duomo di Milano, Amity University, KIP International School, Andrea Bocelli Foundation), 6 corporate pavilions.

Italy Pavilion

Palazzo Italia, Lake Arena and the Tree of Life are all located inside the Italy Pavilion. The pavilion is an entire neighbourhood extending north-south along the 325 m Cardo. It houses a series of buildings and small squares recreating an idea of Italian towns. Visitors find typical products from every region of Italy and much more as well. The Tree of Life stands in the middle of Lake Arena, a pool of water measuring 90 m in diameter at the northern end of the Cardo. Palazzo Italia stands alongside it. Opposite Palazzo Italia there are institutional, exhibition and reception spaces for the European Union Pavilion and the Wine Pavilion. The latter hosts 1400 labels of different wines for tasting, a wine library and an authentic "sea" of wine in a tank. After crossing the intersection with the Decumano, there is an area devoted to the host region, Lombardy, and another especially for Coldiretti (the Confederation of Italian Agricultural Companies). This is where a space has been created to accommodate official Italian major sponsors, including the Confindustria's (Confederation of Italian Manufacturing and Service Companies) exhibition focusing on food safety and sustainability.

Exposition Site

The Expo 2015 site is located to the north west of Milan and actually skirts along the boroughs of Rho, Baranzate, Bollate and Pero. The site takes up a total of approximately 10 hectares of land and stands at the crossroads between the A8-A9 Como-Varese-Milan and A4 Turin-Milan-Venice motorways. It is served by Milan no.1 underground railway line, a railway link and local, regional and high-speed railway services. It is less than an hour away from both Malpensa and Linate airports and approximately one hour away from Bergamo-Orio al Serio airport. This already extensive and fully integrated infrastructural system was further reinforced by a junction to the A4 highway in the direction of Turin and reinforcement work on the provincial highway from Rho-Monza.

The site extends along two intersecting axes, the Cardo and Decumano, re-evoking the town-planning regulations of ancient Rome. It is all surrounded by countryside and is reminiscent of an island, full of greenery and waterways.

Cardo and Decumano

Drawing on the urban planning design of ancient Roman cities, the exposition site extends across an orthogonal grid, whose two main axes are the Cardo and Decumano. The Decumano, which is 36 m wide and extends for 1.7 km, runs across the site from west to east and accommodates the national pavilions and some of the nine Clusters. The Decumano intersects the Cardo in Piazza Italia, which connects the north of the site to the south.

The Cardo, extending for 350 m, is entirely devoted to Italy and this is where the Italy Pavilion is located. The Decumano and Cardo are covered by curtains held up by 420 piles.

National Pavilions

Most countries are taking part in the Expo through their own Pavilions which are located in open spaces along the Decumano. Each plot of land accommodates a Pavilion and an open area for greenery and/or an outdoor exhibition space. These pavilions are all self-built spaces custom-designed by the countries themselves in accordance with certain rules: for example, approximately 50% of the building lot area must be open space and any constructions must not exceed 17 m in height. Moreover, the sustainable temporary buildings are designed along the lines of low environmental impact.

There are a total of 53 pavilions plus the Italian Pavilion. They vary from the three-storey all-wooden Angolan Pavilion inspired by the nation's holy tree to the lotus forest surrounding the Vietnamese Pavilion, from Nepal's temple-pavilion sculpted using only stonecutters that arrived specially from Kathmandu to Azerbaijan's glass sphere, from the enormous corn cob symbolising Mexico to the Japanese Pavilion, which is made entirely of wood without even one single nail. Some of them are designed by famous international architects, such as Norman Foster or Daniel Libeskind.



CLUSTERS

These really are an extremely innovative feature: for the first time in the history of the World Exposition, these spaces host those countries unable to create their own pavilion. They are grouped together according to their own identity or distinctive food industry and not just in terms of geographical location as has always previously been the case. The clusters host 43 buildings, 31 of which are made of wood and 12 out of steel and cover a total surface area of 36,650 m². The main themes are: Fruits and Legumes, Cereals and Tubers, Coffee, Cocoa, Rice, Spices, Islands and Sea, the Bio-Mediterranean, and Arid Zones. All the clusters were designed by students from 18 architecture schools co-ordinated by the Polytechnic University of Milan.



GREEN AREAS

Twelve thousand trees, some of which even 12 m high, over 85,000 shrubs and hundreds of thousands of aquatic and herbaceous plants are intended to make the Expo 2015 exhibition site the biggest single piece of constructed landscape in Europe with LEED certification. Here over 200,000 m² are devoted to landscape projects creating a network of green areas and places used to transform and enhance the area. Beside, each individual Pavilion must have a set percentage of greenery within its own allocated lot.

Entrance routes

Two raised cycle-pedestrian paths facilitate links to and from the Expo area, permanently connecting it to the city of Milan. A pathway (approximately 350 m in length) to the south connects the Expo area to the coach park and Merlata Farmstead, a privately built residential neighbourhood that accommodates national operators throughout the event.

Another pathway, which connects the site to Rho Trade Fair, extends over a distance of 500 m and is 10 m wide. It welcomes visitors arriving on the M1 underground railway line and those travelling to Expo by regional railway lines and the high-speed railway line from Turin and Switzerland getting off at the Rho Trade Fair station.

To reinforce links between the railway station, Rho Trade Fair underground station and the exhibition area, the underground section of the mezzanine level was extended through the construction of a corridor called the West Pedestrian Entrance.

There is parking room for 10,000 cars in a new facility located on the old Alfa Romeo manufacturing premises in Arese neighbourhood. Links take the form of a shuttle occupying the fifth lane of the A8 motorway.



OPEN AIR THEATRE AND EXPO CENTER

The Open-Air Theatre located in the southern section of the site is an open space with terraces and a lawn, as well as a partly opaque and partly transparent roof. It can seat up to 11,000 people for open-air concerts, theatre performances and official ceremonies.

The Expo Centre is located near the west entrance. This space designed by Michele De Lucchi is composed of a 1500-seat auditorium, the Open Plaza for hosting shows and other performances, and conference rooms located in the Meeting Area that can accommodate up to 1500 people.



CASCINA TRIULZA

Cascina Triulza (Triulza Farmstead) has been chosen from all the existing farms to represent the agricultural "soul" of Milan. This rural complex, built in the late 19th century on an even older construction dating back to 1346, has undergone renovation and redevelopment work aimed at creating a building up to the highest energy-environmental performance standards.

And afterwards?

Expo will draw to a close on 31st October, but what will happen to the site? So far nothing definite has been decided and it will be up to a company called Arexpo - members of which include Milan City Council and Lombardy Regional Council - to decide the fate of the land after the event. Various projects have already been put forward: a city of innovation, a new stadium, the headquarters of the local government's water board, a farm-food centre, a kind of "Silicon Valley" to help develop small and medium-sized innovative companies, or even an area devoted to health issues. All this without interfering with all the public greenery covering a large part of the area. For the time being the only thing certain is that Triulza Farmstead, Palazzo Italia, the Open-Air Theatre and some national pavilions that will be donated to Milan by the nations that constructed them will all remain where they are after the event. Part of the Expo area might be devoted to a project for a new Education Area.

All the **EXPO** figures

145

NATIONS
taking part

184

DAYS
1st May-31st October 2015

60

SELF-BUILT PAVILIONS
(there were 42 at Expo
Shanghai)

1 million

M²
of exhibition space
on the site

9

CLUSTERS
Rice, Cocoa, Coffee,
Cereals and Tubers, Fruits
and Legumes, Spices,
Islands and Sea, Arid
Zones, Bio-Mediterraneum

5

THEMATIC AREAS:
Zero Pavilion, Biodiversity
Park, Future Food District,
Children's Park, Arts&Foods
at the Triennial Design
Museum in Milan

24

THOUSAND TONS
of metal scaffolding

280

KM
of underground cables

13

HECTARES
of canvas roofing

33,000

M³
of wood used for
constructing the pavilions

4,400

"REAL" TOILETS
for the general public

21,000

trees, plants and bushes
specially planted for the
event

350

MILLION EUROS
of private funding

1.3

BILLION EUROS
of public funding

150

MILLION EUROS
from merchandising and
services

24

MILLION
visitors expected, at least
6 million from abroad

7,000

STAFF
working on site at night
to guarantee proper
maintenance work, security,
restaurant supplies, waste
collection

60,000

new jobs

500

VOLUNTEERS
each day to welcome
visitors

www.expo2015.org



A BIT OF HISTORY

Expo in Milan

**MILAN HAS ALREADY
SUCCESSFULLY HOSTED TWO
EDITIONS OF THE EXPO**



Perhaps not everybody knows that Milan, the capital of Lombardy region, has already hosted an edition of both the Italian National Exhibition and World Exposition.

The National Exhibition was held in Milan in 1881, in order to inform Italians about the latest products in various different industries. This edition lasted six months and was held over an area of 160,000 m² between Corso Venezia, Via Palestro and the Public Gardens in Porta Venezia. It was attended by over 7000 exhibitors from all over Italy.

Milan also hosted the Universal Exposition for the first time in 1906 and the event was attended by Great Britain, France, Germany, Belgium, the Netherlands, Switzerland, Austria, Canada, Russia, China and Japan. The Expo in Milan devoted to transport was supposed to take place in 1905, when the Simplon tunnel officially opened, but because of delays in building work the event was moved back to the following year. The enthusiasm that reigned throughout Europe during that period resulted in a record number of 40 nations and 35,000 exhibitors taking part. The Expo was held in the Sempione Park area, where 225 Liberty-style constructions were built.

THE FOUNDATION SLAB OF EXPO MILANO 2015



SPECIAL ADMIXTURES FOR THE MOST IMPORTANT PIECE OF INFRASTRUCTURE ON THE EXPO SITE

Expo Milano 2015 is intended to welcome the world on an area around 2 km long and from 350 to 750 m wide. A “small city” (or even a small “planet”) has been built on the site, along with all the services and infrastructures required to meet the needs of millions of visitors.

The contract for the “Piastra”, or foundation slab, was awarded on the 16th of July 2012 to a consortium headed by Ing. E. Mantovani SpA. Mapei also contributed to this project by supplying high performance admixtures for the concrete.

A reminder to readers that the area hosting the exhibition site for Expo 2015 is to the north of the Milan-Turin railway line with 85% of the area located on Milan City Council land and the remainder in the Rho area. The area covers approximately 1,000,000 m² and is surrounded by numerous road and transport infrastruc-

tures: the Turin-Venice A4 motorway, the Milan-Lakes A8 motorway, the Milan-Turin and Milan-Sempione railway lines and Rho-Fiera railway station, the Sempione S.S. 33 link road and the Rho-Monza S.P. 46 provincial highway.

The foundation slab is the “backbone” of Expo and was completed in various phases, starting from the eastern side gradually heading west with three main elements.

- Hydraulic works: these include a canal that runs around the perimeter of the Expo site, a large circular lake fed by the canal, and depuration tanks with aquatic plants to purify the rainwater.
- Pathways: these are the main thoroughfares, the two perpendicular axes cutting through the site similar to the layout of ancient Roman cities: the “Decumano”, known also as “World Avenue”, and the “Cardo”. Also



cated article in the following pages.

The Expo site has two overhead cycle and pedestrian pathways that form a kind of permanent connection to the city of Milan and make it easier for visitors to access the site. The 350 m long pathway that connects the Expo site to Cascina Merlata (a new private residential complex that is being built at the southern end of the Expo site) is mainly used as an access route for those working on the site.

The Expo-Fiera pathway, on the other hand, is around 500 m long and 11 m wide and serves as the main access route on the western side of the exhibition site: more than 30% of the visitors is expected to arrive by train at the Rho-Fiera railway station. The pathway floors

BELOW. Building the foundation slab for the Expo site. Mapei supplied several admixtures for concrete.



important to help the flow of pedestrian traffic are the secondary paths branching out from the “Decumano”, the piazzas, the pathways along the banks of the canal, and the bridges over the canal.

- Technological systems: these include electricity distribution systems, telecommunications systems and water systems.

The canal supplies the water for the irrigation system fed by the Villorosi Canal, which in turn is supplied by the River Ticino. It is from 0.2 to 0.7 m deep while its width varies from 4.5 m to around 65-75 m at its widest point.

At the end of the Cardo the canal forms a circular lake called Lake Arena. The lake is 0.7 m deep and, along its banks, a series of spectator stands have been erected where visitors can watch shows or simply relax and around the stands there are three concentric rows of trees. Mapei’s waterproofing products were used to treat the lake’s side surfaces, as you can read in a dedi-



ABOVE. ASPHALT COAT TRAFFIC HB 136 was sprayed on the slab's surfaces.

RIGHT. The resilient coverings used to complete the guiding paths for vision-impaired people were laid with ADESILEX G19.

were built using MAPEFLOOR PARKING SYSTEM ID multi-layered, flexible polyurethane system, chosen in its white shade. ELASTOCOLOR PAINT was used for protecting the concrete surfaces.

If we take into consideration the entire foundation slab, a total of 32 bridges have been built over the canal and various water courses to connect the site to the service road running around the perimeter.

Most of the Expo site is equipped with guiding paths with touch-sensitive maps and paving to allow vision-impaired people to walk around on their own. The resilient materials used for creating these pathways were installed using ADESILEX G19 two-component epoxy-polyurethane adhesive.

The Service Areas are also part of the foundation slab: rectangular buildings positioned at regular intervals around the site to provide support services and places to eat.

There are 14 buildings in all, with 13 of them positioned around 200 m apart from each other perpendicular to the Decumano, and the fourteenth set at an angle near the eastern entrance.

Mapei admixtures for concrete, technicians and engineers were constantly involved in the building process of the slab.

Along with MAPETARD retardant admixture for concrete and mortar with a plasticising effect, particularly recommended in hot weather to help maintain workability of the mix, DYNAMON SR 56 summer superplasticiser and DYNAMON SR 58 winter superplasticiser were also used for the concrete mix.

DYNAMON SR 51 was used to make the waterproof concrete, an admixture developed specifically for concrete with a low water-cement ratio that helps maintain workability.

Two other special Mapei admixtures were key players on this site: DYNAMON SR 912 acrylic super-plasticiser for concrete, especially suitable in warm climates and DYNAMON SR 914, a liquid admixture for specially designed high-quality mixes for concrete with a low water/cement ratio combined with good maintenance of workability, particularly suitable for use in cold climates.

The asphalt pathways were coated with ASPHALT COAT TRAFFIC HB 136, a special protective paint for asphalt surfaces which also reduces high temperatures, protects the bituminous layer from wear and ensures vertical drainage and a pleasant aesthetical effect for the surfaces.

TECHNICAL DATA

Foundation Slab for Expo Milano 2015 site, Milan (Italy)

Period of Construction: 2012-2015

Period of the Intervention: 2012-2015

Intervention by Mapei: supplying admixtures for concrete

Client: Expo Milano 2015 SpA

Contractors: Ing. E. Mantovani SpA, Socostramo S.r.l., Consorzio Veneto Cooperativo SpA, SIELV SpA, Ventura SpA

Works Direction: Infrastrutture Lombarde SpA

Concrete Mix Design and Production: Monvil Beton Srl, Edile Commerciale SpA, Calcestruzzi SpA, Colabeton SpA

Application of Asphalt Coat Traffic HB 136: Lacs

Mapei Co-ordinators: technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Slab: Asphalt Coat Traffic HB 136, Mapetard, Dynamon SR 56, Dynamon SR 58, Dynamon SR 912, Dynamon SR 914, Dynamon SR 51

Pathways: Elastocolor Paint, Mapefloor Parking System ID

Paths for vision-impaired people: Adesilex G19

THE FOOTBRIDGES OF EXPO MILANO 2015

LUCA GUIDOBONI, MILAN UNDERGROUND RAIL NETWORK, OPERATIONS DIRECTOR FOR WORK ON THE PEM AND PFM FOOTBRIDGES



The PEF (Expo-Exhibition Centre) and PEM (Expo-Merlata) footbridges were built mainly at night. How did you manage to carry out the work with all the trains passing nearby?

The logistics involved behind the building of the footbridges was one of the most difficult parts of the work due to the level of interference with various organisations, in particular RFI, the Italian National Railway and the Italian Highways Authority.

The solution was to work at night after asking that goods and passenger trains stopped running on the three railway lines between midnight and 6 o'clock in the morning.

While working on the PEM footbridge, in particular, rail traffic had to be suspended while we put each of the segments in place because the footbridge itself, apart from passing over the Milan Fiorenza railway hub, also passes over the High-Speed Milan-Turin line and the lines for passenger trains along the Milan-Varese and the Turin-Novara stretches. When constructing the largest span of the bridge, which is 87.5 m long, we had to ask for all the road traffic to be interrupted on all eight lanes of the A4 Turin-Venice motorway at night during one whole weekend.

To limit the number of interruptions, we opted for a solution whereby a stretch 105 m long was completed with an overhang 30 m long at each end, which enabled us to pass directly over the whole motorway in just one night.

Which kind of structural engineering work was required for the metal framework in order to complete the footbridges?

A mathematical model had to be developed for each of the footbridges to help in the design work. A modelling has been made with one-dimensional and two-dimensional elements to simulate the axial and flexural behaviour of the structural elements which make up the load-bearing structure of the footbridges. The static and dynamic behaviour of the structures was verified by applying loads and second-order modal analysis was also carried out. Piles and foundations were modelled using similar techniques. Then, during the testing and commissioning phases, static and dynamic load tests were carried out, as well as an assessment of user comfort and the results were compared with the values obtained from the theoretical calculation models.

A software was used to verify the most suitable lifting and positioning solution for each of the segments and to analyse the transition phases during which the footbridges hadn't been completed yet.

Why did you choose a white resin coating for the surfaces of the footbridges?

The materials for the flooring were chosen by the designers, because the surfaces are subjected to high volumes of pedestrian traffic, while the PEM bridge is also used by emergency vehicles. Remember also that certain areas are completely open with no type of cover and are exposed to UV rays and the weather. The colour chosen, RAL 9016, has a similar pigment to the metallic parts; it blends in well with the surroundings and guarantees good visibility. Not only, it also fits in very well with some of the glass finishes and provides excellent visibility for the security and control systems.

Do you think that the footbridges will contribute to the development of the area once Expo is over?

The aim of the two structures is to connect different areas of the city and guarantee environmental sustainability through the use of the footbridges. The PEM footbridge will connect two areas of Milan which are, geographically speaking, suburbs that require some form of transport, whereas in the future there will be a quick connection. The PEF footbridge, on the other hand, is near to the Eastern Gate entrance of the Milan Exhibition area at one end, and to the Red Line of the underground rail network and the Rho Fiera railway station at the other end, so however the Expo site is developed in the future, there will certainly be an improvement in communications and better access around this important road hub.

The aim of the investments made in the area was undoubtedly to make the Expo 2015 event a better experience for visitors. A number of infrastructures have been constructed and they will remain to improve the flow of traffic in the "Great Milan". Are any other new projects under way?

We can't really say too much at the moment, but there are certainly many key players from the field of economics that are extremely sensitive about this subject, as well as a number of institutions, first and foremost the University.

It is worth remembering that we are very close to one of the most important motorway networks in Italy with the Fiorenza interchange. Not only, the Rho-Monza Provincial Highway, which will complete the Milan ring-road and allow a direct route between the Eastern ring-road and the Western ring-road and the Milano-Laghi motorway and in so doing will create a connection to the exhibition hub and provide better access to Milan airports, will be completed shortly.



OPEN AIR THEATER

EXPO'S OFFICIAL OPENING

“TOMORROW BEGINS TODAY”: THIS SLOGAN COINED BY ITALY'S PRIME MINISTER MATTEO RENZI DESCRIBES EVERYBODY'S HOPES AND EXPECTATIONS ON THE EVE OF THE MILAN EXPO



The 1st of May, 2015, at 10 a.m. on the dot, the gates opened to Expo Milano 2015: the first day of this eagerly awaited, longed for World Expo began in rather annoying drizzly rain. Two hours later the opening ceremony began in the Open Air Theatre with speeches by some of the Ambassadors for Expo 2015.

Then it was the turn of the Commissioner of the Government of Italy for Expo Milano 2015, Giuseppe Sala, who expressed his special thanks “to everybody involved in building the exhibition site. Expo 2015 is not the result of some Italian miracle, but rather the kind of hard work that very few people are capable of”. As well as Italy's Prime Minister, Matteo Renzi, the Lord Mayor of Milan, Giuliano Pisapia, and the President of the Lombardy Region, Roberto Maroni, those in attendance also included Ferdinand Nagy, the President of the BIE (International Exhibitions Bureau), the Italian Government Ministers Delrio, Gentiloni, Alfano, Orlando, Padoan, Franceschini and Galletti, and the Italian Minister for Agriculture with special





A LARGE OPEN-AIR SPACE FOR SHOWS AND ENTERTAINMENT

In the southern part of the Expo site is the Open Air Theatre which represents one of the four points on the compass located at each end of the Cardo and the Decumano. It is a large area (approximately 7,554 m²) that can host up to 11,000 spectators on the grass and stands and it is intended to host concerts, plays and official ceremonies. Built into the ground, the open theatre at Expo 2015 also has a piazza, a lawn and a stand with a 5% slope for the general public's seats. The entrance also acts as a public area, while the stalls of the theatre have precast concrete benches and the terraced wings to the sides help blend in the slope. At each side of the stage there is a block with dressing rooms and plant services rooms. The theatre is covered by a net-like structure with a flat roof covered with photovoltaic panels. The four tree-like pylons and the top of the flat roof are the only elements that sit above ground level and are visible against the Expo skyline. The Cirque du Soleil is daily performing "ALLAVITA!" here until the 30th of August, a show created especially for the occasion.

MAPEI PRODUCTS

DYNAMON SR56 and DYNAMON SR58 high-performance superplasticizers were used for building the theatre's concrete structures. A Mapei elastomeric system was used to decorate and protect the concrete surfaces. It includes MALECH water-based acrylic primer, followed by two coats of ELASTOCOLOR PAINT elas-

tomeric protective paint. To finish and protect concrete floors in the dress rooms and storage rooms, a painting cycle based on epoxy resins was chosen including TRIBLOCK P epoxy-cementitious primer and two coats of MAPECOAT I 24 two-component epoxy paint.

TECHNICAL DATA

Open Air Theater, Expo 2015, Milan (Italy)

Design: Studio Valle Architetti Associati

Main Contractors: Mantovani, Impresa Perregrini

Subcontractors: Edile Commerciale, Starcolor

Mapei Co-ordinators: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

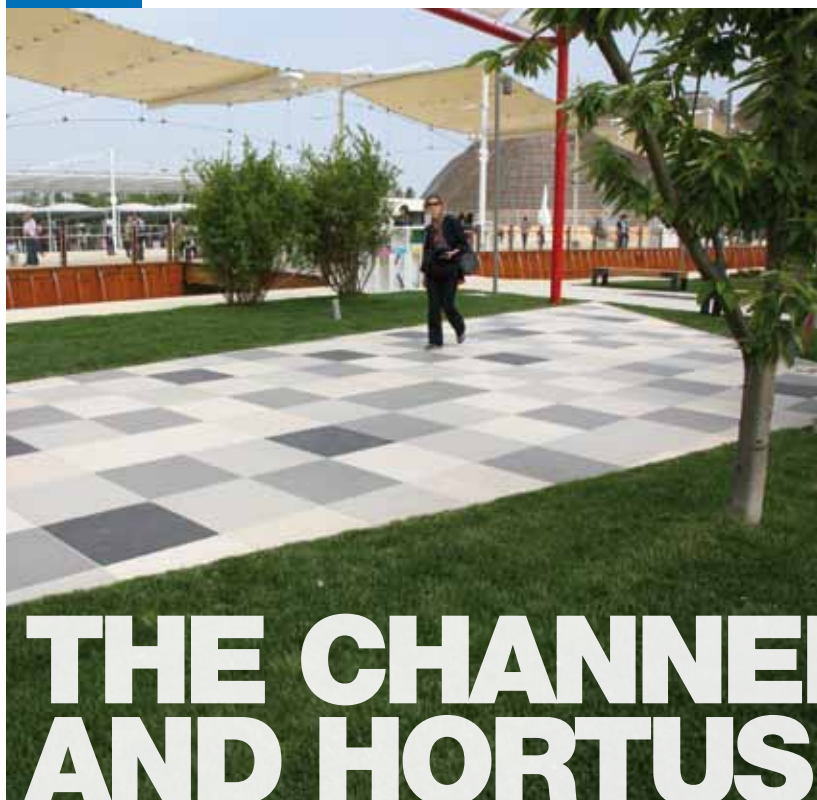
Dynamon SR56, Dynamon SR58, Elastocolor Paint, Malech, Mapecoat I 24, Mapefinish, Triblock P



responsibilities for Expo, Maurizio Martina. Other VIPs included the former Mayor of Milan, Letizia Moratti, and the former President of the Italian Republic, Roberto Napolitano, together with Italy's past Prime Ministers Giorgio Prodi and Mario Monti, Giorgio Squinzi representing the Confederation of the Italian Manufacturing and Service Companies, Giovanni Bazoli, the President of Banca Intesa, and Raffaele Cantone, the President of the Italian Anti-corruption National Authority.

The President of the Italian Republic, Sergio Mattarella, was not present at the opening ceremony but expressed his hope that the "Expo would be a turning point marking the beginning of a new cycle".

Pope Francesco had the final word during a video link with the Vatican City claiming that "Jesus taught us to pray using the words 'Lord, give us this day our daily bread'. This Expo is a chance to globalise solidarity, let's make sure we do not waste this opportunity and really make the most of it. To ensure it is not just a slogan, we must be aware of the faces of all those hungry people, who will not eat today in a way that is worthy of a human being". After signing the Charter of Milan, Matteo Renzi declared that Expo Milano 2015 was officially open.



THE CHANNELS AND HORTUS

WATERWAYS AND 8 GARDENS FOR VISITORS TO RELAX

The Expo exhibition site is designed like an island. It is, indeed, surrounded by water coming directly from the Villoresi Canal, whose source is the River Ticino: it literally breathes life into the exhibition site, supplying the cooling systems for the buildings and then flowing back into some new canals connected to the Naviglio Grande canal and docklands right in the heart of Milan. The new waterways are intended to improve the docklands' water supply and the efficiency of the irrigation network, connecting together stretches of unused canals and old canals with direct benefits for the farmlands to the south of the city. The depth of the Expo canal varies from 0.20 to 0.70 m, while its section varies from a minimum width of 4.5 m to a maximum of 65-75 m. Mapei helped restoring and waterproofing the channels' sides by supplying products such as MAPEGROUT EASY FLOW, MAPE-ANTIQUÉ LC, ANTIPLUVIOL W, and IDROSILEX PRONTO.

Different types of greenery inside Expo 2015 represent the most urban side of the landscaping. This includes Hortus: 8 gardens equipped with pergolas and seats for visitors to relax over an overall area of 27,000 m². Mapei contributed to Expo's Hortus through its products for installing large-size porcelain tiles on floors, such as KERAFLEX MAXI S1 deformable cementitious adhesive with no vertical slip, extended open time and Low Dust technology. The joints were grouted with KERACOLOR FF pre-blended, high-performance, polymer-modified cementitious mortar.

MAPEFLEX PU20 two-component, high-strength, castable epoxy-polyurethane sealant was used for sealing the expansion joints, because it is ideal for ceramic floors in places subject to heavy foot traffic.

TECHNICAL DATA

Hortus and Channels,
Expo 2015, Milan (Italy)

Period of Construction:
2012-2015

Period of the Intervention:
2012-2015

Design for the Hortus:
Benedetto Sella (PAN Associati) and Franco Zagari

Laying Company:
Ceramiche Frattini

Mapei Co-ordination:

technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Hortus: Keraflex Maxi S1, Keracolor GG, Mapeflex PU20
Channels: Mapegrout Easy Flow, Mape-Antique LC, Antipluviol W, Idrosilex Pronto





LAKE ARENA

A HUGE WATER BASIN HOSTING THE TREE OF LIFE

Lake Arena is in the northern part of the Expo site, opposite the Open Air Theatre. It is a water basin surrounded by spectator stands with a seating capacity of around 3,000 and a 28,000 m² square, with a hundred or so trees set in three concentric rows, with a capacity of up to 20,000 people. Cobblestones have been set on the bed of the lake create a mirror effect while, right in the middle of the lake, a fountain system and the Tree of Life create spectacular water, sound and light shows. Lake Arena is 90 m in diameter and is the largest outdoor area open to visitors. During the six months of Expo, there is a host of water and firework displays, concerts and shows from the floating stages and platforms, as well as art installations and temporary events. The lake is fed with water from the Villorosi canal. Water is an element that has a close connection to the theme of Expo Milano 2015, "Feeding the Planet. Energy for Life".

The canal, which is 4.5 km long and 4.5 m wide at its narrowest point, is a reminder of how important canals have been in the history of Milan. Its total surface area is around 90,000 m² and it is used to irrigate the park areas and create a micro-climate on the site as part of the Vie d'Acqua (Water Courses) project, a series of interventions to enhance the landscape and environment of the outdoor areas in the western part of the city and of the Navigli canals and irrigation channels.

MAPEI PRODUCT

To anchor the nozzles for the fountains in the centre of Lake Arena, Mapei recommended using PLANIGROUT 300 three-component fluid epoxy mortar.

TECHNICAL DATA

Lake Arena, Expo 2015, Milan (Italy)

Contractors: Mantovani, Lacs

Mapei Coordination:

technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCT
Planigrout 300



THE TREE OF LIFE

INSPIRED BY THE RENAISSANCE PERIOD,
THIS STRUCTURE IS SET TO BECOME
THE ICON OF EXPO MILANO 2015

Every Universal Exposition worthy of its name has its own symbolic monument. The Crystal Palace was commissioned for the first Universal Exposition in London in 1851, while Brussels had the Atomium as a reminder of the 1958 Expo, a structure in steel reaching a height of 102 m. But probably the most famous was the monument related to the Expo held in Paris in 1899, with the inauguration of the Eiffel Tower, which was originally due to be dismantled after a few years. As everyone knows, the end of the story was a little different and the structure became one of the most popular tourist attractions in the world, and is still standing today right in the heart of the French capital.

Milan is also looking to create a symbol that will become a reminder of this edition of Expo, long after 2015: the Tree of Life, a tower in steel and wood located in the northern part of the Expo site. The Tree has been erected in the centre of Lake Arena where numerous spectator stands overlook this stretch of water, a large open-air space where many of the events in the Expo programme are intended to be held. The Tree is located at the end of the Cardo, one of the main axis for Expo and one of the access routes to the site. The structure is opposite Palazzo Italia, the main hospitality area for Italy and the Italian Government.

The idea for the statue came from the Artistic Director of the Italy Pavilion for Expo 2015 Marco Balich, inspired by what is considered to be one of the most

memorable periods for Italy, the Renaissance. The Tree of Life is an interactive icon destined to capture the imagination of the visitors. Rich with technology and permanently illuminated by spotlights and LEDs, during the six months of Expo it is intended to host more than 1200 light, fire, sound, water, colour and bubble shows.

The roots of the tree around the base spread out 45 m in diameter and are inspired by the oval-shaped design symbolizing the constellations devised by Michelangelo Buonarroti for Piazza del Campidoglio in Rome in 1534. The tree twists around itself upwards for 35 m and then spreads out again to form the foliage 45 m in diameter. The inner part of the tree is made from steel (150 tonnes), while the outer part is covered with larch gluelam (90 tonnes). The central metallic structure – partly hidden by plants – has hidden stairs and service rooms for those who work on the Tree. At the top of the stairs there is a panoramic terrace which is accessible only to television crews and special guests. Porphyry and Botticino marble have been used for the base and the access ramp for the structure. Access to the base of the Tree and its exhibition area is via a suspended walkway over Lake Arena.

The foliage for the tree was mounted using a technique that had never been tried before. In fact, it was not lifted into position with a crane, but threaded into the first part of the metal trunk of the tree. Then the steel







ABOVE. Mapei supplied the cementitious adhesive ELASTORAPID to lay the stone coverings at the base of the Tree. ULTRACOLOR PLUS was used to grout the joints.

structure was completed and in just a few hours the foliage was hoisted into place using a system of winches and pulleys.

The Tree of Life, which will probably remain in place after the event, is a donation from the 19 building companies that form the Consorzio Orgoglio Brescia (Pride of Brescia Consortium) and represents the roots, traditions and knowledge of the Italian people. But it is also a push towards the future, to innovation and technology.

Paolo Franceschetti, President of the Consortium, announced: "The Consortium has given a real boost to our entire business system, because, with the right spirit, a keen desire to work together despite our structural-corporate differences and real determination to achieve what is now there for everybody to see, we have called ourselves into question and shown that working together systematically can produce excellent result".

MAPEI: SPONSOR OF THE CONSORZIO ORGOGLIO BRESCIA

It is here that Mapei wanted to make its contribution by

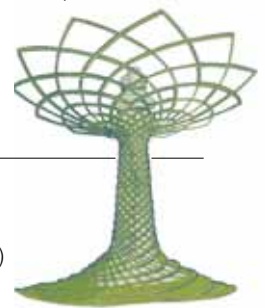
becoming sponsor of the Consorzio Orgoglio Brescia, and use the Company's skill and expertise directly in the field and play their part by creating the base on which the Tree of Life sits.

The intervention started by treating the substrate with PRIMER G synthetic resin primer in water dispersion and ADESILEX P4 quick-setting grey cementitious adhesive which may also be used for smoothing internal and external surfaces. MAPELASTIC TURBO two-component rapid-drying elastic cementitious mortar was recommended to waterproof the surfaces.

MAPETEX SEL macro-holed, non-woven polypropylene fabric was used for reinforcing the waterproofing membranes. ADESILEX PG1 RAPID thixotropic adhesive was used for structural bonds.

To bond the stone slabs around the base of the Tree, Mapei supplied ELASTORAPID two-component, highly-deformable, quick-setting and drying cementitious adhesive. ULTRACOLOR PLUS anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent DropEffect® and mould-resistant BioBlock® technology was used for grouting the slabs' joints. MAPEFLEX PU20 two-component, epoxy-polyurethane sealant was used to seal expansion joints.

The works also involved the use of MAPEWRAP PRIMER 1 two-component epoxy primer, MAPEFOAM closed-cell, extruded foam polyethylene cord, and PRIMER 3296 acrylic primer in water dispersion.



TECHNICAL DATA

Tree of Life, Expo 2015, Milan (Italy)

Year of Construction: 2015

Year of the Intervention: 2015

Client: Consorzio Orgoglio Brescia (Associazione Industriale Bresciana, Albertani Corporates, Alpih, ATB Riva Calzoni, Caldera General Impianti, Cittadini, Corbat, Duferdofin Nucor, Elgen, FASTERNet soluzioni di networking, Feralpi Siderurgica, Fratelli Moncini Stones, Italmesh, Metalcamuna, Ormis, Palazzoli, Porfido F.lli Pedretti, SIAL., Wood Beton)

Concept: Marco Balich

Executive and Building Design and Works Direction: Alessandro Gasparini

Choice of Materials, Engineering, Logistics and

Works Direction: Giovanni Spatti, Wood Beton

Laying Company: F.lli Moncini Srl

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Adesilex P4, Adesilex PG1 Rapid, Elastorapid, Mapeflex PU20, Mapefoam, Mapelastic Turbo, Mapetex Sel, Mapewrap Primer 1, Primer 3296, Ultracolor Plus

PRIDE IN ITALY THAT GETS THINGS DONE

An interview with Marco Bonometti, Engineer, Order of Merit for Labour, President and CEO of OMR (Officine Meccaniche Rezzatesi), and President of the AIB, Brescia Association of Industrialists.

How did you get the idea of forming a pool of companies entitled Consorzio Orgoglio Brescia (Pride of Brescia Consortium) and of creating the Tree of Life, certainly the most photographed symbol of Expo of all?

We need to go back to the period just before Christmas 2013, when, during one of a number of meetings held about the Expo, Diana Bracco said that it might be possible to build what would go on to be the real icon of the exhibition. And so, without anything being certain and but now realising that that we made a truly bold decision we are extremely proud of, we decided... "We will do it ourselves". We have never regretted making that move, as we went on to develop a project to be constructed by some extraordinary people, enterprises and technicians, to whom I would like to express my most heartfelt thanks.

During the official presentation of The Tree of Life, you claimed that it represented "an Italy that wants to get things done and is tired of complaining". Following the success of the first few months, are you pleased with your decision?

More than pleased! We are really delighted. It was an opportunity not to be missed due to the beauty of the project and the attention it was bound to attract, to show people what Brescia and its business system can achieve. The Tree is proof that if you really want something you can get it: we hope it will set a precedent.

The Tree of Life got off to a tricky start: it was the final project for the Italian Pavilion to be set under way (but the first to be completed!). Did you at any time doubt whether you would actually get it done?

We never doubted.... we would get it done. Of course, there were some tricky moments, bitter confrontations, seemingly insurmountable obstacles and slipups, but we always looked ahead without arguing, just working away quietly. In a nutshell, we wanted to show people

who we are, what we do and how we do it. Italian pride in what it can actually do.

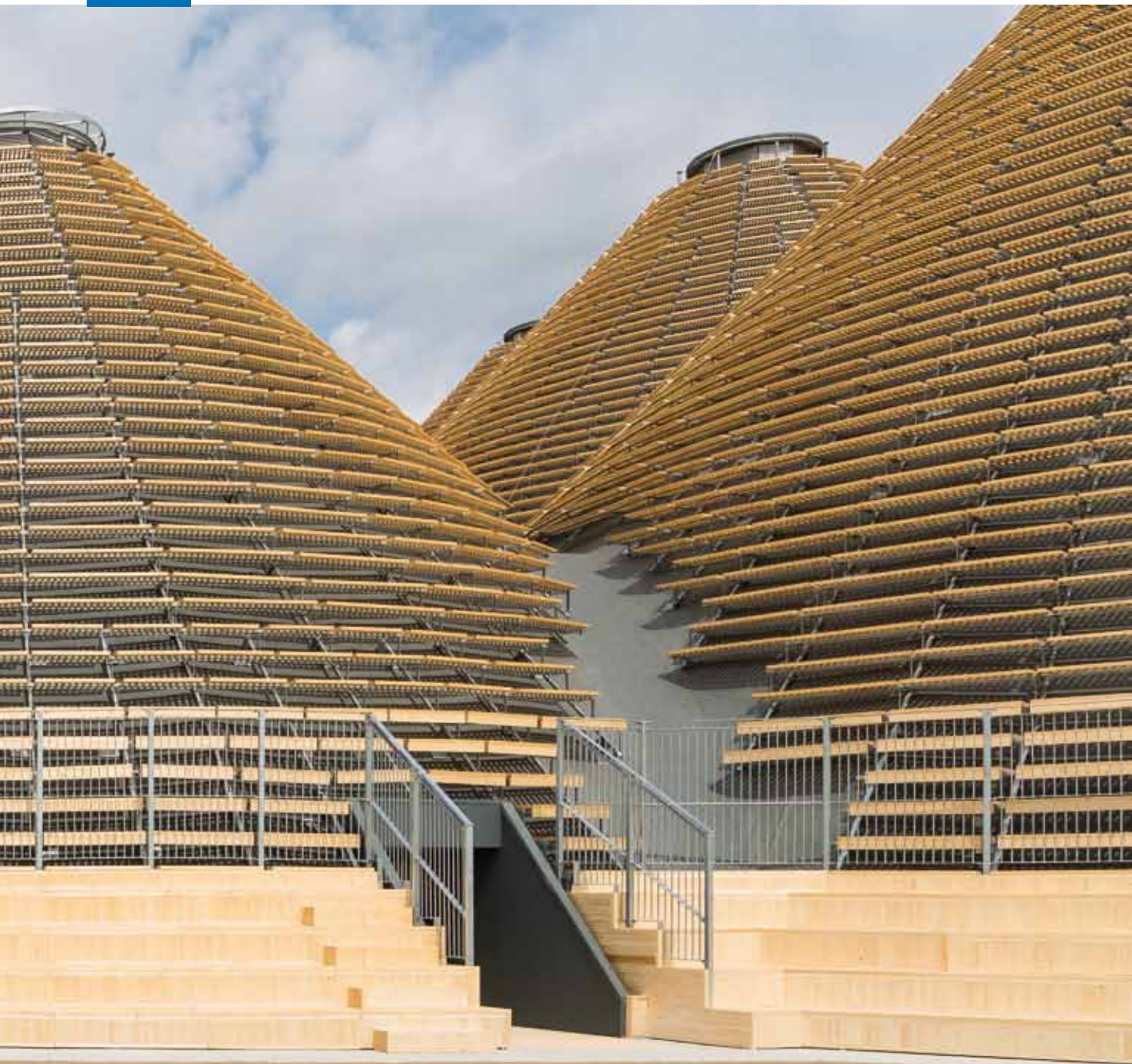
The Orgoglio Brescia Consortium constructed and donated the Tree. What will its future be after the Expo is over?

There are various possible ideas: it might stay where it is, be bought, "hired out" and returned to Italy. We might sell it or we might keep it for ourselves. One thing is certain: it will not be left abandoned in some warehouse, in the meantime we are just living the dream.

BELOW.

Marco Bonometti with the Tree of Life in the background.





ZERO PAVILION AND EXPO CENTER



IN

DID YOU KNOW THAT..? Pavilion Zero mainly stands out due to its clear-coloured wooden façade with the words “Divinus Halitus Terrae” (Divine Breath on Earth) written on it. The quote is from Pliny the Elder and is taken from his *Naturalis Historia*, the whole body of scientific knowledge used right through until the Renaissance. Inside this construction you really do feel as if you are “inside the earth” and everything is designed to inform visitors about the past, present and future of our planet.

THESE SPACES INTRODUCE VISITORS TO THE EXPO'S MAIN THEME

Located at the west entrance to the site and beginning of the Decumano, Pavilion Zero is designed to introduce visitors to the Expo's main theme, “Feeding the Planet, Energy for Life”. This construction, designed like its twin, the Expo Centre, by the architect Michele De Lucchi and custom-made to be dismantled and then reused, is located near the entrance used by most visitors because of how close it is to the M1 underground railway station and Rho-Fiera TAV railway station.

The Expo Center, a large space for indoor cultural and entertainment events, is located at the western edge of the exhibition site and takes up an overall space of 129,000 m³. Inside there are three separate functional blocks: an Auditorium for holding conferences, workshops and concerts, the Open Plaza, a theatre for hosting shows and performances, and a Meeting Area with various conference rooms.

Pavilion Zero has a rectangular base covering approximately 9000 m² and is part of the five Expo Thematic Areas or, in other words, the pavilions - all located at strategic places around the site - designed to present the theme of food: the Future Food District curated by Carlo Ratti and MIT (Massachusetts Institute of Technology); the Children's Park; the Biodiversity Park and Art&Food, an exhibition under the curatorship of Germano Celant at the Triennale Design Museum of Milan. Pavilion Zero is constructed out of metal cones covered with wooden steps - ranging from 20 to 26 m in height - creating the effect of a segmented natural landscape and evoking the distinctive hilly profile of so many Italian regions. The curator is Davide Rampello, who rightly believes that it is the most emblematic of all the Expo pavilions, because it does not treat food along the traditional lines of a place or nation but rather as a universal concept. As you enter the pavilion amidst an interplay of lights and soundtracks specially composed for the occasion, you are told the story of man's presence on earth and his very close ties with food and nature, starting from prehistory and culminating in the present day. A long journey across the ages that begins in the giant “caves” created by the cone-roofing. Room by room, you learn about mankind's evolution starting from hunting and fishing through farming and cattle-rearing right down to modern food marketing and industrialisation,

with its negative repercussions in terms of wasted food and “junk” food, before finally attaining a new awareness and proper eco-sustainability practices.

Pavilion Zero mainly stands out due to its clear-coloured wooden façade with the words “Divinus halitus terrae” (Divine breath on earth) written on it. Indeed, this pavilion offers a travel experience into the earth's crust, via caves that have been rebuilt in almost total darkness, where at the center there is the “valley of civilization”. The exhibition starts with the gigantic Memory Archive with its walnut and beech façade, made out of drawers and wooden panels to remind us of the importance of food production in the history of mankind. The story continues with the projection of a video made by Mario Martone and focused on the four arts (hunting, fishing, agriculture and breeding). It then continues with the Tree of Knowledge, 23 m high, which stands outside the roof of the dome and directs us towards the Room of Vegetable Culture containing fruit and vegetables from all over the world. This then gradually leads through to the Animal Room, showing reproductions of the most important species for breeding; the Tools Room, where instruments, utensils and machinery provide an overview of the history and customs of man as a farmer and stockbreeder; and the Stock Exchange Room that looks at how food is marketed and consumed, underlining the problem of food waste, with an installation consisting of a heap of waste to show how modern man wastes 30% of what is produced.

The itinerary ends with the Room of Landscapes with

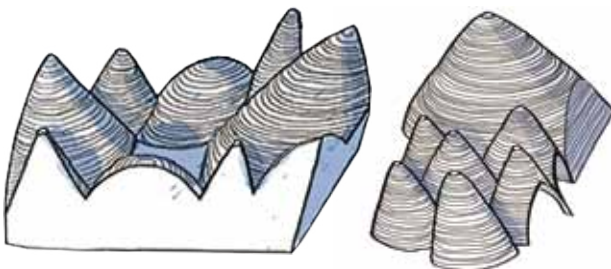




its 12 projections of landscapes in 12 different countries with virtuous examples of working farmers and of environment-aware food industries, and the Room of the Five Stories with the best cooperation projects for development.

MAPEI PRODUCTS

The MAPEPLAN range of synthetic membranes for waterproofing, whose exclusive multi-extrusion coating technology provides long-lasting, high-performance PVC-P and FPO, was used for the Zero pavilion's and Expo Center's roofs. The roofs were waterproofed with MAPEPLAN M, RAL 7012, (rolls length of 15 m) in PVC-P, reinforced with a polyester net with excellent mechanical resistance, great workability, and excellent welding properties, that is flexible at low temperatures and resistant to ageing, UV rays and atmospheric agents. Mapei also supplied ULTRABOND ECO FIX and ULTRABOND ECO V4 SP adhesive to bond resilient coverings in the Expo Center.



TECHNICAL DATA

Zero Pavilion and Expo Center, Expo 2015, Milan (Italy)

Design: Michele De Lucchi/Studio Amdl

Contractors: Edilstrade Imolese, Impernovo

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Ultrabond Eco Fix, Ultrabond Eco V4 SP, Mapeplan M 15 by Polyglass (Mapei Group)



SEME DELL'ALTISSIMO

ART, PASSION AND INDUSTRY AT THE
ENTRANCE TO EXPO WITH A SEED BLOWN
UP 1,500,000 TIMES

Mapei was a technical partner in the creation of one of the main symbols of Expo Milano 2015: the “Seme dell’Altissimo” by Emilio Isgrò, Expo 2015’s only official artwork. The work is actually a majestic orange seed broken down into three blocks, blown up 1,500,000 times compared to its real size: a 7 m tall sculpture made of white Altissimo marble excavated from Cervairole quarry up on Monte Altissimo in Serravezza, located in the Lucca region (Central Italy) on the Apuan Alps.

This work was created by the artist Emilio Isgrò and constructed by Henraux SpA. “For me an orange seed is symbolic – so Isgrò told us - representing my homeland, Sicily; but it is also a symbol of fertility and life; everybody loves oranges from America to China. It is a fruit that brings people together, whose seed we all spit out”.

Perfectly embodying the main theme of Expo 2015, “Feeding the Planet, Energy for Life”, the work stands on a fan of steps made out of high-quality grey Versilyls marble that also comes from Monte Altissimo. It is located at the main entrance, West Gate, to the Expo site, next to the Expo Center, in a privileged position so that it can be clearly seen by everybody visiting the Expo.

Mapei helped construct the sculpture by supplying its cutting-edge technology for constructing the fan of stones on which the “Seed” stands. For the installation of the marble base, Mapei supplied KERAFLEX MAXI S1 high-performance, deformable, cementitious adhesive with no vertical slip, extended open time and Low Dust technology.

The marble joints were then grouted using ULTRACOLOR PLUS high-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent DropEffect® and mould-resistant BioBlock® technology.

Mapei, whose corporate philosophy is based on the firm belief that work can never be separated from art and passion, was proud to help in the creation of “Seme dell’Altissimo”, a fine example of how a working partnership between art and industry can result in the creation of magnificent works all over the world.

TECHNICAL DATA

Seme dell’Altissimo, Expo 2015,
Milan (Italy)

Artist: Emilio Isgrò

Period of Creation: 2014-2015

Supplying and Processing Marble:
Henraux SpA

Mapei Co-ordination: technical
promoters coordinated by
Massimo Seregni and Andrea
Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Keraflex Maxi S1, Ultracolor Plus

ITALY PAVILION



AN AREA DEDICATED TO ITALY, A BUILDING DESTINED TO REMAIN AT THE END OF EXPO



Italy's presence at Expo Milano 2015, the Italy Pavilion, takes up an entire district in the Cardo area, one of the main thoroughfares which map out the structures of the exhibition site. The buildings and open spaces overlooking the Cardo play host to various exhibits and activities from national bodies and institutions that represent Italy's heritage.

To the north-west of the Cardo is Palazzo Italia, a building that was chosen as a meeting and presentation centre for Italy's main institutions. It is the only building along the Cardo that will not be taken down once the event is over. From here, the Italy Pavilion winds its way along the Cardo with four groups of buildings with a total surface area of 13,776 m², of which 4,350 m² used for exhibitions, 820 m² for events and 1,100 m² for meals.

The Italy Pavilion has reserved areas for national institutions and bodies, exhibitions and a meeting place for the European Union. Next along is the Wine Pavilion, where it is possible to sample hundreds of Italian wines. Near to Palazzo Italia you can find dedicated areas for the Red Cross, the 24 winning designs from the *WE Women for Expo* contest, Ecco Pizza&Pasta restaurant and Convivio, an area where there is

a relay of presentations from every region of Italy.

After the crossroads with the Decumano visitors come across an area dedicated to the Lombardy region and to Coldiretti, the Italian Farmers' National Confederation, and then areas for the sponsors: the dairy products group Granarolo, the coffee manufacturer Lavazza, the producer of olive oil Coppini, the brewery chain Poretti, the water manufacturer San Pellegrino. There is also a presentation of the Fab Food exhibition from Confindustria (Confederation of the Italian Manufacturing and Service Companies) about sustainability, health and safety in the food chain (see the following article) and the Martini Terrace.

Designed by Pininfarina, the Terrace is located on the second floor of the South East Cardo of the Italy Pavilion and offers visitors a 360° view of the Cardo and the Tree of Life. It is open from the morning until late evening and can host up to 300 people. There is a special green area in the entrance to the terrace to welcome visitors, made up of a wall of vegetation with various varieties of moss, and visitors are invited to plant their own "Seed of Desire" in a pot to create a kind of vertical wishing wood.

ITALY IS BACK AT THE CENTRE OF THE WORLD

DIANA BRACCO, PRESIDENT OF EXPO 2015 SPA AND GENERAL COMMISSIONER FOR THE ITALIAN PAVILION

Here's a rather obvious question you must have been asked many times recently: are you pleased with the Italy Pavilion and Palazzo Italia in particular?

I am pleased to say that in the end Italy really has scored a goal. Expo 2015's opening ceremony was a wonderful success and Italy is back at the centre of the world. According to the *New York Times*, Milan will be the world's most popular tourist destination in 2015. Ultimately, our main goal is to encourage the whole world to come and visit Italy. The Italy Pavilion is the "entrance gate" to the country. Palazzo Italia is able to charm everybody: the project is a work of art in its own right, which is really worth a visit. A trip around the *Identità Italiana* (Italian Identity) exhibition on display inside the Palazzo is a multifaceted experience. Working on the theme "Feeding the Planet, Energy for Life", we chose to highlight Italy's exceptional biodiversity and numerous layers of culture. There are also a number of works of art, including a Roman work of art and a contemporary work: the *Hora* sculpture from the Uffizi Museum and a sculpture by Vanessa Beecroft.

Then, there is the Tree of Life. The Cardo is lined with both large and small exhibitions displaying all the very best Italian regions have to offer. Confindustria's (Confederation of Italian Manufacturing and Service Companies) exhibition, "Fab Food. The factory of Italian Taste", inform visitors how it is possible to manufacture safe food products of the highest quality at affordable prices. And the Coldiretti (Confederation of Italian Agricultural Companies) area illustrates the role of the collective landscape and Italian farm products from the fields to our tables. Without forgetting those facilities devoted to typically Italian gastronomic products: coffee, oil, water, beer, pasta and pizza, bread, and wine.

So far the Expo has been a suc-

cess, as can be seen from the queues at the ticket offices. Do you think there is anything that could have been improved or done differently?

It is always extremely difficult to get anything done in a country with a very wide masochistic streak. Nevertheless, the Milan Expo is turning out to be a great success: a wonderful event with plenty to offer for everybody. This Expo is also designed for families and children of all ages. There are facilities like the Children's Park and lots of events organised in conjunction with the Italy Pavilion's School Project. There is also plenty of entertainment and edutainment with a wide variety shows. You can taste food from all over the world and travel right across the planet. We have made sure there is just the right balance between "food for the body" and "food for thought", creating a varied schedule of events, which is supplemented by the "off-the-Expo" program. We planned and wanted this to be a Universal Expo, whose content was the real main player: I would specifically like to mention the Charter of Milan and the schedule of scientific conventions organised in partnership with the CNR (Italian National Research Council) and CRUI (Conference of Italian University Rectors).

But, in the end, will the success of this event for the Italian system be measured "solely" based on ticket sales or will other factors count too?

The number of visitors is important: it is estimated that it will take just over 20 million visitors to cover the overall running costs. But there are so many other factors determining the success of an event like this. I am certain Italian tourist industry's contribution to the national GNP will rise, as will exports by Italian companies. But I am also thinking about human and cultural exchanges between millions of young people from all over the world,



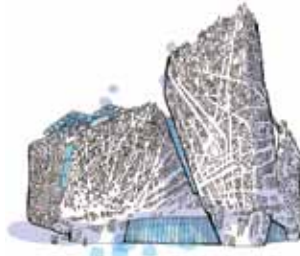
education and training opportunities for children and students, the impact on Italian cities, the infrastructures that our country has needed for decades. But perhaps the Expo's most important legacy will be the re-launching of Italy's image on a planetary scale.

It is the evening of 31st October and the Expo is closing its gates for the last time. What is likely to be your lasting impression of this great enterprise?

The satisfaction of having helped take Italy back to the centre of the world. The Expo is a great national mission, which should help us rediscover our pride in being Italian, restoring faith in the future and our sense of community. For me personally these have been hectic and difficult years, but also a wonderful experience on both a human and professional level.

You have been connected with the Expo for a long time, why did you decide to support this ambitious project despite all the problems?

A World Expo has always been an incredible opportunity both for the host nation and all the other countries. That is why, when I was the head of Assolombarda (Association of the Lombardy Region's Companies), I was personally committed to backing Milan's bid that the Mayor at the time, Letizia Moratti, proposed with such great foresight. It was a monumental battle that was won partly thanks to the help of enlightened business people, like Giorgio Squinzi, who, together with Assolombarda and the Milan Chamber of Commerce, set up the Milan for Expo 2015 Foundation (FMpE).



PALAZZO ITALIA

The Palazzo was designed by a group of design studios comprising Nemesi & Partners S.r.l., Proger S.p.A., BMS Progetti S.r.l. and Ing. De Santoli.

The idea on which the designers based their designs was that of a forest branching out and reaching upwards around a central piazza, a meeting point and a symbol representing community within the four blocks that give the Palazzo its form. The aim was to create urban wings, like those of a theatre, and the four blocks offer a welcome to the Exhibition area to the west, the Auditorium-Events area to the south, the Official Offices area to the north and the Conference-Meeting Rooms area in the eastern part.

The construction is five floors high with another floor below ground level used for storage spaces and plant services. It is made from steel, glass, concrete and special biodynamic cement called i.active biodynamic by Italcementi. There are 2,500 m² of exhibition space inside the Palazzo, 1,050 m² of areas for restaurants and bars, a panoramic restaurant on the top floor, and around 1,900 m² for events.

The main visitors' route starts from the covered piazza and goes through the whole of the building, enabling visitors to gradually discover for themselves Italy's four strong points: knowhow, beauty, limits and the future. Then there is the "dark" market manned by the Italian National Institute for the Blind, local markets with the famous painting of the Vucciria market by Renato Guttuso, an area dedicated to the Lazio Region and the capital Rome and an area where you can sign the Milan Charter on food, which will be presented to the Secretary-General of the United Nations on the 16th of October.

MAPEI PRODUCTS

Mapei supplied products to smooth over the façades: PLANITOP 100 quick-setting, fine mortar and PLANITOP 560 lime-cement skimming mortar. Inside the Palazzo the bathrooms' surfaces were waterproofed with MAPELASTIC TURBO two-component rapid-drying elastic cementitious mortar for waterproofing substrates.

TECHNICAL DATA

Palazzo Italia, Expo 2015, Milan (Italy)

Design: Nemesi & Partners S.r.l.; project team: Proger S.p.A., BMS Progetti S.r.l. and Ing. De Santoli

Contractor: ATI including Italiana Costruzioni and Consorzio Veneto Cooperativo Scpa

Building Companies:

Italiana Costruzioni SpA; for smoothing substrates: Calini Srl; for laying ceramic tiles: Ceramiche Sbaraini

Mapei Co-ordinators:

technical promoters coordinated by Massimo Seregni and Andrea Serafini, Mapei SpA (Italy)

MAPEI PRODUCTS

Adesilex P9, Adesilex G19, Dynamon SR 912, Dynamon SR 914, Eporip, Keracolor FF, Keraquick Maxi S1, Mapecolor Paste, Mapecure SRA, Mapefill, Mapegrout Hi-Flow, Mapelastic, Mapelastic Turbo, Nivoplan, Planicrete, Planitop 100, Planitop 560, Ultralite S1, Ultratop Color Paste

VAGA PRODUCTS (MAPEI GROUP)

FIBROMalta Vaga (fibred mortar for masonry), MaltaBASTARDA (mortar for masonry) Vaga,

Mapei also supplied ULTRALITE S1 one-component, cementitious adhesive, KERAQUICK S1 high-performance, quick-setting, cementitious adhesive, and ADESILEX P9 cementitious adhesive to bond the ceramic tiles in the restaurant. KERACOLOR FF and KERACOLOR GG mortars were chosen to grout the tile joints. PVC floors were bonded with ADESILEX G19 in the San Pellegrino area.

MAPEFILL fluid cementitious grout was used to anchor metal elements in concrete. Mapei also supplied several products for building, such as MAPEGROUT HI-FLOW, EPORIP, MAPECURE SRA, MAPELASTIC, NIVOPLAN, PLANICRETE, ULTRATOP COLOR PASTE, as well as products by VA.GA. (Mapei Group's subsidiary) such as FIBROMalta and MaltaBASTARDA.

BELOW. The official opening of Palazzo Italia.

LEFT. Palazzo Italia hosts "Kids Creative Lab" activities organized by the Peggy Guggenheim Foundation.



PALAZZO ITALIA: THE CHALLENGE

EMILIO PIZZI: ARCHITECT, CHAIRMAN OF THE FACULTY OF BUILDING ENGINEERING AND ARCHITECTURE AT THE POLYTECHNIC OF MILAN AND QUALITY CONTROL MANAGER FOR THE ITALY PAVILION



What does it mean to be “quality controller” for the construction of the Italy Pavilion?

First and foremost the role carries a great deal of responsibility because I was representing Milan Polytechnic's contribution to the project.

It was also a challenge because of the innovative aspects that were part and parcel of the overall project by the Nemesi & Partners studio, with its geometrically complex structure and the non-conventional use of materials and technology that created particularly difficult working conditions if we consider the very tight schedule we were working to. But above all it was an honour to have the opportunity to personally play an important role on a work of “choral” architecture destined to represent the best of Italy at Expo.

You wrote a letter shortly before the start of Expo to offer your personal thanks to all those who had collaborated with you. Was there ever a moment over the last few years when you thought the Italy Pavilion would not be ready for the 1st of May 2015?

I felt that it was my duty to honour all those people, starting with the Works Director, but also and above all everyone who worked with commitment and passion under difficult conditions to create something with unique characteristics. It is those people that I would like to personally thank one more time. As far as the doubts and worries about “not making it on time” are concerned, to be honest there were plenty of them,

even though I was lifted by my unwavering faith that, in spite of everything, we would have done it.

Which were the most critical moments and how did this building site differ from the many others you have followed during your career?

If you just think that the first pour of concrete for the vertical structure was only made in April 2014 you have an immediate perception of how little time we had available at the time to complete the building.

And undoubtedly the most critical moments coincided with the finishing phases once the structure had been completed. In fact, there were situations when there was incredible interference between the various components of the other two contracts for the large glass sail covering the structure built by Stahlbau Pichler and the innovative covering in precast biodynamic concrete elements by Stylcomp. In the central piazza they were working on all these activities at the same time, as well as securing the glass façades, which had a considerable impact on the original work schedule and often created enormous problems while moving numerous platforms and various lifting rigs and cranes.

But above all the real challenge was in securing the elements for the façade. There was an assembly sequence that had to be tightly maintained, with handling, lifting and positioning sequences that had never been tried before and which, before even starting, we were not sure how long they would take.

You know Palazzo Italia like the back of your hand; what do you think the future will bring?

When I was wandering around the various spaces of Palazzo Italia I often found myself wondering what its destiny would be once Expo is over. I remember that originally there was no binding configuration. Then, once construction work was under way, we were asked to increase the exhibition area and reduce the office space, which meant constructing a more extended display route.

Maybe this modification allowed us to create more fluidity in the spaces inside the building and create the ideal premise for a more museum-like display area, which could just be the true vocation of Palazzo Italia.

How was your relationship with Marco Balich, a genius of visual communications?

Apart from the period when we were fitting out the exhibition for Palazzo Italia, Marco Balich and I also shared all the issues during the construction of the Tree of Life, which also had its difficult moments.

The final result, however, was just reward for the determination of Commissioner Bracco and the enormous creative passion of Marco Balich.

Being involved directly in the artistic direction and staging in particular, and then for the assembly phases on the structure, I was able to fully appreciate the professionalism of Marco Balich who created an extraordinary moment of attraction for visitors to Expo.



THE VERY BEST OF ITALIAN FOOD ON DISPLAY AT THE EXHIBITION SPONSORED BY CONFINDUSTRIA AT EXPO 2015 IN THE ITALY PAVILION

Confindustria (Confederation of the Italian Manufacturing and Service Companies) is sponsoring an exhibition being held in the Italy Pavilion at Expo 2015.

The idea is to show visitors that it is possible to obtain safe, high-quality food products at reasonable prices and in sufficient quantities for everybody, while respecting the environment and the world's resources, thanks to this particular industry and its technology.

The project, organised by the Leonardo Da Vinci Museum of Science and Technology under the patronage of the President of the Italian Republic and the Presidency of the Council of Ministers of the Italian Republic, is set out in a 900 m² exhibition area over two levels inside the Italy Pavilion.

A layout encompassing 10 rooms offers its guests a highly emotional interactive individual and collective experience.

The first room takes visitors on a journey through the senses: distinctly Italian dishes immersed in the sounds of typically Italian conviviality with pictures of appetising food projected on the walls.

Visitors are engaged in a truly personal and unique experience. If they are asked: "What is the food of your heart's desire?", they can reply by choosing it from the "Food Jukebox".

Going up to the first floor, you leave the area of the senses by walking through a tunnel of voices bombarding visitors with questions like: "Is food healthy? Is it safe? Is there enough for everybody? Is it sustainable?". Visitors are asked to consider how their individual choices and requirements affect other

people's.

This leads to the very heart of the exhibition: a display entitled "Feeding the Planet". There is a giant Planet Earth in the middle of the room that is unbalanced: how can we all make our own contribution to creating a balanced planet and ensuring its sustainability? A challenge to be tackled by finding the right balance between action and resources, everybody working together: the entire farm-food industry together with institutions, industry, universities, schools, consumers and the distribution network.

Next you enter the world of production: there is a display about efficiency, which explains how to produce more using just the right resources, generating less waste and guaranteeing safety and reasonable prices.

Third display: "Safety First", visitors venture into the realm of industry, rearranging the various stages in manufacturing, transformation, conservation and packaging in the right order.

"Repercussions of Technology" is an interactive audio-visual installation making us think about the effects that innovations in manufacturing and medicine have had on us.

Visitors then enter the hall of mirrors, "Figures in Shape", where they can see how science and technology have improved our health.

"Recipes of Innovation" section tell us about the most important achievements attained by the farm-food industry in response to both present and future challenges in the realm of nutrition.

THE PUBLIC ASSEMBLY OF CONFINDUSTRIA AT EXPO MILANO 2015



Just like other representative associations, the Confederation of the Italian Manufacturing and Service Companies decided to take advantage of the new spaces provided by the Expo Milano 2015 site.

For the first time in its history from the end of the Second World War to the present day, the 2015 Annual Assembly was not held in Rome but rather at Expo in Milan. After all, such a significant opportunity to promote Italian industry and design as this year's Expo had never arisen before. When announcing this change in location last year, Giorgio Squinzi, the President of the Confederation, pointed out that this is what the Confederation wanted, because "we have always really believed in this Expo right from the beginning as an unmissable opportunity to promote Italy and its industry design in the eyes of the rest of the world, a major challenge that we will make every effort to support. What visitors see at Expo Milano 2015 is not just a major thematic exhibition: it is Italy as a nation determined to succeed".

These thoughts are also shared by Diana Bracco, the President of Expo 2015 SpA and General Commissioner for the Italian Pavilion: "the fact that Confindustria has decided to hold its 2015 General Assembly in Milan is of extraordinary symbolic importance - so Ms Bracco noted - and the partnership with the the Confederation of Italian Manufacturing and Service Companies is particularly significant, because it also allow us to show the cutting-edge side of Italy to the rest of the world, a nation capable of building its future around Research & Innovation". The public assembly followed the private assembly held as usual in Rome on 6th May.

In the forthcoming issue of *Realtà Mapei International* we will provide more details about the assembly held on 28th May and the speech given by Giorgio Squinzi, who was chairing the annual assembly for the third time.





THE WATERSTONE

A SPACE THAT EVOKES NATURAL ELEMENTS DESIGNED BY MICHELE DE LUCCHI FOR INTESA SAN PAOLO BANK

Intesa San Paolo Bank is an Official Global Partner of Expo Milano 2015 and the Intesa San Paolo Pavilion was the first to cross the finishing line for Expo 2015: in fact, it was even completed 35 days ahead of schedule. Designed by the architect Michele De Lucchi, this space extends over an area of almost 1.000 m² and is located in a central position along the main Decumano thoroughfare close to the crossroad with the Cardo thoroughfare.

Inside "The Waterstone", the name given to the pavilion, Intesa Sanpaolo has a presentation of its services and products in an environment inspired by the themes of sustainable and responsible development, in perfect harmony with the main theme of Expo.

The pavilion, made entirely from eco-friendly recyclable materials, evokes the natural elements and has the appearance of three polished stones, with four waterfalls flowing between them, hence the name "The Waterstone". The load-bearing structure, covered with 6,363

fir tree shingles, is made up of nine arched portals set at a pitch of 5 m, with wooden joists and floorboards linking the portals to leave the wooden structure exposed, similar to the inside of a large barn. The structure sits on a concrete base and, once the event is over, it will be moved to another site. There are two walls to protect the shell: the internal wooden wall provides protection from the wind and rain while the external wall provides shade and gives the building its characteristic form. There is a gap between the two walls where natural induction forces the air to rise to stop heat entering. The external shaded covering is made from white shingles with gaps between them allowing the light to filter through naturally. At night, a system made up of 168,000 LED lights creates spectacular lighting effects between the wooden shingles.

The internal space is separated over two floors: the ground floor is for the general public where they can try out state-of-the-art solutions with innovative ways



IN

1,000 M²
IS THE SURFACE
COVERED BY THE
INTESA SAN PAOLO
PAVILION

DID YOU KNOW THAT..?

The internal space is separated over two floors: the ground floor is for the general public, while on the upper floor there are dedicated spaces for events for companies

of accessing the bank's services, while on the upper floor there are dedicated spaces for events and meetings with four hundred companies and innovative start-ups, the real stars of the "Ecco la mia impresa (This is my company)" campaign. Mapei has also joined this initiative. Beside, Mapei supplied KERAFLEX MAXI S1 high-performance, deformable, cementitious adhesive with no vertical slip, extended open time and Low Dust technology for laying ceramic tiles in the toilettes.

TECHNICAL DATA

Intesa San Paolo Pavilion, "The Waterstone",
Expo 2015, Milan (Italy)

Design: Michele De Lucchi

Contractor: La Cost Srl

Laying Company: Esiet

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

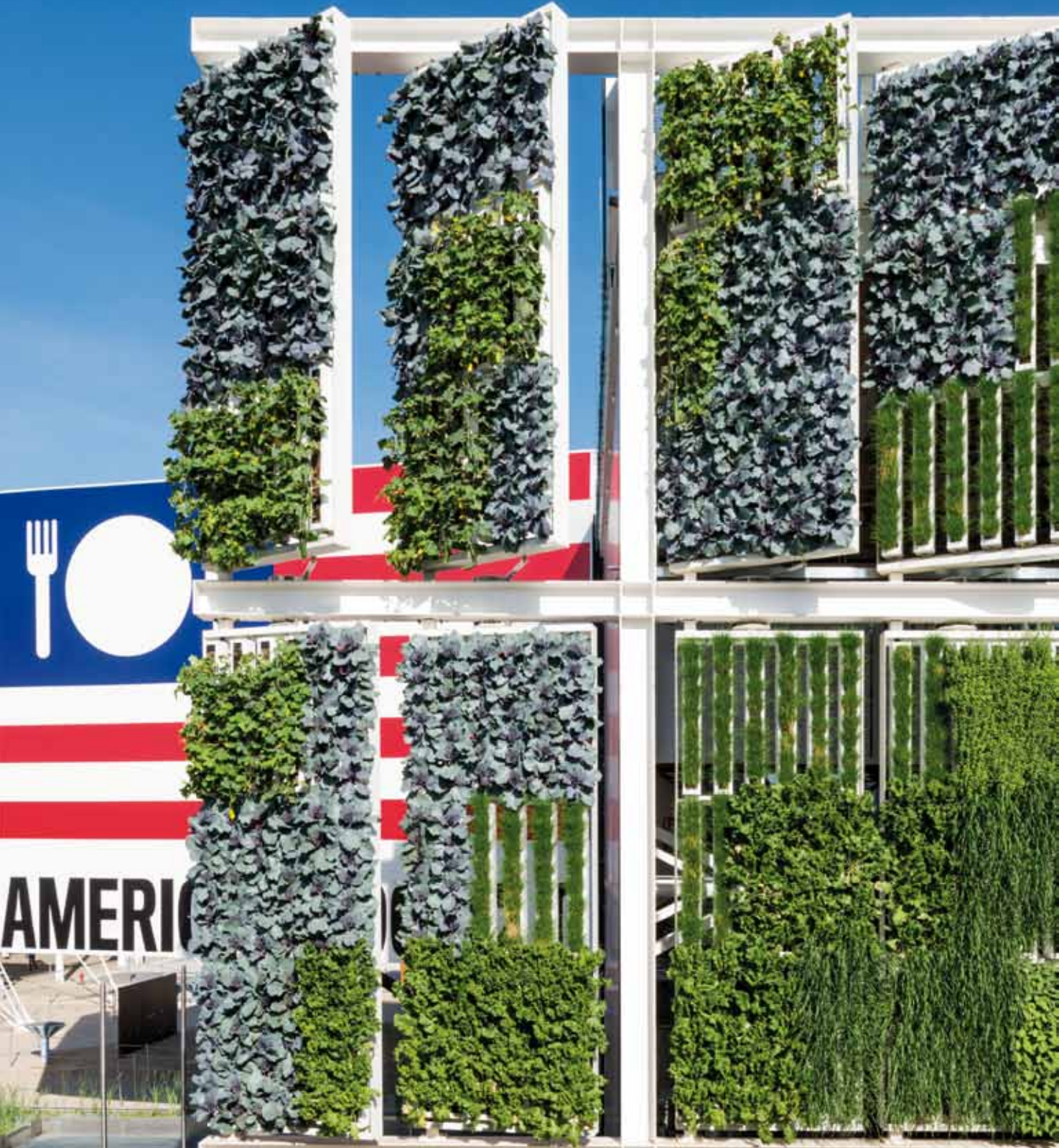


MAPEI PRODUCT

Keraflex Maxi S1



USA PAVILION



A HUGE VERTICAL FARM TO PORTRAY THE USA'S AGRICULTURAL TRADITION

The multi-storey structure of the pavilion representing the United States, which is one of the most popular, extends over an area of around 3,000 m² on several floors and looks like one of those large barns typically found in rural America. Inside the structure, the organisers have organised gastronomic demonstrations and performances to show a varied, sustainable strategy which takes into consideration responsibility to the environment and nutritional, scientific and technological research intended to strengthen and optimise food resources. The aim is to be able to feed more than 9 billion people by 2050.

Visitors get to see key exponents of American gastronomic culture, from cooks with their traditional American cuisine to USA brands famous all over the world, as well as those less famous brands presented directly by the producers themselves. The aim is to broaden people's knowledge and present the numerous valid, sustainable alternatives on the American food scene, which goes far beyond classic fast-food.

The structure was designed by the American architect James Biber and inside the Pavilion each single State is represented to show visitors the centuries-old tradition of American agriculture, an aspect that is often overlooked but one which is of vital importance to the domestic economy.

As with other pavilions, this one has also been built to be eco-friendly using recycled materials, such as the central walkway made from wood used to cover the promenade from Coney Island in New York. But the element that certainly strikes the visitors most of all is the enormous green wall which covers more than 7,000 m². It is like a vertical farm with vegetables and cereals to express the idea that, to have a vegetable garden or cultivated land, you don't need large horizontal spreads, and that a simple vertical surface can work just as well, using urban

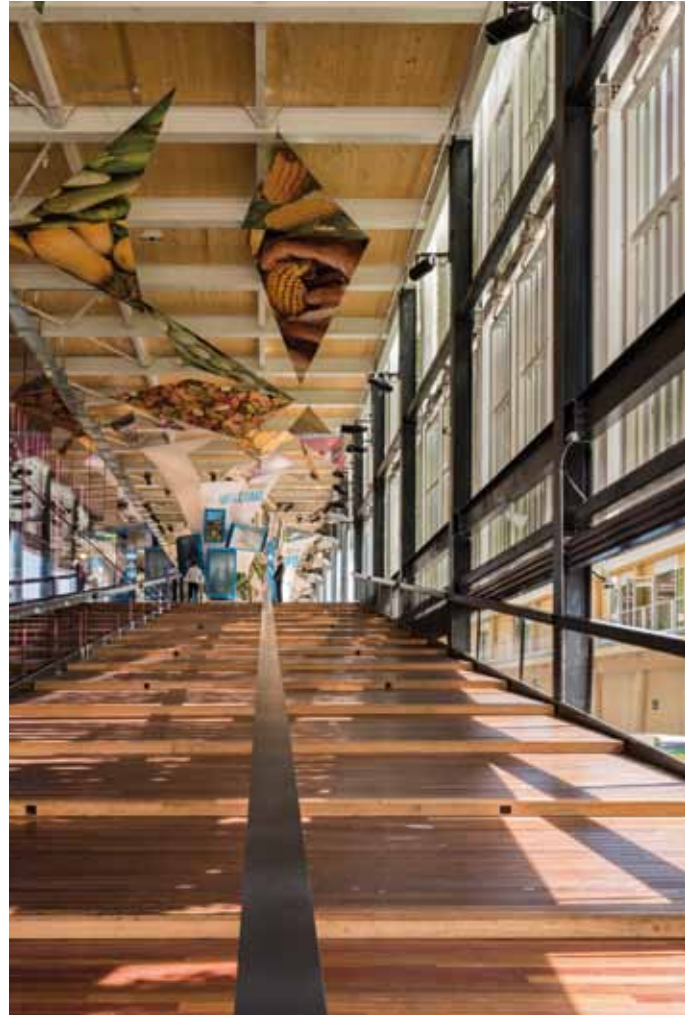
DID YOU KNOW THAT...? The element that characterises the pavilion most, and that mostly fascinate visitors, is the motorised vertical wall covering an entire side of the pavilion the size of a football pitch. A large field, growing vertically, where a special system has been applied to carry out hydroponic agriculture

40 VARIETIES OF VEGETABLES AND CEREALS ARE CULTIVATED AND IRRIGATED BY MEANS OF A SOPHISTICATED DROPLET SYSTEM, THE VEGETABLES ARE PICKED EVERY TWO WEEKS AND THEN COOKED.



agriculture as an example. The concept behind the wall is that of an "upturned field" cultivated by exploiting a system of hydroponic agriculture mounted on mobile panels that can be rotated easily to follow the light from the sun. At the foot of the construction there are food trucks, mobile kitchens typically found in urban America, offering visitors classic dishes from American cuisine. Inside the construction, on the other hand, demonstrations have been scheduled to showcase America's leadership and innovation in the field of cooking, food safety and hygiene and agriculture.





AND THE SPONSOR IS MAPEI

To celebrate the thirty-year bond between the mother company Mapei SpA and its US subsidiary Mapei Corp., the Mapei Group decided to sponsor the USA Pavilion. As Luigi Di Geso, President and CEO of Mapei Americas, was keen to highlight, "Mapei offers its full support to the effort made between countries to work together to help feed the planet, by supplying products suitable for buildings where food and drinks are processed, distributed and consumed". Mapei Corp. represents an important part of Mapei's international business activity: out of the Group's total turnover of 2.3 billion Euros, the United States accounted for around 400 million Euros.

The Mapei Group is highly committed to the environment, which is one of the reasons they wished to sponsor the American pavilion, designed and constructed according to a strategy based on environmental sustainability, to which Mapei contributes thanks to their vast range of highly qualified products.

MAPEI PRODUCTS

Mapei supplied the best eco-sustainable solutions to complete this innovative project, helping to solve the problems that arise during the works. The floor slabs were soundproofed by applying MAPESILENT COMFORT, a dry soundproofing system to combat im-

pact noise from footsteps, and MAPETAPE adhesive sealing tape. KERAFLEX MAXI S1 high performance cementitious adhesive with Low Dust technology was used to bond the ceramic floor tiles.



TECHNICAL DATA

USA Pavilion, American Food 2.0, Expo 2015, Milan (Italy)

Design: James Biber/Biber Architects, New York (USA)
Contractors: Airaud Costruzioni, Vanoncini SpA, WPS, Still Color

Mapei Distributor: Spaberg

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

TECHNICAL DATA

Keraflex Maxi S1, Mapetape, Mapesilent Comfort

FOOD PRODUCTION OF THE FUTURE IN THE USA PAVILION

INTERVIEW WITH AMBASSADOR PHILIP T. REEKER, CONSUL GENERAL OF THE UNITED STATES IN MILAN

The concept behind the US pavilion evokes a barn and takes us on a journey through the world of nutritional sustainability. Is this an important issue in the United States?

A more food-secure, nourished world, able to feed itself, is essential to the long-term prosperity of individuals, communities, economies and nations and to promoting global stability. As President Obama and Secretary of State Kerry have stressed, global food security and nutrition are priorities for the United States. "Feed the Future", the U.S. Government's global hunger and food security initiative, focuses on smallholder farmers, particularly women, and supports partner countries in developing their agriculture sectors to spur economic growth and trade that increase incomes and reduce hunger, poverty and undernutrition.

The chosen theme is "American Food 2.0: United to feed the planet" and it focuses around the culinary diversity and richness of the United States. Do you think the internal layout has managed to explain to Europeans, and Italians in particular, that the United States does not just mean "hamburgers and French fries" ?

In the Great American Foodscape part of our Pavilion we explore America's food culture, past and present; fun, delicious and surprising. These stories are a selection of our food tales about cultural adaptation, regional specialties, American peculiarities—all celebrating the creativity and diversity of our food and people. Whether it's hotdogs or microgreens, it is difficult to isolate a specific cuisine that embodies the United States as a whole. We have a dynamic food culture, one that has produced a vibrant cuisine and a growing dedication to making delicious, wholesome food an integral part of a sustainable food system.

What innovations is the USA pavilion focusing on in relation to the great theme of food?

One of the more innovative features of the USA pavilion is a 860 m² Vertical Farm, where 42 different varieties of vegetables, grains, and herbs are grown. The crop wall represents a highly integrated approach to agriculture



and tells a story of food production for the future. The Boardwalk-level exhibits introduce visitors to Americans working at the vanguard of our food system—farmers, policymakers, chefs, scientists, business leaders, and others.

The United States pavilion, unlike the others, is not financed by public money, just private funds. Do not you think this might be a "shove" in the direction of less freedom of choice? Has working with sponsors enhanced the contents of the pavilion?

We are grateful to the companies who have already made generous contributions towards the success of this pavilion, and look forward to welcoming more sponsors to help highlight American engagement in global food security solutions. The energy, ingenuity and generosity of private sector partners drive this effort. We are working with a diverse group of sponsors to help tell the inspiring story of American innovation in the themes covered by Expo Milano 2015.

Are you expecting lots of visitors from the United States? How is Expo 2015 viewed in your country?

The pavilion, like Expo as a whole, has proved to be a popular success. We look forward to welcoming many of our fellow citizens as well as visitors from around the world to the USA Pavilion.



THE LANGUAGE OF FLAVOUR

SPAIN PAVILION

“El lenguaje del sabor” - “The language of flavour” - is the theme of the Spain Pavilion, which, inside a large twin-aisled glasshouse evoking a striking *patio de naranjos* (garden of oranges) develops two key concepts chosen for Expo Milano 2015: tradition and innovation.

Designed by the architectural firm b720 Fermín Vázquez Arquitectos, the construction covers an area of approximately 2500 m² and is located near the Italy and France Pavilions.

The Spain Pavilion revolves around three main issues: a successful food production chain, the quality and diversity of Iberian gastronomy, and sustainable zoo-technical production as a means of conserving not only the landscape, but also the heritage and alternative means of boosting tourism.

The pavilion is designed like a large glazed space and features a combination of indoor and outdoor settings and open-air sectors. In addition to the auditorium, which has sitting room for 80, the long glazed construction also holds classrooms and workplaces. Visitors are greeted at the entrance by a gigantic suit-

case holding a maxi information screen. This suitcase is followed by twenty others, all providing visitors with further information about Spain.

On the first floor there is a tour called “The food journey”, which continues and concludes on the top floor with “The language of flavour” exhibition. As well as digital sets, animation tools and QR codes, the Spain Pavilion also contains hydroponic gardens, shops selling typical Spanish products, an educational garden and refreshments facilities. Built out of wood and steel, the structure is designed to be easily dismantled and rebuilt elsewhere at the end of the event.

MAPEI PRODUCTS

For waterproofing the outside roofs, Mapei supplied MAPEPLAN TM 15 manufactured by Polyglass (a Mapei Group’s subsidiary), a synthetic membrane made of flexible polyolefin FPO, made by means of a multi-extrusion coating process using high-quality raw materials reinforced with polyester netting. It is resistant to UV rays and suitable for fully exposed applications. It features a high Solar Reflectance Index (SRI 102).



TECHNICAL DATA

Spain Pavilion, Expo 2015, Milan (Italy)

Design: b720 Fermín Vázquez

Arquitectos

Contractors: Ariaudo Costruzioni Srl, Nuova Isoltecnica Srl, Artec di Verano Brianza, Fair Vernici Srl

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

POLYGLASS PRODUCT (Mapei Group)

Mapeplan TM 15



SOCIETY DESERVES FOR ARCHITECTS TO TAKE INTO ACCOUNT COLLECTIVE INTERESTS

Fermín Vázquez founded his architectural studio b720 together with Anna Bassat in 1997. Their portfolio includes work such as the Mercat dels Encants or Torre Agbar, in Barcelona; hotels, such as VP Plaza España, in Madrid; squares/plazas such as the Torico Plaza, in Teruel (Spain), or airports such as the Lleida-Alguaire (Spain) or Chinchero Cusco (Peru). Vázquez and the rest of the b720 team are also the creators of the pavilion representing Spain in the Expo currently being held in Milan.

What does taking part in the Milan Expo mean to the studio? What are your expectations for it?

Architects are interested in all those projects that are rare or singular, and it's true that taking part in an Universal Expo, which only takes place once every four years, with your own work, is a truly unique experience. Expos have also always been a field of architectural research and experimentation, where one can also give free reign to the symbolic and evocative nature of architecture, beyond the pragmatic side that does predominate in other types of buildings. Added to this is the fact that you are representing your country, which is always motivating.

How did the idea of designing a pavilion in the shape of a greenhouse arise and, what's more, using recyclable and sustainable materials?

The greenhouse idea has to do with the general theme of the Expo for this year, which is the food production process. An industry, which is cutting edge in Spain, where both tradition and innovation coexist harmoniously. This is why the pavilion is divided into two large units, one representing tradition and the other innovation.

The reason for resorting to reusable materials responds to the current context in our country. The crisis and predominant climate of austerity made us take another look at building methodology. Therefore, we decided it was not the right time for ostentation, or for work that would appear to simply respond to the whims of the architect. Without renouncing the scope and impact that a pavilion in the Universal Exposition should have, we sought something simple, clear and convincing in relation to its execution. Bearing in mind, at the same time, that it would be an ephemeral work of architecture that would only remain standing for six months and that the architectural practice of using and discarding is not looked upon favourably, we decided that the pavilion would be built from materials that are recyclable and reusable.

A trend, that of sustainable construction, has reached Spain and is here to stay. What challenges did it rep-

INTERVIEW WITH FERMÍN VÁZQUEZ, DESIGNER OF THE SPAIN PAVILION



resent for the sector having to incorporate all these environmental criteria within a relatively short space of time?

The bureaucracy associated with sustainable construction has been in existence for some time, but it is true that a whole series of requirements have recently arisen in relation to construction (materials, certifications, agents who intervene, etc.), which is a reflection of living in an increasingly demanding society.

The sustainability variable is clearly needed in the sector. We have had, and continue to have, a very ineffective way of using resources, but it is true that awareness in relation to the use of resources is gradually getting through in our society and, consequently, I am optimistic and think that us professionals will be capable of resolving the problems that arise in a more responsible and intelligent manner.

How do you manage the variable of social responsibility in construction at b720?

It is a fundamental and inalienable variable. We are a studio that has always been very much led by the client, something that seems very obvious now, but that wasn't so usual some time back. Before, the architect enjoyed an authority that gave him/her a certain degree of autonomy when it came to working, and the work was his/her own, despite responding to the needs of clients. We, perhaps due to the personal influence of the Anglosaxon world, have always seen ourselves as service providers. We can refuse a commission, but it never occurred to us to betray the confidence and the objectives of a client. That must be 100% compatible with defending social interests, because society deserves for architects to take collective interests into account (those of society, the environment, etc.). And a third variable remains worthy of mention, which is the architect's most intimate and private, and that is our own objectives, as legitimate as the others, but also indispensable to ensure that architecture is not solely a pragmatic response to a person or group's problem, but also the expression of a professional with the vocation to create new building works and transform reality.

This interview was taken from *Realidad Mapei* no. 16, published by Ibermapei, the Group's Spanish subsidiary, whom we would like to thank.

ISLAMIC REPUBLIC OF IRAN



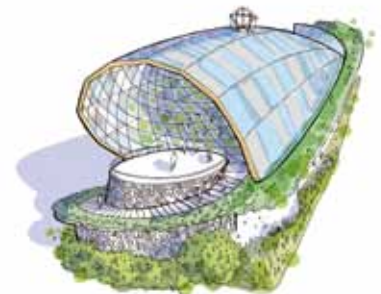
GLOBAL SOFREH, IRANIAN CULTURE

The three main themes of the Iran pavilion at Expo 2015 – tradition, sustainability and open-mindedness – are summarised by an element that contains them all: the *sofreh*, a tapestry depicting a banquet table, one of the most important objects in Iranian culinary culture. This is the image behind the architecture of the Iran Pavilion and its title, “Global Sofreh, Iranian Culture”: an open tent-like structure with an interior in leather to remind us of the embroidery typically used to create this type of tapestry. Visitors are presented with various scenarios that tell the story of the food and agriculture of the Iranian people, from past to present.

Designed by a team under the guidance of the architect Kamran Safamanesh, the initial phase of architectural work was developed by Rah Shahr Architectural Consulting Engineers, while the second phase was carried out by the Italian engineering studio RPA S.r.l. The pavilion looks like a square piece of cloth folded in two and its surface gradually flows out into the air to form a curved wall made up of triangular cells. The ceiling of the structure has a mosaic of mirrors that reflects and reproduces everything that happens below it. The pavilion is divided into two separate levels: the upper floor is an exhibition area divided into seven zones, each one representing the different climate zones of Iran, while the lower floor is reserved for typical Iranian culinary delights and other services to welcome visitors to the pavilion.

MAPEI PRODUCTS

Metal elements were anchored in the concrete with MAPEFILL fluid expansive mortar. The water tanks' surfaces were waterproofed by applying MAPELASTIC SMART two-component, high-elasticity cementitious mortar. MAPETEX SEL macro-holed, non-woven polypropylene fabric was embedded between the two layers of waterproofing product and MAPEBAND SA self-adhesive butyl tape was used to waterproof and seal the fillets. The ceramic tiles were bonded with ADESILEX P9 adhesive. MAPELASTIC FOUNDATION flexible cementitious mortar was instead used for waterproofing structures below ground level. Ceramic tiles were bonded with ADESILEX P9.



TECHNICAL DATA

Islamic Republic of Iran's Pavilion,
Expo 2015, Milan (Italy)

Design: Kamran Safamanesh & Associates (Teheran), Rah Shahr Architectural Consulting Engineers and RPA S.r.l.

Main Contractor: Italiana Costruzioni

Laying Company: Sbaraini

Waterproofing Company: Nuova Isoltecnica

Mapei Co-ordination: technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Adesilex P9, Elastocolor Waterproof, Mapeband SA, Mapecoat I 600W, Mapefill, Mapelastic Foundation, Mapelastic Smart, Mapetex Sel, Planitop Fast 330



MALAYSIA PAVILION

TOWARDS A SUSTAINABLE FOOD ECOSYSTEM

The Malaysia Pavilion – along the main Decumano thoroughfare opposite the Cocoa Cluster – has a structure that immediately impresses visitors. It is made entirely from wood and is in the form of four giant seeds taken from a tropical rain forest. The Hijjas Kasturi Associates architecture studio decided to connect the four “seeds” together by means of a network of ramps and walkways made from a material obtained by recycling waste rice husks. The theme chosen by Malaysia for their participation at Expo Milano 2015 is “Towards a sustainable food ecosystem”, and the aim is to take part in the complex question of food by demonstrating how quality, sustainable agriculture can play an important role in the nutritional wealth of a country.

The aim of the four modules making up the structure of the pavilion is to symbolise growth and the start of a journey and are a testimony of the important role that wild seeds play in the Malaysian lifestyle. The building was constructed entirely from materials from Malaysian forests. The cupolas are made from gluelam with exposed beams and hosts various thematic exhibitions. There is a restaurant, cafeteria and numerous open spaces connected together by the network of ramps and walkways.

The aim of Malaysia during the Expo is to highlight that it is one of the seventeen “mega-diverse” areas in the world, with a rich cultural patrimony and high quality gastronomic delicacies.

MAPEI PRODUCTS

A layer of NIVORAPID quick-drying, thixotropic, cementitious smoothing compound was applied on the floor substrates, before smoothing them off with PIANOCEM M thixotropic cementitious smoothing compound. ULTRAPLAN MAXI self-levelling, ultra quick-hardening smoothing compound was then applied. Textile, wooden and linoleum floors were bonded with ULTRABOND ECO FIX, ULTRABOND ECO V4 SP, ULTRABOND P980 1K.



TECHNICAL DATA

Malaysia Pavilion, Expo 2015, Milan (Italy)

Design: Hijjas Kasturi Associates

Contractor: Beltrami SpA

Laying Company: Carpet Italia

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Eco Prim PU 1K, Mapecoat I24, Mapefloor Finish, Nivorapid, Pianocem, Ultrabond Eco Fix, Ultrabond Eco V4 SP, Ultrabond P980 1K, Ultraplan Maxi

MOROCCO PAVILION



A JOURNEY OF FLAVOURS

The concept behind the pavilion is to reflect the wealth offered by the Moroccan territory through its theme "Morocco, a journey of flavours".

The design of the structure – by the architects Linna Choi and Tarik Oualalou from the Kilo design studio – is similar to a *qasba*, a traditional Arabian fortified town typical of Berber architecture from Southern Morocco. The structure is in wood and soil and hosts the five ecosystems characterising the Moroccan territory: from the northern provinces overlooking the Mediterranean Sea to the central, lush planes of Gharb, passing along the Atlantic coast and through the Atlas Mountains in the heart of rural Morocco, right down to the great South. The aim of the pavilion is to show how the precious, scarce water resources are used and exploited by combining traditional and modern ground irrigation methods, and how Morocco has been committed over the years to guarantee its people access to this precious resource.

MAPEI PRODUCTS

MAPEFILL fluid expansive mortar was recommended for the structural anchors in the Morocco Pavilion. The structures below ground level were waterproofed with MAPELASTIC FOUNDATION two-component, flexible cementitious mortar. The OSB (oriented strand board) panels were bonded with KERAQUICK+LATEX PLUS, before rendering them with rammed earth, a typical building technique used in Morocco and other dry climate countries. ANTIPLUVIOL W water-repellent impregnator, MAPEBAND SA self-adhesive tape, MAPESIL BM silicone sealant and MAPETHERM AR1 adhesive for insulating panels were also used for building this pavilion.



TECHNICAL DATA

Morocco Pavilion, Expo 2015, Milan (Italy)

Design: Linna Choi and Tarik Oualalou/ Studio KILO Architectures, Paris

Contractor: Italiana Costruzioni
Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Antipluviol W, Consolidante 8020, Keraquick S1 + Latex Plus, Mapeband SA, Mapefill, Mapeflex PU45, Mapelastic Foundation, Mapezil BM, Mapetherm AR1 GG



DIFFERENT WAYS OF PRODUCING AND PROVIDING FOOD

Built mainly of wood from the Jura region in Eastern France, the inspiration behind this pavilion, extending over an area of 3,600 m², is one of the symbols most dear to the French culture of food: the indoor market, so common in many French towns and cities. Yet, surprisingly, the kitchen utensils, food, videos and images are not exhibited on the stalls, but are hanging from the walls and vaulted wooden ceiling. Inside the structure, designed to be taken down and used again once Expo has finished, particular attention has been paid to being self-sufficient as far as food is concerned, as well as the actual access to food and the quality of the food we eat. Emphasis is also put on the importance of reducing energy consumption, recycling our waste and water depuration. The pavilion is a celebration of the French territory where it is possible to “visit” each of the French regions, thanks to the rich garden-laboratory that reproduces the local natural environment, yet without forgetting that eco-sustainable and “intelligent” architecture will become increasingly important in the future. In fact, the France pavilion has been built with great care and uses systems applied in bioclimatic architecture. Its energy consumption is very low and technical solutions have been adopted so that the structure is aired and cooled naturally without the use of air conditioning systems.

MAPEI PRODUCTS

For the France pavilion Mapei supplied DYNAMON XTEND W300 N liquid admixture, used in the production of high quality concrete. Metal elements were anchored in the concrete with MAPEFILL fluid expansive mortar.



TECHNICAL DATA

France Pavilion, Expo 2015, Milan (Italy)

Design: Studio X-TU, Studio ALN Atelien Architecture and Studio Adeline Rispal

Contractors: CMC Ravenna, Artec, Fair Vernici

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Dynamon Xtend W300 N, Mapefill



CONFOODERATIO HELVETICA

The pavilion is constructed out of two blocks composed of a set of four glass and metal towers with the slogan "Is there enough for everybody?" written on them and also a white building called the "Swiss Home". A long wooden ramp lined with numerous multimedia "periscopes" broadcasting educational videos on a loop leads into the inside of the building. The theme behind Switzerland's participation at Expo is that of the responsibility for, availability of and distribution of food resources and the four transparent "silos" clearly explain its aim. A predetermined quantity of soluble coffee, Alpine salts, dry Apple rings and water has actually been stored inside the towers. Visitors entering inside can take either just one or all of the products contained inside the four towers if they so wish but, as soon they do so, the level of the platforms on which they rest visibly lowers as the reserves run out. This allows the general public to visualise their own more or less virtuous behaviour depending on their personal consumption, so that everybody can see that the available food resources are limited and their proper consumption depends on everybody's conscientious awareness. At the end of the Expo the towers will be dismantled and then reassembled as glass houses in various different Swiss cities.

MAPEI PRODUCTS

The concrete surfaces were repaired and smoothed using PLANITOP SMOOTH & REPAIR R4 structural R4-class, rapid-setting, shrinkage-compensated, thixotropic, fibre-reinforced, cementitious mortar. The pre-cast concrete used for this pavilion was made adding DYNAMON NRG 1014 fine aggregate supplementing superplasticizer.



TECHNICAL DATA

Switzerland Pavilion, Expo 2015, Milan (Italy)

Design: Netwerch GmbH Brugg

Project Management: Nussli

Contractors: CGG, Alcos

Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Planitop Smooth & Repair R4, Dynamon NRG 1014

GERMANY PAVILION

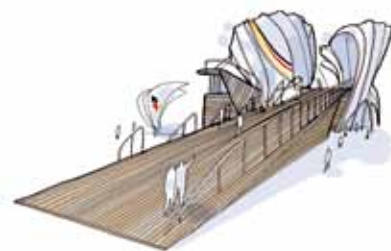


FIELDS OF IDEAS

Extending over an area of almost 5000 m², it is the largest pavilion on the site after the Italian one, with a design based on the morphology of the German territory. The external area from which you enter the pavilion has a slight slope, a reminder of the cultivated sloping land typical of the German countryside. There are large stylised flower shoots, like small “plants of ideas”, which develop until they form a large white covering that acts as a connection between the inside and the outside. The entire structure has been designed in compliance with standards of environmental sustainability: the wood used for the structure comes from sustainably managed forests, it has natural ventilation and there is a series of flexible photovoltaic modules. Inside the structure visitors find an exhibition on subjects such as earth, water, food, the climate and bio-diversity and, thanks to an “intelligent” folded sheet of card, they can interact with a series of electronic panels and take a deeper look into the contents of the exhibition and receive further information on the subjects presented. At the end you come to “Be(e) Active”: two large eyes showing Germany – through 3,000 screens projecting images of the German landscape – from the point of view of two bees in flight. To top it all, a roof garden has been created on the roof with sunshades, wooden benches, plants and flowers where visitors can relax and chat.

MAPEI PRODUCTS

Apart from DYNAMON SR 542 liquid acrylic super-plasticizer used to make high quality concrete, Mapei also supplied EPORIP epoxy adhesive to seal cracks. To bond the ceramic tiles, the cementitious adhesives recommended were KERABOND and KERAFLEX, while KERACOLOR FF mortar was used to grout the joints. The synthetic grass was bonded in place with ULTRABOND TURF 2 STARS.



TECHNICAL DATA

Germany Pavilion, Expo 2015, Milan (Italy)

Design: Schmidhuber

Main Contractor: ARGE

Project Management: Nussli

Subcontractors: CGG Gillardi,

Monvil Beton, Frigerio Ceramiche

Mapei Coordinators: technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Dynamon SR 54, Eporip, Kerabond, Keraflex, Keracolor FF, Ultrabond Turf 2 Stars



FOOD FOR THOUGHT – SHAPING AND SHARING THE FUTURE

This was one of the most eagerly awaited pavilions at Expo Milano 2015 - and one with the longest entrance queues - partly due to the fame of its architect, Sir Norman Foster, and also because the Arab Emirates will be hosting the next edition of the World Expo in Dubai in 2020. The pavilion is designed like a 140-m-long canyon enclosed between 12-m-high curved walls. The architecture is reminiscent of the narrow pedestrian streets found in cities all over the Arabian peninsula and, at the same time, sets out to evoke the winding forms of desert dunes. The pavilion is constructed out of a metal frame covered with fibre-reinforced concrete panels and features cutting-edge solutions for recycling materials, exploiting passive energy, providing natural shading and cooling, rainwater collection and electricity generation by means of photovoltaic panels. The distinctive nature, culture and architecture of the Emirates are also evoked through the digital reconstruction of aqueducts, which have traditionally made farming possible in the arid climate of this part of the world, and augmented reality slides provide an overview of the long history of this Arab nation. At the end of the tour visitors can relax in an authentic oasis of greenery complete with palm trees.

MAPEI PRODUCTS

TOPCEM PRONTO ready-to-use, normal-setting, controlled-shrinkage mortar was used for building a new, solid screed of just the right thickness and high mechanical resistance. MAPEFILL R quick-hardening, fluid expansive mortar was used for quickly anchoring mechanical elements into the concrete.



TECHNICAL DATA

United Arab Emirates Pavilion, Expo 2015, Milan (Italy)
Design: Foster + Partners
Contractor: Tecton
Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Mapefill R, Topcem Pronto



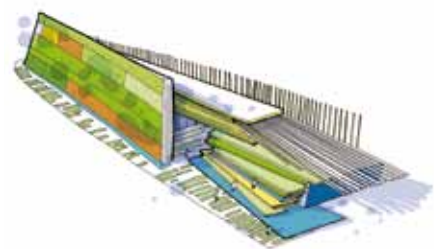
THE FIELDS OF TOMORROW

A very young country with antique traditions which, thanks to years of research, hard work and development, has managed to make a large part of their arid, hostile land both fertile and productive. Which is why the Israel pavilion is dedicated to the country's agricultural traditions, as well as to the more advanced and sustainable techniques applied in agriculture and the food industry. Made from 100% recyclable materials, the structure is characterised by an enormous vertical field used to cultivate mainly wheat, corn and rice. With its high visual impact, the 70 m by 12 m wall embodies the concept of "Vertical Planting", cutting-edge technology that allows for optimisation and lower consumption of both land and water. The interior design's main concept is based on edutainment, that is, education made fun, a kind of cocktail of technology, information and entertainment with actors interacting with visitors while 3D movies and multi-directional effects illustrates the history of agriculture in Israel.

MAPEI PRODUCTS

The floor substrates were treated with PRIMER G synthetic resin primer in water dispersion. The surfaces were then smoothed over with ULTRAPLAN self-levelling, ultra quick-hardening smoothing compound for thicknesses from 1 to 10 mm.

The PVC floor coverings were bonded with ULTRABOND ECO V4 SP and ADESILEX G19 adhesives. Other products used for building this pavilion include NIVORAPID quick-drying, thixotropic, cementitious smoothing compound, MAPECOAT I 24 two-component epoxy paint MAPEFLOOR FINISH 55 two-component, aliphatic, highly-flexible polyurethane finish, ADESILEX VZ double-buttering polychloroprenic adhesive for laying PVC, and ADESILEX P9 cementitious adhesive with no vertical slip and extended open time for ceramic tiles.



TECHNICAL DATA

Israel Pavilion, Expo 2015, Milan (Italy)

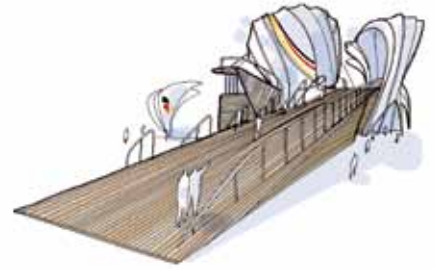
Design: David Knaf, Knafo Klimor Architects

Contractors: Beltrami SpA, Carpet Italia

Mapei Coordination: technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)

MAPEI PRODUCTS

Adesilex G19, Adesilex P9, Adesilex VZ, Mapefloor Finish, Primer G, Ultraplan, Ultrabond Eco V4 SP



ANGOLA *Food and Culture, Educate to Innovate*

All white and decorated with bas-reliefs, the pavilion is built out of sustainable materials. Constructed over three levels with a terrace, it can be dismantled and reused. It is inspired by the *imbondeiro* or African baobab: indeed, there is a large stylised tree right in the middle of the building, which takes approximately 2000 m² and is the biggest of all the African countries' pavilions. Inside there are landscaped areas containing typical plants, fruit and vegetables, and the exhibition space illustrates the Angolan lifestyle, its approach to food and the central role played by women.

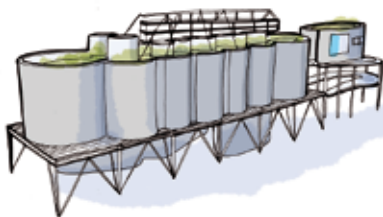
Mapei products: Dynamon XTend W300 N, Livigum, Nivorapid, Primer G, Ultrabond Eco 380, Ultrabond Eco Fix, Ultrabond Eco V4 SP



ARGENTINA *Argentina feeds you*

The structure looks like a number of interconnected silos, but this huge country did not want to present itself at Expo as just "the world's granary", but also focus on technology products of the highest standard. The pavilion is constructed over two levels. The central themes of the exhibition area are "Argentina feeds its people" looking at safety in the realm of food, "Argentina feeds the world" with its cereals, fruit, vegetables and meat products, "Argentina feeds knowledge" and "Argentina feeds debate".

Mapei products: Adesilex VZ, Adesilex P9, Asphalt Coat Traffic HB 136, Dynamon XTend W300 N, Primer G, Ultrabond Eco V4 SP



AUSTRIA *Breathe. Austria*

This is certainly one of the busiest pavilions and lots of visitors are instantly attracted by its sprinklers spraying pure vaporised air and all the tall trees around the building. Inside there is actually a small wood reproducing the Austrian mountainscape. The wooded area, extending over 560 m², supplies oxygen for almost 2000 people-an-hour and is designed to guarantee a regular cycle for the entire duration of the Expo.

Mapei products: Eporip, Mapefill





AZERBAIJAN *Protecting biological foods and biodiversity for future generations*

Located in the Caucasus like a strategic bridge between the North and South, East and West, this country hosts one of the oldest human settlements and has always been a natural, biological, geographical, cultural and historical crossroad. That is why three large glass and metal spheres are the linchpin of the pavilion, representing Azerbaijan's landscapes, the nation's nine climate zones and the cultural traditions of the Azerbaijanis.

Mapei product: Mapefill



BELGIUM *Belgium's cordiality has a sustainable future*

Environmental sustainability, technological innovation and national identity. This is what Belgium wanted to bring to Expo 2015 starting with the very structure of the pavilion that is divided into three parts: a corridor (farm) decorated with large bottles of beer creating special light effects, a cave (cellar) devoted to research and the production methods of the future, and a lobby hosting a restaurant and bar featuring a staircase shaped like the double helix of DNA.

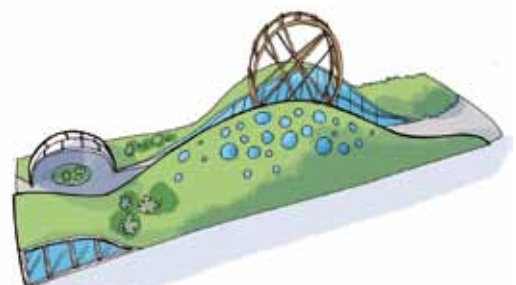
Mapei products: Dynamon XTend W300 N



BELARUS *The Wheel of Life*

The Belarus pavilion really catches the eye as you walk along the Decumano due to its hill covered with a lawn with flowers that is cut in two by a huge 30-metre-tall mill wheel, which instantly calls to mind typical wooden water-mills. Interactive audiovisual material provides information about the growth of the nation's agricultural industry and its battle against hunger and water shortages with solutions for improving water quality, ensuring nature conservation and biodiversity.

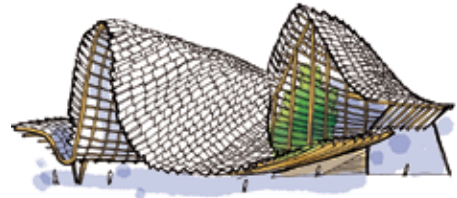
Mapei product: Mapefill



BRAZIL *Feeding the world with solutions*

Designed by the architect, Paolo Arther Casas, the inside of this pavilion provides an overview of all the various possibilities for increasing and diversifying food production and for meeting the world's food needs by means of cutting-edge technology. But let's be honest: alongside this message, visitors of all ages come to the Brazil Pavilion to walk on its gigantic elastic web symbolising flexibility and interconnection that is suspended between Brazilian fruit plants and trees.

Mapei product: Mapeplan TB 18 by Polyglass (Mapei Group)

**CHINA *Land of hope, food for life***

Designed by a consortium created by Tsinghua University and by the Beijing Qingshang Environmental & Architectural Design Institute, this is perhaps one of the most beautiful pavilions, which has an extremely striking structure due to both its undulating roof made of bamboo panels allowing light to flow inside and also its sheer size, almost 5000 m², making it the second biggest pavilion after Germany's. The pattern of wheat-sheaf waves on the roof is also taken up outside by a patch of coloured crops and inside through a "field" of LEDs creating visual interplay simulating the sheaves.

Mapei products: Adesilex MT 32, Dynamon XTend W300 N, Mapecontact

COLUMBIA *Naturally sustainable*

Featuring low-tech structures and made out of silver fir coming from the woodlands of Carnia (Northern Italy), the Colombia Pavilion is exclusively dry-constructed, without the use of water and concrete. Its component structures, designed by Studio Cardenas from Milan, are all of different sizes and interconnected. Inside there are references to the nation's five different heat zones, because the Colombian climate is not determined by the seasons but by geographical locations and altitudes.

Mapei products: Adesilex P9, Adesilex VZ, Mapecoat I 24, Mapefloor Finish, Nivorapid, Primer G, Ultrabond Eco V4 SP, Ultraplan





CZECH REPUBLIC *Laboratory of life*

A simple but highly technological pavilion assembled by Koma Modular Construction based on a project by Chybik + Kristof Associated Architects. After the Expo it will be taken back home and converted into a kindergarten, while the swimming pool that welcomes visitors will be relocated along the riverside in Prague. The outdoor pool, with a mysterious statue of a car with a bird's head, is one of the main attractions of the Czech Pavilion.

Mapei products: Dursilite, Keraquick S1, Latex Plus, Malech, Mapecoat I 24, Mapegum WPS, Mapesil AC, Ultracolor Plus



ESTONIA *Gallery of.....*

Designed out of 50% recycled material by Kadarik Tüür Arhitektid, this is a three-storey pavilion constructed out of interlocking wooden blocks with *kiik* suspended inside, the kind of swing found in an Estonian home: swinging them converts kinetic energy into electricity. A fragment of wild Estonian landscape has also been reconstructed on the top floor.

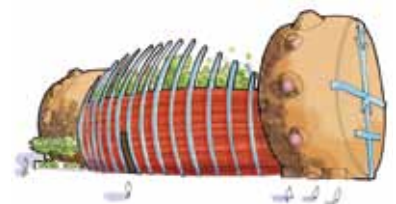
Mapei product: Planitop Fast 330

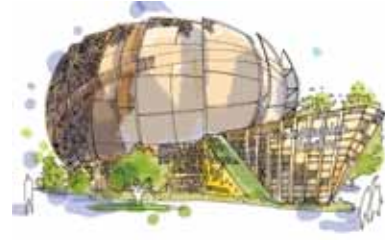


HUNGARY *From the purest sources*

The pavilion is based around three main themes: healthy traditions, Hungary as a water-centred nation, and a legacy for the future, when research and innovation will play an extremely important role in safeguarding local flora and fauna and biological farming will replace genetic mutations. In the central section the architects Attila Ertsey, Ágnes Herczeg and Sándor Sárkány were inspired by Noah's Ark as a symbol for human survival. After the Expo this three-storey structure will return to Hungary to become the National Health and Information Centre.

Mapei product: Mapeplan B15 by Polyglass (Mapei Group)





INDONESIA *The stage of the world*

The Indonesia Pavilion, constructed by the Koperasi Pelastari Budaya Nusantara co-operative and designed by the firm headed by Rubiadhi Satyasushima Widura, is located at the end of the Decumano and near the east entrance. Inspired by a traditional *bubu*, a cage-like fishing net made of woven bamboo, it sets out to tell us about the nation's farm-food industry and the factors that have contributed to its extraordinary growth.

Mapei products: Ultrabond Eco S955 1K, Ultralite S1



JAPAN *Harmonious diversity*

Tradition, harmony, innovation. The guiding thread running through the Japanese Pavilion can be seen as soon as you enter the main building that is reminiscent of houses in Kyoto with its garden decorated with a bonsai tree. The walls are made of a three-dimensional grid of 17,000 pieces of wood wedged together to let the sunlight flow in. Three-dimensional screens on the inside simulate falling water and 'pretended' storms embodying the delicacy of the Japanese ecosystem.

Mapei products: Mapecryl Eco, Mapetex System, Planipatch, Primer G, Primer SN, Ultrabond Eco Fix, Ultrabond Eco V4 SP, Ultratop



KAZAKHSTAN *Land of opportunities*

The entrance is covered by a shiny stainless steel roof, while the rest of the construction is made of iridescent material in a combination of reflections and coloured faceting. In addition to an indoor lake with sturgeons used for making caviar swimming in it, the inside is a mixture of hospitality, nomadic traditions, the safeguarding of natural resources and sustainable development, winding through four theme areas into which the pavilion is divided as Kazakhstan gets ready to host the 2017 Astana Expo.

Mapei product: Dynamon SR 54



KUWAIT *Challenge of nature*

The challenges Kuwait has to come to terms with in order to guarantee a better and more sustainable quality of life are drinking water, such a vital resource in an arid country, farming currently only developed in three regions and focused on growing trees and potatoes, and energy in the quest for natural alternatives to oil, such as wind and sunshine. The pavilion, which was designed by the architect Italo Rota, calls to mind the great big white triangular sails of the *dhow*s, traditional boats of the Arabian Gulf.

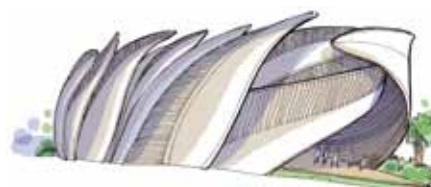
Mapei product: Mapeplan TM 18 by Polyglass (Mapei Group)



LITHUANIA *The well of knowledge: experienced future*

Two large white cubes joined together by a number of interconnecting walkways characterise the Lithuania pavilion, a traditional farming nation, which, however, is now developing innovative technology, partly thanks to its ten-year membership of the European Union. The minimal lines of the pavilion design are reminiscent of a scale to remind visitors about the need to find the right balance between modernity and tradition.

Mapei products: Mapefinish, Planitop 210, Planitop Fast 330



MEXICO *The seed for the new world: food, diversity, and heritage*

Corn, one of the staple foods in traditional Mexican cuisine, inspired this pavilion's structure: from the outside the roof looks like a cob of corn enveloped in dried leaves that can be crossed along winding ramps with a waterway running alongside them that lead to the terraced roof. The exhibition inside the pavilion focuses on biodiversity and Mexican cooking that has been listed as part of UNESCO's World Heritage.

Mapei products: Mapefill, Ghiaietto (gravel) 6-10 by Vaga (Mapei Group)



MOLDOVA *Shine the Light: Energy of Sun, Energy of Earth, Food for People*

Moldova, a small Eastern European nation, has a continental climate, which, down the centuries, has made it one of the richest and most productive regions in Europe for farming and cattle rearing, and also a major wine producer. This is why the chosen theme is particularly important to its inhabitants: sunshine and the energy it generates that is everywhere and needs to be used in a conscientious way.

Mapei product: Mapefill



MONACO *Excellence and solidarity: a new look at feeding the planet*

The Principality of Monaco's involvement is based around the issues of solidarity and sharing: the prosperity it has accumulated down the centuries can be used as an incentive for promoting environmental respect and protection and also to help boost the green economy. Designed by the Italian architect Enrico Pollini, the pavilion strikes visitors due to the creative way it has reused



real goods containers that form one entire wall of the pavilion and create 11 stations featuring different themes.

Mapei product: Dynamon SR 54



The strength of a people

NEPAL *Food safety and sustainability for growth*

The pavilion embodies the Nepalese people's great heart and will, which they showed the whole world after their country was struck by a terrible earthquake last April. In spite of this, Nepal decided to take part in Expo 2015 with its own pavilion. A transparent showcase has been placed at the entrance to collect funds to help the country. This is certainly one of the most photographed and best-known pavilions, also due to its architecture that evokes the shape of a mandala, a painting representing the universe, and its wooden structure sculpted by local craftsmen. The Nepalese craftsmen, who quickly returned home after the earthquake, were (at least to some extent) replaced by masons from Bergamo (Italy), who offered to finish the structure.

Mapei product: Dynamon Xtend W300 N



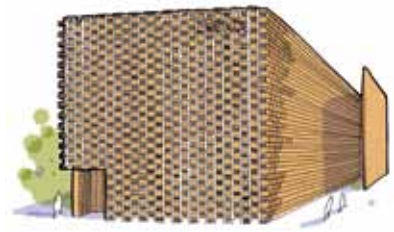


OMAN The heritage of harvest

This large pavilion represents a citadel featuring the distinctive architecture of this Sultanate located in one of the most arid regions of the earth. Inside we learn about the great care locals take to safeguard and protect water.

Farming and cattle-rearing still rely on *afaj*, traditional irrigation systems using the earth's gravity to supply water when and where it is needed. Five of these channels have been listed by UNESCO as part of the World Heritage.

Mapei products: Dursilite Matt, Dynamon SR 54, Keralastic, Mapefill, Rollcoll, Ultralite Flex



POLAND

The pavilion looks like a giant rectangle with solid lines made of perforated wood. It is reminiscent of the simple eco-compatible form of a little apple box, since apples are one of Poland's most widely exported farm products. The architect, Piotr Musiałowski, has created a magical garden on the inside leading to a narrow path lined with apple trees that create the illusion of being in endless space as they reflect in the mirrors.

Mapei products: Dynamon SR 912, Dynamon SR 914, Ultratop



QATAR Seeding sustainability, innovative solutions for food security

The construction, designed by Studio Andrea Maffei Architects, is reminiscent of a traditional *jefeer*, the traditional basket of leaves used every day by local inhabitants to preserve and transport foodstuffs. Over the last few years Qatar has pledged to take on major challenges connected with the shortage of food and, above all, water in the most sustainable way possible.

Mapei products: Dursilite Matt, Dynamon SR 54, Mapefill, Ultralite Flex, Rollcoll





REPUBLIC OF KOREA *You are what you eat*

This all-white pavilion was designed along the lines of a Moon Jar, a traditional ceramic vase in the shape of a full moon, which is still used today for holding the typical fermented foods of Korean cooking. The pavilion also explores the possibilities of applying the invaluable heritage of the nation's culinary tradition, so that it can be projected into the future, showing how the use of traditions can help solve the challenges now facing the whole of mankind.

Mapei products: Adesilex F57, Adesilex V4, Adesital adhesives, Dynamon XTend W300 N, Mapefill, Ultrabond Eco V4 SP



ROMANIA *Living with Nature*

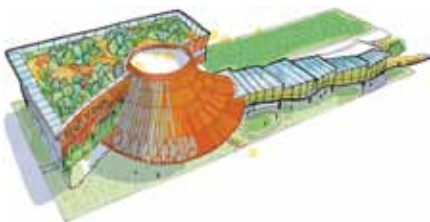
The Romania Pavilion is a modern-day rendition of a typical village found in the Romanian countryside, where visitors learn about local culture, natural food sources and ecological solutions for implementing sustainable growth. The ground floor is devoted to the present day, while the first floor pays testimony to tradition, thanks partly to a representation of a typical home found along the delta of the Danube. The internal exhibition activities are divided into eight areas ranging from biodiversity to culture and tradition.

Mapei products: Mapefill R, Mapeplan B15 by Polyglass (Mapei Group), Topcem Pronto

THAILAND *Nourishing and delighting the world*

Beneath a *ngob*, a traditional hat worn by rice growers in Thailand, visitors can find out about the origins of local food and how the main product, rice, is farmed, as well as enjoying daily musical shows and performances. The exhibition is divided into four themes: "Timely innovations, serving a dream"; "Sustainability, the balance of life", "Tastes, streets and Thai flavors", and "Traditions, the roots of quality".

Mapei products: Adesilex P10, Dynamon XTend W300 N, Mapefill





TURKMENISTAN *Water is life*

Turkmenistan is known as the crossroad of the seven pathways of the world, because it used to be on the Silk Route. The entrance to Turkmenistan's brightly coloured pavilion contains a fountain decorated with horse's heads and a carpet of LEDs reproducing the typical patterns found on local carpets. Visitors can then enjoy three entire exhibition floors entirely devoted to the production of quality food. And, last but not least, there is an authentic traditional *yurt* on the roof, the mobile home of nomadic tribes.

Mapei products: Dynamon NRG 1012, Mapefill R

URUGUAY *Life grows in Uruguay*

Constructed entirely out of one cylindrical structure made out of exclusively recyclable materials, the internal pathway starts from the pavilion garden providing some initial information about a country that is taking part in an Expo for the first time ever with its own pavilion. This leads through to a ramp, where you can enjoy a sensorial experience as you walk around the various landscapes characterising the nation of Uruguay: from the voices of country folk to the noise of ocean waves and distinctive sounds of the flatlands.

Mapei products: Adesilex G20





CORPORATE AREAS AND SERVICE BUILDINGS



NUMEROUS DIFFERENT PRODUCTS THAT RESPECT BOTH MAN AND THE ENVIRONMENT TO MEET ALL THE SITE NEEDS

As work gradually progressed on the main foundation slab, the largest piece of infrastructure required for Expo 2015, work was completed on various projects as the land became accessible.

These projects included the Corporate Areas reserved for companies and the Service Buildings (bars, restaurants, toilettes, etc.). The plots for the Corporate Areas were mainly grouped together in the north-eastern part of the site between the various national pavilions and the Bio-Mediterranean, Islands, and Arid Zones clusters. A second, smaller area is located at the beginning of the



Decumano near the Expo Centre.

In the Corporate Areas, companies have their own tailor-made spaces so their brands have maximum visibility. They are either located inside pavilions purpose-built for Expo 2015 or companies have designed, constructed, fitted out and managed their own structure to promote one or more aspects of the main theme of the Universal Exposition. In both cases, these areas have been designed to minimise their impact on the environment and the buildings themselves are integrated with systems that produce energy from renewable sources.

The Corporate Areas also had to respect and interpret the guidelines laid down by Expo Milano 2015 aimed at identifying solutions for the design, construction, dismantling and reuse of the buildings to guarantee that the structures themselves have the maximum sustainability possible and that the fixtures, fittings and decorations have the lowest impact possible on the environment.

MAPEI PRODUCTS FOR CORPORATE AREAS

Numerous companies and organisations used Mapei products in the construction of their pavilions.

Vinyl floor coverings made by Colombo Linoleum were bonded in the Coca Cola space with ULTRABOND ECO V4 SP solvent-free acrylic adhesive in water dispersion. MAPECONTACT adhesive strip was used for bonding skirtings and profiles. Substrates had been previously treated with PRIMER G and PLANIPATCH.

The external surfaces of the Caritas pavilion were treated with AQUAFLEX ROOF HR fibre-filled liquid membrane in water emulsion with thermal emittance and a solar reflectance index (SRI) of 105.

In the pavilion for the KIP International School, stone slabs were bonded using ULTRALITE FLEX one-component, high-performance, lightweight cementitious adhesive with no vertical slip and extended open time. The product chosen to grout the joints was KERACOLOR GG high-performance polymer-modified cementitious mortar, while MAPEFILL fluid expansive mortar was used to anchor the metal framework of the structure in place.

In the Lindt pavilion, large-size ceramic tiles were bonded with KERAFLEX MAXI S1 high-performance deformable cementitious adhesive with no vertical slip, extended open time and Low Dust technology. The external roofs were waterproofed with MAPEPLAN B15 and MAPEP-



ABOVE. The Lindt pavilion at Expo Milano 2015.

LAN M15 synthetic waterproofing membranes by Polyglass, a Mapei Group's subsidiary.

The same adhesive was also used in the Baci Perugina Corporate Area, along with the special grout for joints KERACOLOR GG.

In the ENEL corporate pavilion PLANA P bituminous waterproofing membrane was applied on the roof. This is a plastomeric waterproofing membrane with outstanding performance, made of a latest generation distilled bitumen-based compound modified with polypropylene and staple non-woven polyester fabric reinforcement.

MAPEI PRODUCTS FOR SERVICE BUILDINGS

The Service Buildings inside Expo supply the facilities required for those who either work on the site or visit the site: bars, restaurants, toilettes, commercial areas, information and assistance points, security services areas, and so on.

There are 14 structures in all, three of which are completely below ground level. They are positioned at regular intervals along the Decumano in the main rest and relaxation areas, as well as along the path running alongside the canal around the perimeter of the site.

The Service Buildings are temporary structures that will be taken down once the event is over and then recycled or used again by adapting them for a new area of use. This is why they have been made entirely from wood from sustainably managed forests, a material which is easy to recycle and which has a low level of impact on the environment, and using mainly prefabricated systems to make them easier to dismantle and re-assemble.

A "water façade" characterises the front side facing the Decumano to guarantee that the inside of the buildings

are cooled down naturally.

In these areas, too, Mapei products helped guarantee that site activities were carried out to perfection.

After applying a preliminary treatment on the floor substrates using PRIMER SN two-component epoxy primer with fillers, the resin flooring in the bars, restaurants and commercial areas was made from MAPEFLOOR I 300 SL two-component, multi-purpose, neutral-coloured epoxy formulate for industrial floor coatings up to 4 mm thick.

MAPEFLEX PU 45 polyurethane sealant and adhesive with a high modulus of elasticity was used to seal the expansion and distribution joints.

ULTRABOND ECO 530 rapid adhesive with strong initial bond was used to bond the linoleum floorings, while ULTRABOND ECO V4 SP and ULTRABOND ECO FIX adhesives were used to lay vinyl floorings.

The surfaces in the toilettes' buildings have been painted with QUARZOLITE PAINT acrylic paint with micro-granular quartz with a smooth finish for long-lasting protection of internal and external surfaces.

Before applying the paint, the substrates were treated with QUARZOLITE BASE COAT coloured acrylic undercoat with a smooth finish and good filling and adhesion promoting properties, for internal and external surfaces.

MAPEI PRODUCTS

Aquaflex Roof HR, Keraflex Maxi S1, Ultralite Flex, Keracolor GG, Mapefill, Mapecontact, Primer SN, Mapefloor I 300 SL, Mapeflex PU45, Ultrabond Eco V4 SP, Ultrabond Eco 530, Ultrabond Eco V4 SP, Quarzolite Paint, Quarzolite Base Coat

POLYGLASS PRODUCTS (MAPEI GROUP)

Mapeplan M15, Mapeplan B15, Plana P

THE NINE CLUSTERS

NATIONS ARE GROUPED TOGETHER INTO THEMATIC AREAS FOR THE FIRST TIME AT EXPO MILANO 2015

The Clusters are one of the novelties at Expo 2015: for the first time ever nations are not grouped together in communal pavilions according to geographical guidelines but rather divided up according to thematic identities and food industries. This means the main topic of Expo 2015 - "Feeding the Planet, Energy for Life"- can be treated in a more diffused manner. These spaces have been created in a spirit of sharing, dialogue and interaction. The term "cluster" has been used to embody a sense of being grouped together around a specific theme or food industry shared by nations that might be very distant from each other, but share similar lifestyles and practices. The Clusters, designed by 18 international schools of architecture co-ordinated by the Polytechnic University of Milan, have their own communal areas, whose functional spaces (market, exhibition, events, food tasting) focus on a specific food industry. Each nation taking part has its own individual exhibition space, where it can provide its own interpretation of the main theme of Expo Milano 2015.

FRUITS AND LEGUMES



COFFEE



SPICES





FRUITS AND LEGUMES

Small and large fruit plants giving off their own distinctive scents entice visitors to come and find out about their origins, history and legends in the Fruits and Legumes cluster. The spaces, specific products from the nations taking part and the architectural structures create passageways and interplays of shadow and light making visitors feel as if they are in farmed woodlands.

Structure of the cluster. The spaces inside this cluster contain areas planted with different types of fruit plants. Visitors can get involved in the various events and find out about the importance of fruit and, above all, legumes, which are still the main source of sustenance in developing countries. A wooden roof reminiscent of a pergola has been built over the square, carefully designed to ideally unite the different pavilions.

Countries belonging to the Fruits and Legumes cluster: Benin, Gambia, Guinea, Equatorial Guinea, Kyrgyzstan, Democratic Republic of Congo, Sri Lanka, Uzbekistan, Zambia.



COFFEE: THE ENGINE OF IDEAS

The architectural design of this cluster, one of the biggest, calls to mind the tallest branches of trees in whose shadow coffee plants grow. The pavilions are actually a metaphor for their trunks. The Coffee cluster is run by the Italian coffee manufacturer Illycaffè, Official Coffee Partner of Expo Milano 2015, which wanted to display the knowledge, experience and relations it has developed working in the coffee industry for over 80 years.

Structure of the cluster. Visitors can enjoy an exhibition layout divided into five stations: glasshouses, transport, roasting, bar and congregation area, which also holds a market where you can buy coffee products from various different countries. The warm shades and natural colours of the setting change with the light flowing in from outside through the roof, influencing how the space is perceived and making visitors feel as if they are in a forest. Coffee growing, transformation, trading, transport and marketing employ millions of people all over the world and coffee is second only to oil in the world economy as a source of foreign currency for manufacturing nations.

Countries belonging to the Coffee cluster: Burundi, El Salvador, Kenya, Rwanda, Uganda, Yemen, Ethiopia, Guatemala, Dominican Republic, Timor-Lest



THE WORLD OF SPICES

Follow the spices route across the continents, land and seas, smell their sweet perfumes, and consider their role as a cooking ingredient, medical remedy or cosmetics product. All this can happen when you enter the Spices cluster where your tour turns into an authentic journey. It was, indeed, the spices trade that brought about the most important innovations in sailing and exports and also the discovery of lots of new geographical locations around the world.

Structure of the cluster. The idea of travel and discovery begins with the inside installation: here you can see the maps that guided explorers in their quest for spices. They indicate a journey through different cultures triggered off by a sequence of "sensorial areas", which include tasting areas, installations and events. The annual production of spices has risen by 4.3% over the last century, while trading has increased on average by 5.8%-a-year. Fussier consumers, more healthy eating habits, rising profits and globalisation will lead to a further boom in the spices trade over coming years.

Countries belonging to the Spices cluster: Afghanistan, Brunei Darussalam, United Republic of Tanzania, Republic of Vanuatu.



MAPEI PRODUCTS

Mapei systems and products were supplied for and used in the Coffee, Fruits and Legumes and Spices clusters. For instance, to repair and filling holes in the wooden structures, it was recommending using MAPEWOOD PASTE 140 thixotropic epoxy adhesive. The screeds were made using TOPCEM PRONTO ready-to-use mortar. As for the laying of coverings made with various materials, ADESILEX P9 cementitious adhesive and KERACOLOR FF grout for joints were used for the ceramic coverings, while ULTRABOND ECO 530, ULTRABOND ECO 380, ULTRABOND ECO 540, ADESILEX VZ and ADESILEX G19 adhesives were used for the PVC, linoleum, vinyl and rubber coverings. Mapei also supplied LIVIGUM, NIVORAPID, PLANIPATCH, PRIMER G, and ULTRABOND ECO CONTACT.

Contractor: Biffinger SIELV
Works Direction: Fabio Rossi
Mapei Co-ordination: technical promoters coordinated by Massimo Seregni and Andrea Serafin, Mapei SpA (Italy)



Beside, a special type of flooring was built in front of the Spices cluster, by bonding and finishing a special wallpaper (see the photo above). Mapei supplied MAPEWRAP EQ ADHESIVE and MAPEFLOOR FINISH 54.

ISLANDS



ARID ZONES



CEREALS AND TUBERS





ISLANDS, SEA AND FOOD

They are small, distant, different from each other, and each with their own distinctive culture, economy and level of development: they are the Pacific Islands, those in the Western Indian Ocean and Caribbean region. The increasing amount of coastal flooding, the saltiness of the sun, erosion and changes in rainfall tend to contaminate and reduce the amount of productive farmland, affecting craft activities and fishing and jeopardising the safety of the food in these locations.

Structure of the cluster. A large bamboo roof covers and joins together the two pavilions accommodating the nations taking part, welcoming visitors with quotes by famous people - including Homer, Conrad, Christopher Columbus, Darwin and Melville - decorating the outside walls and evoking life on the islands. At the end of the tour, visitors find themselves outside the refreshments and events areas, a cube showing projections of underwater images: you really do feel as if you are in the water and can sense the mysterious beauty of the islands in contact with their fascinating and fragile biodiversity.

Countries belonging to the Islands cluster: Cape Verde, Comoros, Caribbean Community (Barbados, Belize, Dominica, Grenada, Guyana, St. Lucia, St. Vincent and the Grenadines, Suriname), Guinea Bissau, Madagascar, Maldives.



ARID ZONES: FARMING AND FOOD IN ARID ZONES

One fifth of the population lives in areas where there is a shortage of water and in extremely arid environments differing in terms of their soil, fauna, flora, water balances and human activities. The only common denominator of these areas is, in fact, their aridity, which is often expressed according to an index based on temperature and rainfall.

Structure of the cluster. A sandstorm in the desert is the image inspiring the design of this cluster, and it also symbolises the difficulties involved in living in and exploiting the land in arid areas, where, nevertheless, there are some hidden vital resources. That is why an array of semi-transparent cylinders hang from the ceiling to evoke and recreate this unique atmosphere and the pavilions look like the stones you come across when entering this metaphorical sandstorm. Inside the cluster there is an oasis with a water fountain in the communal space, where the problems and resources of arid areas are explained more closely. There is a market at the end of the cluster, where you can buy and taste the different fruits that these lands somehow, incredibly, manage to produce.

Countries belonging to the Arid Zones cluster: Eritrea, Djibouti, Mauritania, Mali, Palestine, Senegal, Somalia, Jordan.



CEREALS AND TUBERS: OLD AND NEW CROPS

Cereals and tubers have brought together civilisations and fed so many people around the world. Cereals are a staple part of the diet of most of the world's population due to their nutritional properties, low-cost and ability to fill you up instantly. Roots and tubers, on the other hand, which are the second source of carbohydrates after cereals, provide plenty of minerals and vitamins and are the staple food for over one million people in developing countries.

Structure of the cluster. Cereals and tubers are the best known and most widely found food in the world, but very few people are aware of the lengthy production process that goes into growing them. The roof's architectural design evokes the shape of a large oven, operating all day long. The cluster also holds an events area and an area for distributing thematic dishes. At the end of the exhibition tour you can sit down, relax and taste typical dishes from the various countries belonging to the cluster.

Countries belonging to the Cereals and Tubers cluster: Bolivia, Congo, Haiti, Mozambique, Togo, Venezuela, Zimbabwe.



MAPEI PRODUCTS

The anchoring of metal structures inside the Islands, Cereals and Tubers, and Arid Zones clusters was carried out using MAPEFILL fluid expansive mortar.

Contractor: Rubner Objektbau Consorzio Stabile Scarl.

Mapei Co-ordination: technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)



RICE: ABUNDANCE AND SAFETY

Rice is the staple food for almost three billion people, approximately one half of the world's population. It can grow practically anywhere and, after being dried, it can be kept for a long time making it something that can be relied on even during famines. This is why it is synonymous with wealth in several cultures and an indispensable foodstuff for hundreds of millions of people. Rice is the main source of nutrition for the constantly growing world population.

Structure of the cluster. Thanks to a striking interplay of pools of water, the pavilions are set in a farm landscape: entering the Rice cluster you immediately find yourself in a "miniature" rice field with various areas growing different types of rice. The communal area contains kiosks for handing out rice, while there is an interactive game for all visitors to enjoy amidst all the rice fields-tanks.

Countries belonging to the Rice cluster: Bangladesh, Cambodia, Sierra Leone, Myanmar, Lao People's Democratic Republic.



MAPEI PRODUCTS

DYNAMON SR 54 acrylic super-plasticizer for concrete was used to build the industrial floorings of the Rice and Cocoa clusters.

Contractor: Moretti Interholz Srl

Subcontractor: Perregri Costruzioni Srl (for the finishes)

Mapei Co-ordination: technical promoters coordinated by Massimo Seregini and Andrea Serafin, Mapei SpA (Italy)



COCOA AND CHOCOLATE: THE FOOD OF GODS

This cluster's design concept is, indeed, inspired by those places where cocoa is grown: plantations in tropical and subtropical regions. The façades of the buildings are made of a clear-coloured, lightweight fabric that opens up to reveal the interiors. The communal space contains a set of poles of varying height and shape, a metaphor for the trees under which cocoa plants grow.

Structure of the cluster. The pavilions, similar in size and colour schemes, identify the nations taking part by means of a flag and their name written on the façade. Designs, icons and images on panels provide an account of the long history of cocoa: from its farming and processing to distribution and transportation. The cluster has a main pathway running across it that connects the private area to the area for tasting and relaxing.

Countries belonging to the Cocoa and Chocolate cluster: Cameroon, Ivory Coast, Cuba, Gabon, Ghana, São Tomé and Príncipe



MAPEI PRODUCTS

The anchoring of metal structures inside the Bio-Mediterraneum cluster was carried out using MAPEFILL fluid expansive mortar.

ULTRABOND ECO V4 SP and ADESILEX G19 adhesives were used to bond resilient floorings. In the area devoted to Algeria PLANIPATCH and LATEX PLUS were used to smooth the floor substrates.

Contractor: Rubner Objektbau Consorzio Stabile Scarl.

Mapei Co-ordination:

technical promoters coordinated by Massimo Seregini, Mapei SpA (Italy)



BIO-MEDITERRANEUM: HEALTH, BEAUTY AND HARMONY

BIO-MEDITERRANEUM: HEALTH, BEAUTY AND HARMONY The Mediterranean Sea joins together three continents, Europe, Africa and Asia, and food was one of the cultural element that helped preserve its unique identity. This cluster really provides a sense of the spirit of Mediterranean cooking, unique colours, flavours and smells. The Sicily Region is the Official Partner of Expo Milano 2015 for the Bio-Mediterraneum cluster.

Structure of the cluster. The project is inspired by the image of Mediterranean cities and is constructed around a semi-covered square that accommodates four constructions used for distributing typical products from this geographical region. The colour of the floor evokes the different shades of the sea that embraces the various nations. The outdoor kitchens in the central area offer a selection of Mediterranean products: olive oil, bread and wine.

Countries belonging to the Bio-Mediterraneum cluster: Albania, Algeria, Egypt, Greece, Lebanon, Malta, Montenegro, Serbia, San Marino, Tunisia.



RICE



COCOA AND CHOCOLATE



BIO-MEDITERRANEUM

FOOD

■ ENVIRONMENTS FOR
STORING FOOD AND DRINKS

■ AREAS EXPOSED TO
HIGHLY AGGRESSIVE
ORGANIC ACIDS

■ AREAS USED FOR
PREPARING AND COOKING
FOOD

■ DINING AREAS

■ RAPID INSTALLATION
OR RENOVATION OF
FLOORS IN COMMERCIAL
ENVIRONMENTS

■ AREAS USED FOR
PROCESSING MEAT AND FISH

■ AREAS USED TO PREPARE,
BOTTLE AND STORE DRINKS

■ STRUCTURES FOR
WATERPROOFING DRINKING
WATER TANKS



MAPEI SYSTEMS FOR THE FOOD AND DRINKS INDUSTRIES

Mapei is directly involved in building, not food. But for Expo Milano 2015 the Company wanted to make its own contribution to something that concerns us all - Feeding the Planet, Energy for Life - pointing out that preserving and preparing different types of food in a healthy environment, the battle against waste, and campaign for drinking water, even affect a company that has been supplying systems and solutions of the very highest order for over 75 years to help construct both small and major modern structures and to conserve those buildings forming our artistic-cultural heritage.

That is why it has created “Food - Mapei systems for the food and drinks industries” distributed in the form of a brochure, mini-book and website (www.mapeifood.com).



ENVIRONMENTS FOR STORING FOOD AND DRINKS



Environments used to store food and drinks have many different characteristics. The systems to build them should comply with the requirements imposed by the HACCP management system regarding hygiene, cleanliness, the safety of food and drinks and the healthiness of surroundings.

Products for ceramic tiles and stone material: Eporip, Topcem Pronto, Elastorapid, Kerapoxy CQ, Mapeflex PU20, Mapeflex PU45, Ultralite S1, Kerapoxy CQ, Planitop 540

Protective coatings: Mapecoat I 600 W, Mapecoat I 24

Products for cementitious and resin floors: Mapefloor CPU/HD



- 1 Concrete
- 2 Polyurethane-cement based mortar
Mapefloor CPU/HD

AREAS EXPOSED TO HIGHLY AGGRESSIVE ORGANIC ACIDS

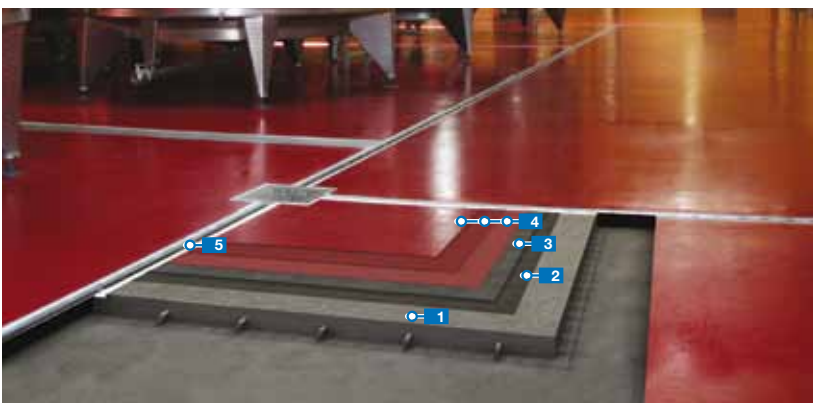


In the food industry there are areas exposed to the extremely aggressive action of organic acids, which can provoke corrosion and attack from bacteria. Wall and floor coverings need to have efficient protection against chemicals.

Products for ceramic tiles and stone material: Topcem, Kerapoxy Adhesive, Kerapoxy IEG, Mapeflex PU20, Mapecoat I 24, Planitop Fast 330

Protective coating: Mapecoat I 600 W

Products for cementitious and resin floors: Mapecoat I 600 W, Mapefloor I 900 + Quartz 1.9, Mapefloor I 500 W + Mapecolor Paste, Mapefoam + Mapeflex PU45



- 1 Concrete
- 2 Primer
Mapecoat I 600 W
- 3 Epoxy formulate + quartz sand
Mapefloor I 900 + Quartz 1.9
- 4 Water dispersed epoxy formulate + colored paste
Mapefloor I 500 W + Mapecolor Paste
(3 coats)
- 5 Compressible cord + sealant
Mapefoam + Mapeflex PU45

AREAS USED FOR PREPARING AND COOKING FOOD

Kitchens are where the largest amount of foodstuffs is concentrated and water is used in abundance. These environments must be able to guarantee a high standard of hygiene and cleanliness, providing healthy surroundings and the best operating conditions.



Products for ceramic tiles and stone material: Eporip, Kerapoxy Adhesive, Kerapoxy CQ, Mapegum EPX, Topcem Pronto

Products for cementitious and resin floors: Primer SN + Quartz 0.5, Mapefloor I 300 SL + Mapecolor Paste + Quartz 0.5, Mapefloor I 300 SL + Mapecolor Paste



- 1 Concrete
- 2 Primer + broadcast
Primer SN + Quartz 0.5
- 3 Epoxy formulate + colored paste + broadcast
Mapefloor I 300 SL + Mapecolor Paste + Quartz 0.5
- 4 Epoxy formulate + colored paste
Mapefloor I 300 SL + Mapecolor Paste

DINING AREAS

Public dining areas often need to be re-vamped. Works can also be carried out by temporarily closing the bar or restaurant during business hours and using products that guarantee rapid, perfect installation in a very short time.



Products for wooden floorings: Mapecem Pronto, Nivoplan, Ultrabond Eco S968 1K, Ultracoat Binder, Ultracoat High Traffic, Ultracoat Premium Base

Coatings: Dursilite Base Coat, Dursilite, Planitop 560

Products for cementitious and resin floors: Ultratop Loft



- 1 Cementitious trowellable mortar
Ultratop Loft

RAPID INSTALLATION OR RENOVATION OF FLOORS IN COMMERCIAL ENVIRONMENTS

Hundreds of people go up and down the aisles of a supermarket every single day. A constant traffic of trolleys, as well as goods being moved around on pallet trucks. Cleanliness and hygiene need to be maintained at all times.



Products for ceramic tiles and stone material: Mapecem Pronto, Granirapid, Ultracolor Plus, Mapeflex PU20, Mapeflex PU40

Coatings: Planitop 540, Dursilite Base Coat, Dursilite

Products for cementitious and resin floors: Topcem Pronto, Primer SN + Quartz 1.2, Ultratop + Dynastone TZ, Mapecrete Stain Protection



- 1 Screed
Topcem Pronto
- 2 Primer + broadcast
Primer SN + Quartz 1.2
- 3 Self-levelling cementitious mortar + aggregate for terrazzo system
Ultratop + Dynastone TZ
- 4 Polishing
- 5 Hydrophobing finish
Mapecrete Stain Protection

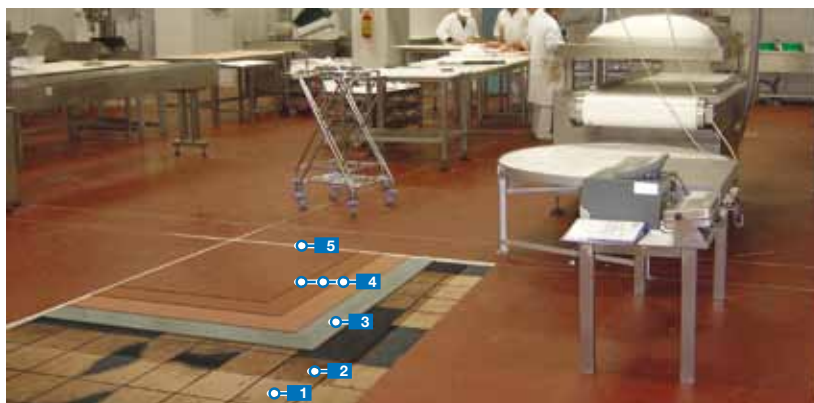
AREAS USED FOR PROCESSING MEAT AND FISH

There are numerous factors that have to be taken into consideration when designing coatings and coverings for areas used to store meat and fish: low temperatures, high amount of water, the aggressive action of scraps and salts and the widespread use of chemical products for cleaning and sterilising.



Products for ceramic tiles and stone material: Eporip, Granirapid, Kerapoxy, Mapelastec + Mapeband SA, Topcem

Products for cementitious and resin floors: Primer SN + Rete 320, Mapefloor I 900 + Quartz 1.9, Mapefloor I 300 SL + Mapecolor Paste, Mapefoam + Mapeflex PU45



- 1 Existing damaged cementitious flooring
- 2 Primer
Primer SN + Rete 320
- 3 Epoxy formulate + quartz sand
Mapefloor I 900 + Quartz 1.9
- 4 Epoxy formulate + colored paste
Mapefloor I 300 SL + Mapecolor Paste
(3 coats)
- 5 Compressible Cord + sealant
Mapefoam + Mapeflex PU45

AREAS USED TO PREPARE, BOTTLE AND STORE DRINKS

Several drinks can be highly aggressive to the materials they come into contact with. The correct design of slopes in floors must be combined with efficient waterproofing to prevent liquids penetrating through joints into the substrate.



Products for ceramic tiles and stone material: Keraflex Maxi S1, Kerapoxy CQ, Mapeflex PU 20

Products for cementitious and resin floors: Primer SN + Quartz 0.5, Mapefloor I 300 SL + Mapecolor Paste + Quartz 0.5, Mapefloor I 300 SL + Mapecolor Paste



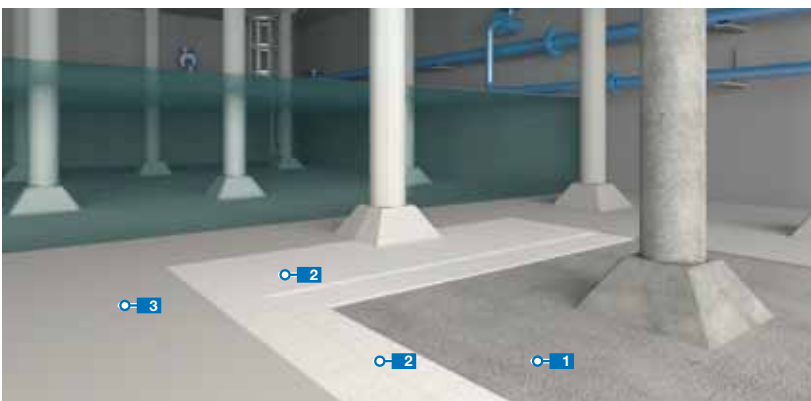
- 1 Concrete
- 2 Primer + broadcast
Primer SN + Quartz 0.5
- 3 Epoxy formulate + coloured paste + broadcast
Mapefloor I 300 SL + Mapecolor Paste + Quartz 0.5
- 4 Epoxy formulate + coloured paste
Mapefloor I 300 SL + Mapecolor Paste

STRUCTURES FOR WATERPROOFING DRINKING WATER TANKS

Water is a particularly precious resource for mankind. Proper waterproofing of concrete storage tanks, channels, water towers and hydraulic works should avoid the waste of water and economic damage.

Products for concrete repair: Mapecoat DW25, Mapefer 1K, Planitop Smooth & Repair R4, Purtop 1000, Triblock P

Products for cementitious and resin floors: Primer SN + Quartz 0.5, Mapefloor I 300 SL + Mapecolor Paste + Quartz 0.5, Mapefloor I 300 SL + Mapecolor Paste



- 1 Concrete structure
- 2 Primer
Triblock P
- 3 Pure polyurea-based waterproofing membrane
Purtop 1000

CERTIFICATIONS OF MAPEI PRODUCTS FOR THE FOOD INDUSTRY



SAFEGUARDING THE ENVIRONMENT

Mapei concretely promotes sustainability by joining international programs and organisations, developing technologically-advanced products and solutions which contribute to safeguarding the environment and the health of installers and users, helping designers and contractors create innovative LEED, BREAM, etc. projects.

RAPID INTERVENTIONS

Fast Track Ready is the Mapei technology identifying products for rapid installation of floor and wall coverings, reducing costs and disturbance.



SAFE CONTACT WITH WATER

Mapei offers products for waterproofing and protecting concrete certified in compliance with Italian Ministerial Decree 174 - 6/4/2004 for surfaces in contact with drinking water, as well as sealants suitable for surfaces in contact with drinking water certified according to the Institute of Hygiene in Warsaw, Poland and the Australian Water Quality Center.

REDUCING DUST

LowDust: the Mapei technology allowing dust emissions during the mixing, working and application phases of powdered products to be reduced.



EUROPEAN UNION STANDARDS

Mapei product range includes resins formulates which comply with standards applied in the foodstuffs sector, EN 1186, EN 13130 and prCEN/TS 14234, as well as the Decree of Consumer Goods that represent the conversion of European directives 89/109/EEC, 90/128/EEC and 2002/72/EC regarding contact with foodstuffs.

CERTIFIED MAPEWRAP CARBON FIBER FABRICS

Mapei has obtained the certificate concerning uni-directional carbon fiber fabrics of the MapeWrap C range, issued by the ICC-ES American Institute according to the AC125 document "Acceptance criteria for concrete and reinforced and unreinforced masonry strengthening using externally bonded fiber-reinforced polymer (FRP) composite system".



KERAPOXY CQ

Mapei developed an epoxy mortar with a bacteriostatic agent and BioBlock® technology, which has been certified by the University of Modena (Italy) according to ISO 22196:2007 standards as a grouting mortar protected against the formation and proliferation of micro-organisms.

NO MOULD

BioBlock® is the Mapei technology impeding the formation and proliferation of various types of mould in damp conditions.

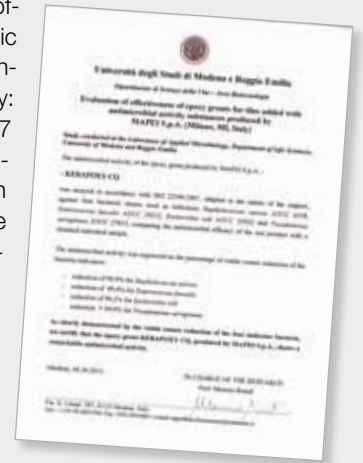




MAXIMUM HYGIENE THANKS TO AN EPOXY GROUT

KERAPOXY CQ CERTIFIED BY THE UNIVERSITY OF MODENA

It is very easy to clean and offers high level of hygiene: this is what KERAPOXY CQ has to offer, a two-component, acid-resistant epoxy grout by Mapei, ideal for grouting joints of ceramic tiles and mosaics. This makes it ideal for use in the foodstuffs industry, shops and environments where a high level of hygiene is required. A new certification confirms this property: KERAPOXY CQ is certified by the University of Modena (Italy) according to ISO 22196:2007 standard as a grouting mortar protected against the formation and proliferation of micro-organisms. Beside this characteristics, KERAPOXY also offers excellent mechanical strength and resistance to chemicals, therefore excellent durability; very low emission level of volatile organic compounds (VOC), and hence it is certified EMICODE EC1 R Plus; excellent resistance to heavy traffic; excellent workability. Its BioBlock® technology prevents the proliferation of bacteria and the formation of mould on the surfaces of grouts.



MAPEI'S PROPOSAL FOR SAFE WATERPROOFING

PURTOP 1000 CAN BE ALSO USED WITH DRINKING WATER

Leaks from water distribution networks (storage tanks, pipe-lines, etc.), normally due to cracks or fractures in the system or general wear and tear, lead to the loss of millions of litres of drinking water every year and, as a result, a waste of this precious resource and economic damage. PURTOP 1000 is a pure polyurea-based waterproofing membrane which is sprayed over surfaces that have undergone a suitable preparation and priming cycle. Its exceptional mechanical properties, particularly its rate of elongation at failure and crack-bridging capacity, help make the membrane highly elastic. What is more, the sys-

tem is in total adherence to substrates to guarantee long-lasting, durable protection, particularly against abrasion and aggressive chemicals.

PURTOP 1000 has been used for years to waterproof distribution networks in general and, thanks to its recent certification as compliant with Italian Ministerial Decree 174 - 6/4/2004, it can now also be used on surfaces in contact with drinking water in Italy. D.M. 174/04 is a decree that defines the conditions that materials and objects must meet in order for them to be used in distribution networks that treat water for human consumption.



Pure. Purtop.

ADVANTAGES

- ✓ **CONTAINS NO SOLVENTS**
- ✓ **IMMEDIATE WATERPROOFING AND SET TO FOOT TRAFFIC**
- ✓ **EXCELLENT MECHANICAL PROPERTIES**
such as elongation >350% and high crack-bridging capacity, including at low temperatures
- ✓ **NO REINFORCEMENT REQUIRED**
- ✓ **DURABILITY**

AREAS OF USE

- STORAGE TANKS
- CHANNELS
- WATER TOWERS
- HYDRAULIC WORKS IN GENERAL

CERTIFICATIONS

Surface protection systems for concrete:
EN 1504-2, principles PI, MC, PR, RC and IR



Resistance to root penetration: CEN/TS 14416

Compliant with drinking water regulation: DM 174/04



Luca Mondazzi,
Director of Sport
Nutrition and
Dietology at the
Mapei Sport
Research Centre
in Olgiate Olona
(Northern Italy)

NUTRITION

WE ARE ALL WINNERS AT THE EXPO

MAPEI SPORT'S NUTRITIONAL EXPERT IS OPTIMISTIC

Let's all go to the Expo. There has been plenty of talk about the Expo Milano 2015, where nutrition is the leitmotiv. Nevertheless, not everybody knows what Expo 2015 has to offer.

"The Expo has such a lot to offer and so many aims and goals that it is not easy to describe it in just a few words - so Dr. Luca Mondazzi told us, the Director of Sport Nutrition and Dietology at the Mapei Sport Research Centre in Olgiate Olona (Northern Italy) - and there certainly are many other things to discover when following the various events at the Expo and actually visiting the area. If we were to provide a general overview of the event, it is important to remember that its main objective is to find out how to feed the world's entire population while respecting our planet. This is why the very best of local farm-food and gastronomic specialities is on display from all over the world and, first and foremost, all kinds of projects and technology are being shared and discussed with the aim of providing healthy, safe food for everybody on the planet."

SO THE EXPO IS NOT JUST AN EXHIBITION

"No, it is actually an extremely interesting and extensive platform allowing scientists, business people and institutions to interact and cooperate. This planetary event will, among other things, lead to the Milan Charter, a worldwide food safety protocol that will be handed over to the Secretary-General of the United Nations during his planned visit to Milan in October".

DR. MONDAZZI, LEAVING ASIDE THE EXPO, WHAT ARE THE MAIN DIFFERENCES IN THE DIETS OF

SPORTS PEOPLE IN ASIA, AMERICA AND EUROPE?

"We need to make a distinction between nutritional intake, viewed in terms of carbohydrates, fats, proteins, minerals etc. and how these substances are actually consumed. All the knowledge about nutritional intake that food science applied to sport makes available to athletes applies right across the globe; it is then the job of dieticians and nutritional experts to translate this knowledge into a sustainable diet conforming to the eating habits of individual athletes depending on where they come from".

WHO ARE THE MORE FUSSY, AUSTRALIANS OR EUROPEANS?

"It is hard to generalise. I think that, generally speaking, European athletes are more interested in nutrition than those from the rest of the world, partly due to Europe's great old gastronomic traditions. It is perhaps easier for Europeans to make the right dietary choices, even unwittingly".

FROM A DIETARY VIEWPOINT, SHOULD ITALIAN PEOPLE VISIT THE EXPO FOR FUN, OUT OF CURIOSITY OR TO CHANGE THEIR EATING HABITS?

"I believe the Expo is an extraordinary gateway towards new and extremely interesting knowledge. I have been eagerly awaiting this opportunity and I am sure it will even exceed our expectations. Curiosity leads to new knowledge that helps us improve our lives".

THEORETICALLY SPEAKING, COULD THERE BE A



WINNING NATION IN TERMS OF IDEAS AND INNOVATIONS AT AN EXPO ABOUT FOOD?

“Unlike commercial trade fairs, the philosophy underscoring this Expo is that of encouraging the exchange of information and co-operation between nations in order to feed the entire planet. This means everybody is part of the same team and everybody is a winner. Having said that, I think it is undeniable that Italy and Europe have an extremely important role to play, given their extraordinary cultural traditions in terms of food and nutrition”.

WE LIVE IN A GLOBALISED SOCIETY. WILL A SIX-MONTH-LONG EVENT LIKE THE EXPO BE ABLE TO GLOBALISE FOOD EVEN FURTHER?

“Wherever people come from, they can learn so many

surprising and interesting new things, even as regards the use of new types of food and new means of preparing it. Everybody visiting the trade fair certainly take some new ideas home with them, ready to be used in their everyday lives”.

WILL CERTAIN SUPPLEMENTS AND SPORT FOODS ACTUALLY CHANGE DUE TO THE EXPO?

“I do not think that the Expo will bring about changes in the manufacture of special foods and dietary supplements for sport, because they are “created” based on scientific evidence that is already shared in real time not just by the medical community, but also by the heads of research and development of companies working in the industry”.

THE GLOBAL SEED VAULT



The biggest phylogenetic bank in the world was opened on the Svalbard Islands in Norway in 2008. We are talking about the Global Seed Vault holding duplicates of unique varieties of the world's most important crops. It was built inside a frozen mountain: the permafrost and rock keeps the genetic material stored in a vault frozen and protected without using electricity. The Mapei Group, together with its Norwegian subsidiary Mapei AS, was involved in this important building project destined to defy time, supplying admixtures for concrete and products for underground constructions (see *Realtà Mapei International* no. 25).

TECHNICAL DATA

Noah's Ark - Global Seed Vault, Svalbard Islands (Norway)

Intervention by Mapei: supplying products for building an underground tunnel and areas in the permafrost and in the rock

Period of Construction: 2007-2008

Clients: Royal Norwegian Ministry of Agriculture and Food, Royal Norwegian Ministry of Foreign Affairs, Royal Norwegian Ministry of Environment

Project Owner: Directorate of Public Construction and Property

Project Manager: Magnus

Bredeli Tveiten

Contractor: Leonhard Nilsen & Sønners AS

Contractor's Project Manager: Gudmund Løvli

Site Manager: Bjørn Arne Bjørkmo, Leonhard Nilsen & Sønner AS

Design: Peter W. Soderman, MNAL, Barlindhaug Consult AS

Mapei Co-ordination: Roy Hansen and Thomas Beck, UTT Mapei AS (Norway)

MAPEI PRODUCTS

Mapequick AF2000, Mapepard SD2000



ABOVE. The reinforced concrete and stainless steel entrance to the Global Seed Vault.

LEFT. The packaging used to send the seeds from countries from all over the world.

THE GREAT MILAN



EXPO BRIDGE

MAPEI ADMIXTURES FOR CONCRETE FOR A VITAL ROAD LINK AND AN ARCH BRIDGE DESTINED TO BECOME A REAL LANDMARK OF EXPO MILANO 2015

Expo Milano 2015 has generated an extraordinary programme of urban redevelopment and technological development projects aimed at enhancing the entire Lombardy region. The programme includes a new road link between the Molino Dorino terminal along the former national highway 11, to the north-west of the outskirts of Milan, and the A8 motorway.

This is an important piece of infrastructure and Mapei contributed by supplying high-performance admixtures for concrete.

The aim of this particular project is to guarantee a fully integrated link to the Expo site and accessibility to the site by building a 3.5 km high-speed link-road running from north-west Milan alongside the Rho-Pero exhibition area. The road also provides a direct link between Pero and Milan areas and between the West Milan bypass and the A8/A9 "Milano Laghi" motorway.

The "Expo Bridge", inaugurated on the 28th of April,

dominates the exhibition site and, along with the tunnel running under the Cascina Merlata area, are the main works carried out on the new road link built especially for the Universal Exposition.

The link runs from the point where state highway 11 crosses the Sempione 33 by-pass in the Molino Dorino area and goes in a north-easterly direction under the new car-park at Cascina Merlata. It then continues and passes over the Milano-Certosa railway station along the Milan-Novara line, the A4 motorway and the Expo area, and comes to an end by passing over the Milan-Varese A8 motorway.

The works forming the main body of the intervention are the man-made tunnel running below the Cascina Merlata area and the system of viaducts running from south of the railway to join the A8 motorway to the north.

The "Expo Bridge", designed by the Antonio Citterio Patricia Viel and Partners design studio in Milan, was built



by Eureca Consorzio Stabile. It is destined to become a true landmark of Expo Milano 2015, with its large central arch illuminated by LED lighting forming a frame for the elevated road that acts as a gateway to the Universal Exposition site.

It is made up of a series of staggered arches that are part of a complex structural design. It has two off-set arches 200 m tall over the A4 motorway, while an eccentric cable-stayed arch 190 m tall takes the bridge over the A8. The viaduct itself weighs 1,700 tonnes and the arches weigh 900 tonnes.

The featured products used by Monvil Beton Srl from Milan to make the concrete for this outstanding site were two special Mapei admixtures: DYNAMON SR 912, an acrylic super-plasticiser for concrete, especially suitable in warm climates, and DYNAMON SR 914, a liquid admixture for specially designed high quality mixes for concrete with a low water/cement ratio combined with good maintenance of workability, particularly suitable for use in cold climates.

These are two high performance plasticisers that ensure exceptional quality and a longer service life for the reinforced concrete structures, guaranteeing just the right workability in various weather conditions.

Ideal admixtures for major projects and large infrastructure projects, such as these which are helping to modernise the Great Milan.

TECHNICAL DATA

Expo Bridge, Pero-Milan (Italy)

Period of Construction: 2012-2015

Period of the Intervention: 2012-2015

Intervention by Mapei: supplying admixtures for concrete

Client: Lombardy Region Government

Contractors: Eureca Consorzio Stabile, CCC Consorzio Cooperative Costruzioni Soc. coop., Vitali SpA, and CIC Compagnia Italiana Costruzioni SpA

Works Direction: Infrastrutture Lombarde SpA

Design: Antonio Citterio Patricia Viel and Partners

Engineering Service: PRO ITER, Riccardo Formichi Errevia and Marco Zanetti

Technical Services: Andrea Lucarelli and Francesco Frassinetti

Concrete Production: Monvil Beton Srl

Mapei Co-ordinators: Massimo Seregni and Pietro Lattarulo, Mapei SpA (Italy)

MAPEI PRODUCTS

Dynamon SR 912, Dynamon SR 914





THE “NEW” DOCKLANDS

MAPEI PRODUCTS FOR THE RENOVATION AND CONSOLIDATION OF THE BANKS OF MILAN'S RENOVATED PORT

The redevelopment of the Darsena (Docklands) area is just one of the projects that will be a legacy of Expo Milano 2015 for Milan and the Lombardy Region. Inaugurated on the 26th of April, with this intervention Milan's old port has been handed back to the city and has become, once again, an historical setting and a symbol of Milan. The “new” docklands were designed by Edoardo Guazzoni, Paolo Rizzatto, Sandro Rossi and Studio Bodin&Associés. The old port has now been completely restyled and the adjacent areas have been redefined. The intervention involved the construction of new quays for the port and new sailing and mooring areas for the boats, as well as a complete renovation of Piazza XXIV Maggio square, which with its new gardens is now almost entirely pedestrianised. New trees have been planted along the paths running parallel to the docklands, while along the western edge there is a garden running right up to the

edge of the water.

Thanks to this project important monumental remains, such as a 15th century bridge, the remains of the Viarenna Basin and the foundations of the 16th century city walls unearthed during the archaeological survey, have been conserved and enhanced. To encourage people to use the area, a new space has been created along the northern banks of the docklands and a new pedestrian and cycle path has been created to connect the southern and northern banks.

The redevelopment of the docklands is an integral part of the idea that inspired the Water Routes project, one of the characteristic elements of Expo 2015, a concrete legacy for the city and for the entire Lombardy Region.

The Water Routes project has both thematic and historic value: it is connected to the main themes of Expo 2015 – safeguarding water for the good of everyone and every-

one's right to have access – and reconnects Milan's historic bond with water, with its memory of the Navigli canals, Leonardo da Vinci's canal locks and the city's port.

MAPEI PRODUCTS

Mapei's best performing products were used to renovate and consolidate the banks, starting with MAPEGROUT EASY FLOW one-component, fibre-reinforced, compensated-shrinkage, sulphate-resistant thixotropic mortar, particularly suitable for repairing concrete structures with a rendering machine.

IDROSILEX PRONTO, an osmotic cementitious mortar suitable for contact with drinking water, was used to waterproof the masonry and concrete structures.

MAPE-ANTIQUE LC salt-resistant, cement-free hydraulic binder based on lime and ECO-POZZOLAN was used for pointing "natural-finish" masonry on-site.

And lastly, ANTIPLUVIOL W transparent, silane and siloxane water-repellent impregnator in water solution was also used to provide a protective coating for the cementitious renders and the brickwork against driving rain.

Work on the Water Routes project is still ongoing and Mapei, with its products and technology, is proud to carry on being an integral part of the "aquatic rebirth" of the city of Milan.



TECHNICAL DATA

The "New" Docklands, Milan (Italy)

Period of Construction: early 17th century

Period of the Intervention: 2013-2015

Intervention by Mapei: supplying products for repairing and consolidating concrete and masonry structures

Client: Expo Milano 2015 SpA

Design: Edoardo Guazzoni, Paolo Rizzato, Sandro Rossi and Studio Bodin&Associés

Contractor: GI.MA.CO. COSTRUZIONI Srl

Mapei Co-ordinators: Massimo Seregini and Davide Bandera, Mapei SpA (Italy)

MAPEI PRODUCTS

Mapegrout Easy Flow, Mape-Antique LC, Antipluvio W, Idrosilex Pronto

LET'S NOT STOP AT THE MILAN DOCKLANDS. WE COULD SAIL TO PAVIA

Thanks to Expo, the Milan docklands have been redeveloped. The city's main harbour is now back in operation and, provided the Milan-Venice waterway is renovated in a short space of time, the city will once again repair "its only physical defect" – as the Italian writer Bonvesin de la Riva called it back in 1288 – consisting in a "lack of any harbour for ships coming from the sea". On other occasions Milan has managed to rectify its "main defect due to being – as the French historian Fernand Braudel noted – a land-locked city". Indeed, in the 15th century, thanks to the Sforza family, the Bereguardo Canal was created out of the Grand Canal to provide a shipping link with Venice. Further work was carried out in the 19th century by Napoleon Bonaparte, who had the Bereguardo Canal replaced with the more modern Pavia Canal that was eventually completed by the Austrian government in 1890, meaning that it was then possible to sail from the Verbania Province to Milan and from Milan to Venice. It was no coincidence that Sant'Eustorgio Lake, the landing stage in Milan for the Grand Canal, was only converted into docklands after Pavia Canal was completed, and the current design of this expanse of water and its banks derive from the extension that was made in the early 20th century after the city walls built during the Spanish government were knocked down to allow steamships to travel from Milan to Pavia.

Now we can offer visitors to the Expo not just tourist trips inside the city but also boat rides from Lake Maggiore to Milan (for further information: Idrotourlombardia.it, phone number: +39 02 48561301).

So, in a nutshell, sailing was possible one hundred years ago, but as time went by the Pavia Canal became outmoded and road transport meant this extraordinary engineering work was forgotten, left as nothing more than a sailing canal. So how can we rectify Milan's main defect yet again? To renovate and repair the other river locks and bridges along Pavia Canal, the 32 million Euros allocated by the Lombardy Regional Council could be put to proper use. This might well have an extraordinary effect: the people of Milan and tourists could sail to the Pavia monastery and the city and port of Pavia. In a year's time they will actually be able to sail to the Roman port of Piacenza and modern port of Cremona by switching from the River Ticino to the River Po. Then from Cremona there are lots of places to visit either by boat or by cycling along the River Po as far as the Venice Lagoon. So the opening of the Milan Docklands entitles us to seriously consider the re-launching of river tourism based along the lines of other European areas. Feasibility projects have already been drawn up and the money is already available. What has been lacking so far is political foresight and will.

This article was written by Empio Malara, President of the Istituto per i Navigli (Institute of the Navigli Canals) and Associazione Amici dei Navigli (Friends of the Navigli Canals Association), and was first published in the Italian newspaper *Corriere della Sera* on 12th May. We would like to thank the writer and newspaper for allowing us to use it.

TECHNOLOGICALLY
INNOVATIVE ADMIXTURES
TO CONSTRUCT A
STRATEGICALLY
IMPORTANT
INFRASTRUCTURE

TEEM EASTERN OUTER MILAN BY-PASS

On the 16th of May last year the new TEEM (Eastern Outer Milan By-pass) was put into service, with its 32 km of dual-carriageway. This is a strategically important infrastructure that the European Union included in the list of works for the Trans European Network-Transport (TEN-T).

It was mainly financed by private investors and was designed to rationalise the flow of traffic in the East-South quadrant of the axis connecting the Provinces of Milan, Lodi and Brianza in Northern Italy and ease congestion in the metropolitan area of Milan.

TEEM is an entirely made-in-Italy intervention and was constructed according to the highest standards of quality as part of an Italian national framework project to rationalise important infrastructure works.

This has been made possible by building 32 km of trunk road from Melegnano (A1 Milan-Bologna-Rome-Naples motorway) to Agrate Brianza (A4 Turin-Milan-Venice-Trieste motorway) which is also connected to the Brescia-Bergamo-Milan (BreBeMi) motorway – and once again, solutions offered by Mapei products played a fundamental role in the motorway's construction work, as described in an article in issue no. 51 of *Realtà Mapei International* – as well as by the construction of 38 km of secondary roads, the upgrading of 15 km of existing roads and completion of 30 km of cycle paths.

Mapei took part in work on two of the three lots by

supplying technologically advanced products and guaranteeing constant on-site support by highly qualified technicians and engineers.

The new infrastructure was divided into three distinct lots: lot A to the north, a 6.2 km stretch between the towns of Agrate Brianza and Bellinzago Lombardo; lot B, the central stretch, running 15.8 km between Gorgonzola and Paullo; lot C to the south, running 9.9 km from Tribiano to Cerro al Lambro. The work was carried out by a consortium of companies called CCT (Consorzio Costruttori TEEM) and the intervention by Mapei was carried out on the lot B and lot C.

MAPEI ADMIXTURES FOR LOT B

Going into detail, as for the preparation of the concrete for lot B, Mapei worked on site alongside the company Icea Srl which supplied the concrete required with a special-purpose production unit on the building site. Three different types of technologically advanced admixtures were supplied by Mapei to get the highest yield possible from the concrete: DYNAMON SX 32, DYNAMON SX 34 and EXPANCRETE.

DYNAMON SX 32 and DYNAMON SX 34 are liquid superplasticizing admixtures for high quality concrete (waterproof, durable, and with high mechanical strength) with high retention of workability.

Based on non-sulphonated acrylic polymers,

DYNAMON SX 32 is a totally formaldehyde-free, water solution that can effectively disperse cement granules with secondary components that significantly improve the cohesion and the pumpability of concrete.

DYNAMON SX 34, on the other hand, is particularly suitable for all those applications where the amount of mixing water needs to be drastically reduced. Concrete with this admixture is easy to place in the fresh state and has high mechanical strength when hardened.

Apart from these two admixtures, EXPANCRETE was also used. This is a powdered admixture that is added to the other components in the concrete to compensate for the effect of drying shrinkage.

MAPEI ADMIXTURES FOR LOT C

For lot C – which runs between Tribiano and Cerro al Lambro and interconnects with the A1 Milan-Naples motorway – two steel viaducts were built over the River Lambro and the Milan-Bologna railway line. One is for motorway traffic (1,604 m long) and the other (840 m long) connects provincial highway 17, the so-called “Sant’Angiolina”, and state highway 9, the so-called “Via Emilia” to guarantee the east-west connections around the town of Melegnano, an area which is often congested with traffic.

The concrete used for this lot was made by the company Betonrossi SpA and Mapei admixtures were again used in the mix. Apart from EXPANCRETE, the key performers were two liquid superplasticisers with high retention of workability: DYNAMON SX 42 and



DYNAMON SX 44.

Because of its high workability (consistency classes S4 or S5 according to EN 206-1) and reduced amount of mixing water, concrete prepared with DYNAMON SX 42 is easy to place in the fresh state and has high mechanical strength when hardened.

The other key performer on site was DYNAMON SX 44 which, thanks to its high reduction of mixing water and its ability to extend the initial workability of the mix, it is a super-plasticising admixture particularly suitable for ready-mix concrete used for constructing waterproof structures in the presence of aggressive agents.

Numerous systems from Mapei 15 product lines have been used for this huge site where work is still ongoing. A more detailed report over the next editions of our magazine will highlight these products and cover the progress of this grand public work that will transform the road network for Milan.



TECHNICAL DATA

TEEM - Eastern Outer Milan By-pass, Milan (Italy)

Period of Construction:

2012-2015 and ongoing

Period of the Intervention:

2010-2015 and ongoing

Intervention by Mapei:

supplying admixtures for concrete

Client: GAL Concessionari Autostrade Lombarde SpA, Tangenziale Esterna SpA

Contractor: CCT Consorzio Costruttori (including Impregilo, Pizzarotti, Coopsette, Unieco, Cmb, Cmc, Itinera, Pavimental)

Project Control: Pegaso Ingegneria Srl

Prevention and Control Supervision: Pegaso

Ingegneria Srl

Environmental Monitoring:

Pegaso Ingegneria Srl

Concrete Mixing and

Production: Icea Srl and

Betonrossi SpA

Mapei Co-ordinators:

Massimo Seregni and Pietro Lattarulo, Mapei SpA (Italy)

MAPEI PRODUCTS

Expancrete, Dynamon SX 32, Dynamon SX 34, Dynamon SX 42, Dynamon SX 44



A36 PEDEMONTANA LOMBARDA MOTORWAY

HIGH PERFORMANCE PRODUCTS FOR WORKS DESIGNED TO LAST A LIFETIME

The road network around Milan was lately going through a period of rapid transformation and one of the most important projects currently underway is the A36 "Pedemontana Lombarda" motorway.

The motorway is intended provide a more functional connection and reduce the volume of traffic using the A4 motorway in the point where it passes through the urban areas of Milan.

Apart from the 86.7 km of motorway, there will also be numerous other works (more than 48 km) to make up for the lack of infrastructures to the north of the Milan-Bergamo axis.

The aim of the project is to provide motorists with an alternative route to the existing A4 motorway for short to medium length journeys and to complete and rationalise the road network in the Varese-Como-Bergamo-Milan quadrilateral.

The entire road system is scheduled to be opened to traffic in July 2021. The first lot of the Varese by-pass was opened on the 24th of January and the A stretch, from Cassano Magnano (A8) to Lomazzo (A9), was opened on the 26th of January.

ADMIXTURES AND PRODUCTS FOR ALL SITE NEEDS

Mapei's contribution played an important role in various interventions, starting with the admixtures which were used in the concrete.

They included DYNAMON SX 22 superplasticizer with low loss of workability and DYNAMON SX 24 superplasticizer with high reduction of mixing water.

DYNAMON SR 56 superplasticizer was also used because of its special characteristics that make it ideal for making high-performance concrete with high retention of workability. DYNAMON SR 58 superplasticiser was instead used because of its characteristics that make it especially suitable for use during winter.

PLASTIMUL bitumen waterproofing emulsion was used to waterproof the tunnels' surfaces. Other systems and products by Mapei's subsidiary Polyglass SpA were also under the spotlight, such as MAPEPLAN TU synthetic waterproofing membrane, especially suitable for waterproofing underground constructions' and tunnels' surfaces.

The gates of the tunnels and the underpasses were painted with ELASTOCOLOR PAINT elastomeric, crack-bridging, permanently flexible, protective paint, especially suitable for concrete structures subject to small



OUT

PEDEMONTANA IN FIGURES

45 million hours/year saved on travelling

5 provinces and 94 boroughs crossed

4 million inhabitants

5 regional parks

87 km of motorway + 70 km of local roads and 90 km of “green way” bicycle paths



deformations when under load against carbonatation. MAPEFILL fluid mortar was used to anchor metallic carpentry and building some elements of the viaduct. PLANITOP SMOOTH & REPAIR rapid-setting shrinkage-compensated, thixotropic, fibre-reinforced, cementitious mortar was used for small repair works. MAPEFINISH two-component cementitious mortar was used to smooth over small areas.

TECHNICAL DATA

A36 “Pedemontana Lombarda” Motorway, Lombardy Region (Italy)

Period of Construction: 2010-2015 and ongoing

Period of the Intervention: 2010-2015 and ongoing

Intervention by Mapei: supplying admixtures for concrete, waterproofing products, and products for building

Client: Autostrada Pedemontana Lombarda SpA

Contractors: Salini Impregilo SpA (including Astaldi, Pizzarotti, Itinera), STRABAG AG (including Maltauro SpA, GLF SpA, La Nuova Briantea S.c.arl.)

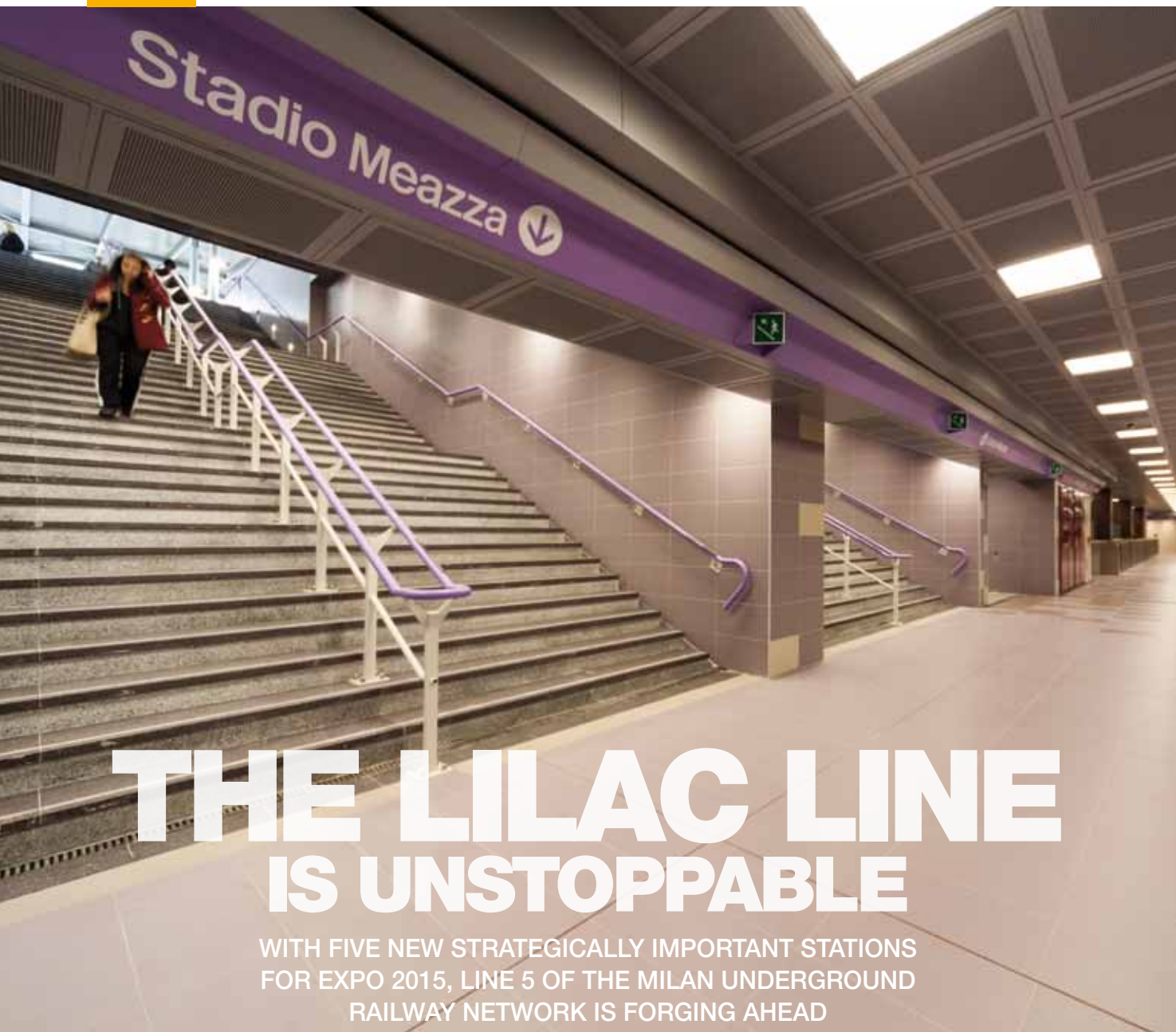
Ready-mix Concrete Producer: Edile Commerciale SpA

Mapei Co-ordinators: Massimo Seregni and Pietro Lattarulo, Mapei SpA (Italy)

MAPEI PRODUCTS

Dynamon SX 22, Dynamon SX 24, Dynamon SR 56, Dynamon SR 58, Plastimul, Mapeplan TU by Polyglass (Mapei Group), Mapefill, Planitop Smooth & Repair, Mapefinish, Elastocolor Paint





THE LILAC LINE IS UNSTOPPABLE

WITH FIVE NEW STRATEGICALLY IMPORTANT STATIONS FOR EXPO 2015, LINE 5 OF THE MILAN UNDERGROUND RAILWAY NETWORK IS FORGING AHEAD

Just in time for Expo, 5 new stations were inaugurated along Line 5 of the Milan underground railway network at the end of April. Once completed, - in October 2015 with another 5 stations to bring the grand total to 19 – it will cut Milan diagonally, intersecting with the M2 Green Line at Garibaldi and the M1 Red Line at Lotto station. The second branch of the Lilac Line, running from Garibaldi to the San Siro Stadium, was inaugurated just a short while ago. It also has five new stations at Domodossola FNM, Lotto, Segesta, San Siro Hippodrome and San Siro Stadium. The stations scheduled to open at the end of October 2015 are Monumentale, Gerusalemme, Tre Torri while the stations at Cenisio and Portello were opened on the 6th of June. The image on the left shows the currently operating stations (lilac) and the ones to be opened at a later time (black). After taking part in construction work for the M1, M2

and M3 underground railway lines by supplying products and highly skilled technicians and engineers, Mapei has continued their collaboration on the Lilac Line.

ADMIXTURES FOR EVERY STATION AND EVERY NEED

Mixing the concrete for this second phase of the building site also played an important role. Key performers were the various Mapei admixtures used on site to support the work of two important companies specialised in the production of concrete: Calcestruzzi SpA and Monvil Beton. Amongst the admixtures used, a special mention goes to DYNAMON SR1, an acrylic-based super-plasticiser particularly recommended in those cases where the mixing water needs to be drastically reduced and the workability of different consistency classes needs to be maintained for long periods.



TECHNICAL DATA

Milan Underground Railway Line 5, Milan (Italy)

Period of the Construction: 2007-ongoing

Period of the Intervention: 2007-ongoing

Intervention by Mapei: supplying admixtures for concrete, waterproofing products for underground constructions, products for laying marble

Client: Milan Underground Railway Line

Milan City Council Supervisor: Francesco Tarricone

Works Direction: Stefano Perotti, Ingegneria SPM

Safety Coordinator: Gabriella Ablondi, Ingegneria SPM

Contractors: Astaldi SpA, Alstom Ferroviaria SpA, AnsaldoBreda SpA, Ansaldo Trasporti Sistemi Ferroviari SpA, Azienda Trasporti Milanesi SpA

Concrete Production and Supply: Calcestruzzi SpA and Monvil Beton Srl

Mapei Co-ordinators: Gianluca Bianchin, Alessandro Boscaro, Pietro Lattarulo, and Massimo Seregni, Mapei SpA (Italy)

MAPEI PRODUCTS

Dynamon SR1, Dynamon SR 912, Dynamon SR 914, Mapeplast LA, Mapegrout T60, Mapegrout LM2K, Mapefer 1K, Monofinish, Mapeplan TU, Mapeplastic, Keraquick S1, Mapesil LM

Other admixtures used in the concrete for the Lilac Line are DYNAMON SR 912 – an acrylic super-plasticiser for concrete, suitable in warm climates – and DYNAMON SR 914, a liquid admixture, specially formulated to make concrete with a low water/cement ratio and a long maintenance of workability, particularly suitable for cold climates.

Also used with great success on site was MAPEPLAST LA liquid admixture which, thanks to its foaming action and ability to form evenly spaced micro-bubbles of air in the cement matrix, is able to produce light-weight, easily pumpable mortars and concretes with high stability and cohesion.

WATERPROOFING THE TUNNELS

MAPEPLAN TU S is a PVC-P waterproofing membrane which, thanks to exclusive “multi-extrusion” technology,

provides high performance characteristics and durability. One of the fundamental characteristics of this product, which has been used on this site to waterproof the surfaces in the tunnels and stations of the Lilac line, is its excellent workability and weldability.

To repair the pre-cast concrete elements of the tunnel's vault, MAPEGROUT T60 and MAPEGROUT LM2K were used after protecting the steel reinforcement rods with MAPEFER 1K, while to smooth the concrete, the choice went to MONOFINISH mortar.



BONDING THE MARBLE IN THE STATIONS

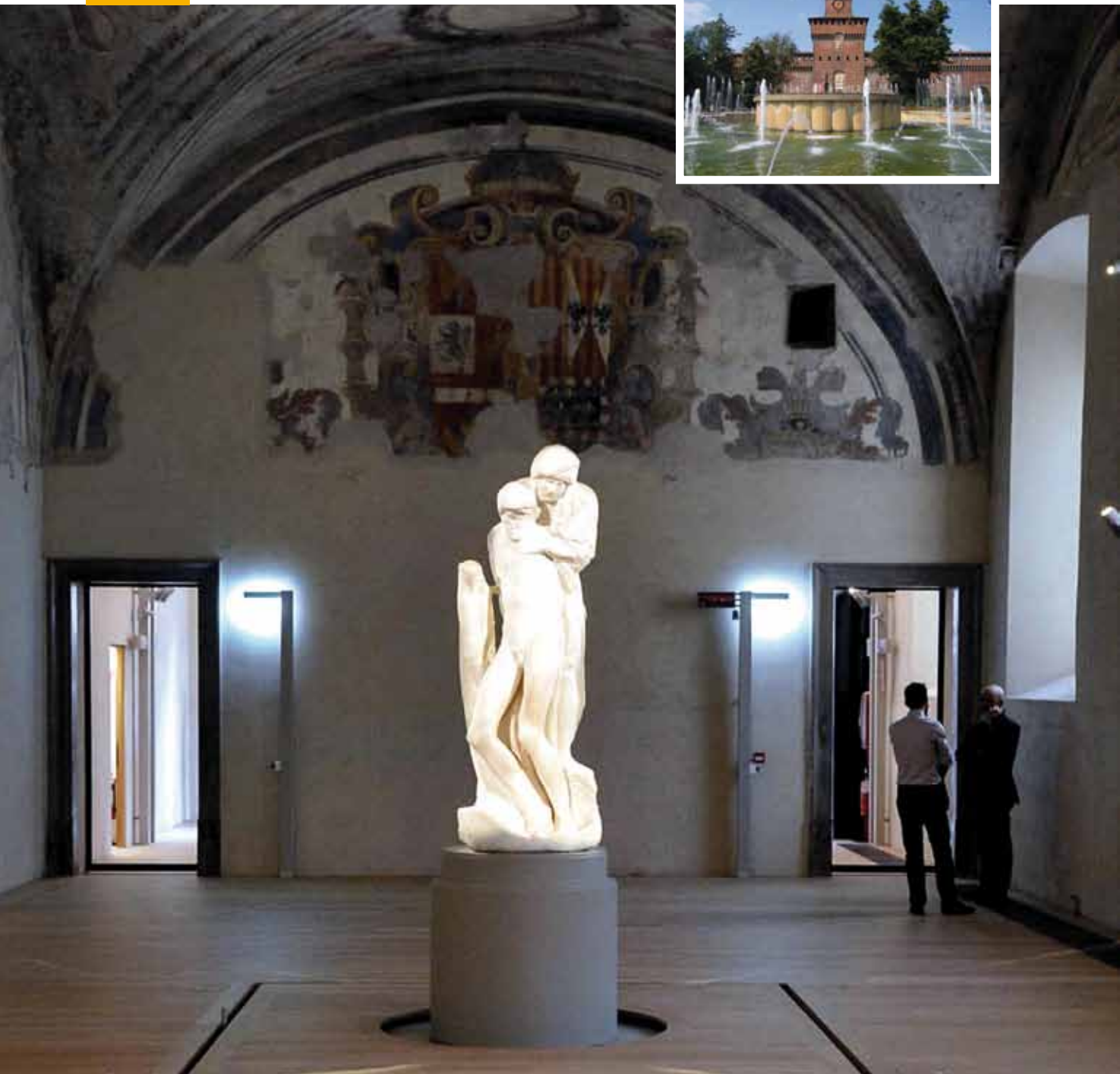
MAPELASTIC two-component cementitious mortar was used to waterproof the steps of the access ramps to the stations.

The marble for the floors in the five new stations along the Lilac Line was bonded with KERAQUICK S1 high-performance, quick-setting, deformable cementitious adhesive with no vertical slip for ceramic tiles and stone material.

The expansion joints were sealed with MAPESIL LM sealant, which contains plasticising substances with high molecular stability which deters surface bleeding or the migration of plasticising agents which would otherwise stain the substrate.

OUT

EXPO 2015 ART AND CULTURE



**A NEW HOME FOR THE
PIETÀ
RONDANINI**

MILAN'S MASTERPIECES ON DISPLAY DURING EXPO

The **PIETÀ RONDANINI**, just like all the city's museums, will be open all hours throughout the six months of the Expo. Entry is free of charge on Tuesdays from 2 p.m. and every other day for the last hour before closing time. Free entry for under 18s.

The **SALA DELLE ASSE** has also been reopened at Sforza Castle with a multimedia installation about the restoration work that revealed traces of Leonardo da Vinci's handicraft.

The new Pietà Rondanini-Michelangelo Museum officially opened on Saturday, 2nd May, during special celebrations held at Sforza Castle, as part of an extensive schedule of off-the-Expo projects and events that is livening up Milan's cultural life for the entire duration of the World Expo. After spending almost 60 years in the castle's Museum of Ancient Art inside the Scarlioni Chamber, the *Pietà Rondanini* sculpture moved to a new home, although still inside Sforza Castle, finding its ultimate resting place in the startling Spanish Hospital.

Michelangelo's emotionally-charged sculpture has, in this way, being re-donated to Milan in a new dedicated, re-discovered and renovated exhibition space that has been restored thanks to Michele De Lucchi's elegant exhibition design, which really brings out the stylistic significance and extraordinary iconic power of Michelangelo's final masterpiece.

The project was made possible by a working partnership lasting almost three years between Italian public institutions and private enterprises.

In order to protect the masterpiece from any potential damage that might be caused by the nearby underground railway line or seismic activity, a cutting-edge protective system against seismic risks and vertical vibrations coming from the ground was specially created based on scientific data gathered by the Polytechnic University of Milan. The basement was anchored to seismic control plants using ADESILEX PG1 two-component thixotropic adhesive. Unprecedented protective measures and engineering solutions were developed through a working partnership involving the Polytechnic University of Milan, the Milan City Council, the Sforza Castle Office and the Institute for Conservation and Restoration, which supervised the entire project.

Inside the old Spanish Hospital with its wonderful frescoes, the work's emotional intensity interacts with ideal architecture. The installation is simple to respect the sacred nature of the *Pietà* and encourage thoughtful reflection. The space is almost completely empty, except for three oak benches placed in front of the work. The clear-coloured oak floor adds warmth to the setting and creates a material contrast bringing out the whiteness of the marble.

Mapei contributed to this important project by providing

the designers and restoration company its own expertise and technology for repairing and restoring the masonry of the wide room, preparing the floor substrates and laying wooden floors.

MAPE-ANTIQUE ALLETTAMENTO salt-resistant masonry mortar based on natural hydraulic lime and Eco-Pozzolan was used to fill the cracks on the vaults and for touching-up and plumbing interventions.

MAPE-ANTIQUE STRUTTURALE NHL high-performance, high-strength, transpirant mortar, based on natural hydraulic lime, mirco-fibres and glass fibres, was used for filling the crack between the wall and the vault.

MAPE-ANTIQUE FC GROSSO and MAPE-ANTIQUE FC FINE salt-resistant, lime and ECO-POZZOLAN transpirant skimming mortars were used for smoothing the repaired surfaces.

As regards the levelling of the substrates before laying high-quality bevelled oak supplied by Margaritelli SpA, Mapei supplied ULTRAPLAN MAXI self-levelling, ultra quick-hardening smoothing compound with very low emission level of volatile organic compounds (EMICODE EC1 R Plus) for levelling off and smoothing out any differences in thickness.

Mapei then supplied ULTRABOND ECO S968 1K for laying the parquet, a latest generation silitated polymer-based adhesive.

Designed for installing solid and prefinished multi-layered wooden floors made of any kind of wood on any type of substrate, including heated screeds, ULTRABOND ECO S968 1K is completely free of solvents and plasticizers, with very low emission level of volatile organic compounds (EMICODE EC1 R Plus) and Der Blaue Engel-certified.

TECHNICAL DATA

Pietà Rondanini-Michelangelo Museum, Milan (Italy)

Period of the Intervention: 2014-2015

Intervention by Mapei: supplying products for preparing the substrates and laying wooden floors

Client: Milan City Council Cultural Services

Executive Design: Paolo Bovo

Exhibition Design: Michele De Lucchi

Restoration Company: Tecnireco Srl-Spoleto

Laying Company: Margaritelli SpA

Laid Materials: bevelled oak floorings by Margaritelli SpA

Mapei Co-ordinators: Davide

Bandera, Angelo Giangiulio, Giordano Mariani, Giuseppe Melcangi, Matteo Venturini, Mapei SpA (Italy)

MAPEI PRODUCTS

Adesilex PG1, Mape-Antique Allettamento, Mape-Antique Strutturale NHL, Mape-Antique FC Grosso, Mape-Antique FC Civile, Ultraplan Maxi, Ultrabond Eco S968 1K

#FOODPEOPLE. THE EXHIBITION FOR PEOPLE EAGER FOR INNOVATION



NEW SURFACES WITH THE CEMENTITIOUS ULTRATOP LOFT SYSTEM FOR AN AREA HOSTING THE FOOD EXHIBITION AT THE LEONARDO DA VINCI MUSEUM OF SCIENCE AND TECHNOLOGY IN MILAN

In the spirit of Expo 2015 and, therefore, special attention for food and the entire food industry chain, the “#Foodpeople, the exhibition for people eager for innovation” exhibition was inaugurated on the 22nd of April at the Leonardo Da Vinci Museum of Science and Technology in Milan. Mapei has played an active part as technical partner to help bring about this exhibition – dedicated to the changes that have marked the way we eat and the complexity of the food system - with support from qualified technicians and innovative products for renovating resin floors. But the real stars of this event are the peo-

ple: each one of us and our own special relationship with food, those who operate in the agriculture-food production chain, researchers and experts from the sector and the youngsters and adults who have all been involved in the design of the exhibition.

Mapei's intervention was fundamental for the repair work on the flooring in the #Foodpeople exhibition area. It was made up of old terrazzo tiles and ULTRATOP LOFT cementitious system was applied, ensuring high mechanical strength, resistance to abrasion and continuous finish. The work included a preliminary phase to prepare the substrate by grinding the floor with diamond disks to level off the floor and remove any traces of dirt and wax. The more badly damaged areas and areas where the tiles had come loose were removed and the gaps were reintegrated with a mortar made with MAPEFLOOR I 900 two-component epoxy binder mixed with QUARTZ 1.9. The primerisation was carried out by applying a coat of PRIMER SN with MAPENET 150 glass fibre mesh completely embedded in the primer. The whole surface was broadcast with QUARTZ O.5 while the primer was still fresh. A first coat of ULTRATOP LOFT F one-component coarse-textured cementitious paste was then applied,

OUT

DID YOU KNOW THAT..? Visitors can choose between two different tours accompanied by interesting characters with their own stories to tell. The **FORMER** retraces some of the **main scientific-technological innovations** that have affected the farm-food industry and its operations over the last 150 years.

THE LATTER takes a look at the various **scenarios and prospects for the future of food**, beginning with ordinary questions that experts from various different sectors will help us focus on.



SOME PICTURES OF THE EXHIBITION
Floors were laid with ULTRATOP LOFT cementitious system.

followed by a second coat of ULTRATOP LOFT W one-component fine-textured cementitious paste, both pigmented with ULTRATOP COLOR PASTE. The surface was then protected with MAPEFLOOR FINISH 52 W and MAPEFLOOR FINISH 58 W, transparent finishing products with a matt effect, to protect the floors and reduce absorption.

The same type of work was carried out in the area hosting a project from The Hague Science Museum (Holland), which for Expo 2015 has brought a large multi-media display covering the themes of the Universal Exhibition. Under the banner "Dutch Innovation Zone", this exhibition was also inaugurated on the 22nd of April and has a display of the prestigious role Holland has played in the fields of scientific research, revolutionary innovation and international cooperation.

MAPEI AND THE NATIONAL MUSEUM OF SCIENCE AND TECHNOLOGY

The relationship which has tied Mapei and the National Museum of Science and Technology for so many years continues. In fact, in 2009, Mapei, together with the Group's subsidiary Vinavil, sponsored and was actively involved in the creation of the new Adhesives Area.

In 2011 the company made their contribution as technical partner for the new resin flooring in the Basic Chemical Manufacturing section and the Energy and Materials areas. In 2012 Mapei played an active part in repair work on the floors and walls in the Energy System exhibition section and in the Energy & Environment i.lab section. In 2013 the company also took part in the opening of the new Steel interactive area and the Materials interactive laboratory.



MUSEO NAZIONALE DELLA SCIENZA E DELLA TECNOLOGIA LEONARDO DA VINCI

TECHNICAL DATA

Leonardo da Vinci National Museum of Science and Technology, Milan, (Italy)

Year of the Intervention: 2015

Intervention by Mapei: supplying products for renovating floors with a cementitious system

Client: Leonardo da Vinci National Museum of Science and Technology

Laying Company: Pavimenti Speciali Srl

Mapei Co-ordinators: Alberto Arosio and Massimo Seregni, Mapei SpA (Italy)

MAPEI PRODUCTS

Mapefloor I 900, Quartz 1.9, Quartz 0.5, Primer SN, Mapenet 150, Ultratop Loft F, Ultratop Loft W, Ultratop Color Paste, Mapefloor Finish 52 W, Mapefloor Finish 58 W.

THE MYSTERIOUS BATHS GET A FACELIFT





MAPEI TECHNOLOGY AND PRODUCTS FOR THE RENOVATION OF SCULPTURES BY GIORGIO DE CHIRICO IN THE GARDENS OF MILAN'S DESIGN MUSEUM

For the Expo event, an evocative piece of seascape – just what Milan needed – behind the Triennale Design Museum has been revamped: “The Mysterious Baths (Bagni Misteriosi)” are once again on view. Thanks also to the contribution of Mapei technology and products, renovation work has been completed on the sculpture donated to the city in 1973 by Giorgio De Chirico. Two swimmers, a swan, a ball, a cabin, a diving board and a large bath, with its bottom painted with waves, have been brought back to their original splendour to add a touch of beauty to the gardens surrounding the Palace of Art in Sempione Park.

After four months of site work, with the statues hidden from public view, the fountain's stone figures have been repainted in bright, acrylic colours, just as the artist desired. The water in the fountain, which had been missing for so many years, is now flowing again and helps keep the bath clean.

Let's not forget that the statues of the two swimmers are really copies of the originals. Because they are so fragile, they are now kept in the Museum of the Twentieth Century in Piazza Duomo and can be viewed from the access ramp to the collections in the museum.

Following an intervention in 1997, which was limited to just reassembling the sculptures and making them safe, further renovation work on the sculpture was completed in 2010, with Mapei again making a contribution.

The second cycle of work was required to restore the sculpture's colours, since the water colours used during the first intervention had not been adequately protected and had been damaged by the weather.

For the most recent intervention, following a request from the Head of the Triennale Design Museum renovation workshop, acrylic products that could resist the conditions outdoors were used. All the figures in the fountain were painted in the bright colours originally designed by the artist, mapped out by the Mapei Coatings Laboratory using spectrophotometric analysis.

MAPEI PRODUCTS

The actual renovation work consisted of making a new base screed from TOPCEM PRONTO ready-to-use, normal-setting, controlled-shrinkage mortar for quick-drying screeds.

The base of the statues was waterproofed with ADESILEX PG1 two-component, rapid-setting thixotropic adhesive. The baths' substrate was waterproofed and finished with TRIBLOCK FINISH three-component, epoxy-cementitious mortar, MAPECOAT I600 W two-component transparent epoxy primer in water dispersion and ELASTOCOLOR WATERPROOF waterproof, easy-to-clean acrylic paint for internal and external surfaces in permanent contact with water.

ELASTOCOLOR WATERPROOF was also used to finish the statues' surfaces. This product is ideal for painting indoor and outdoor structures where the substrate needs to be covered with a flexible protective coating suitable for direct contact with water.

TECHNICAL DATA

I Bagni Misteriosi (Mysterious Baths), Parco Sempione, Triennale Design Museum, Milan (Italy)

Artist: Giorgio de Chirico

Year of Creation: 1973

Intervention by Mapei: supplying products for preparing and waterproofing the substrates and for finishing the surfaces during the restoration works

Year of the Intervention: 2015

Client: Fondazione Triennale di Milano

Restoration Design: Barbara Ferriani

Contractor: Edil CMC

Mapei Co-ordinators: Francesco Stronati, Paolo Sala, Mirko Demichele, Gianluca Brichese, Francesco Di Chiara, Mapei SpA (Italy)

MAPEI PRODUCTS

Adesilex PG1, Eporip, Epojet, Topcem Pronto, Triblock Finish, Mapecoat I 600W, Elastocolor Waterproof

LET'S NOT WASTE OUR DAILY BRED

ETHICS, POLITICS AND FAITH TO ENSURE THE PLANET HAS
A FAIR AND SUSTAINABLE FUTURE

In this special issue devoted to Expo Milano 2015, we have tried to provide our readers with an overview of the event and how important Mapei's contribution has been - through its products and expert technicians - to the construction of the exhibition site for Expo. Continuing along these lines, we have widened our horizons to also include the new structures and infrastructures that are transforming and modernising Milan and its vast surroundings. Our aim, in a certain sense, was to "bring the invisible to light", everything which is no longer open to view once all the work has been completed: the presence of cutting-edge technology and products developed in the Mapei R&D Laboratories that have been employed to construct all the numerous works.

To conclude this great journey through the futuristic architectural designs of the pavilions and latest technology used to take on all the construction challenges, it would seem only right to think about the central theme of Expo 2015 - "Feeding the Planet, Energy for Life" - and about the idea of "having the right to food" and all its multiple implications. Giving concrete shape to this ethical-social pledge, the "Milan Charter" will be the real cultural legacy of Expo Milano 2015. For the first time in the history of World Expos, this great international event was preceded by extensive debate in the scientific world, civil society and institutions about the main theme of the event. This far-reaching and intensive process eventually led (by the Italian Government's will) to the writing of the Milan Charter: a document shared and participated in that calls on every member of society, associations, businesses and institutions to acknowledge their responsibility to guarantee that future generations will be able to enjoy the right to food and water.

Signing the Milan Charter is a great pledge on everybody's part: citizens, associations, businesses and institutions. It is a means of exercising your global citizenship to assert that the right to nutrition is a fundamental human right.

It is unacceptable - so the Milan Charter emphasises - that over two billion people are malnourished, while another two billion are either obese or overweight. It is unacceptable that 1.3 billion tonnes of food are wasted. The aim of feeding the entire world in a fair way along lines that are compatible with the survival of future generations is feasible.

Pope Francesco also referred to the "paradox of abundance" during his televised speech at the official opening of the World Expo 2015. A paradox that, in certain respects, even the Expo will fall in line with if "it conforms to a culture of waste and wastage and fails to contribute to a fair and sustainable model of growth".

The Holy Father's words were echoed by the President of the Italian Republic, Sergio Mattarella, when he stated that: "the aim of feeding the entire world in a fair way along lines that are compatible with the survival of future generations is feasible. Politics must create the conditions for achieving this. And the Expo could, indeed, trigger off a worldwide movement of public opinion and States. I really do believe that this is the best way to export peace and democracy. Anybody who thinks this can be achieved using weapons should think about the damage this has caused, including these momentous migrations that famine, wars, absolute poverty and hate are bringing about".

Pope Francesco expressed his wish that "the experience of Expo Milano 2015 will allow business people, traders and scholars to feel involved in a major solidarity project: feeding the planet while respecting every single man and woman who lives on it and also respecting the natural environment".

In full agreement with this line of thinking, Mapei is proud to be part of this historical event and, by sharing the Milan Charter's philosophy, it confirms its commitment to help guarantee a fair and more sustainable future for the planet.



EXPO'S LEGACY, THINKING ABOUT THE FUTURE

EVERY WORLD EXPO HAS LEFT ITS OWN PECULIAR LEGACY TO THE WORLD IN THE FORM OF A PROJECT, DISCOVERY, TECHNOLOGICAL INVENTION OR IDEA, WHICH, OVER SUBSEQUENT YEARS, HAVE REMINDED US ABOUT MAN'S CREATIVITY AND GREATNESS.

SO WHAT WILL EXPO MILANO 2015'S LEGACY BE?

MILAN EXPO 2015 WILL LEAVE BEHIND VARIOUS INTANGIBLE LEGACIES, EQUALLY CONTRIBUTED TO BY ALL THE NATIONS INVOLVED:

- ▶ KNOW-HOW DERIVING FROM A LONG PERIOD OF UNDERTAKINGS, MEETINGS AND SEMINARS AIMED AT OPENING UP NEW PROSPECTS AND REDUCING WASTE;
- ▶ THE EDUCATIONAL SIDE OF EVERY EXHIBITION, EVENT AND PERFORMANCE ORGANISED FOR THE PURPOSE OF ENCOURAGING SOCIETY TO MAKE RESPONSIBLE CHOICES IN TERMS OF THE PRODUCTION AND CONSUMPTION OF FOOD;
- ▶ ALL THE RESEARCH THAT HAS RESULTED IN THE INTERNATIONAL COMMUNITY QUESTIONING THE SUSTAINABILITY OF CERTAIN ECONOMIC, SOCIAL AND PRODUCTION MODELS ADOPTED;
- ▶ THE SPREAD OF KNOWLEDGE AND EDUCATION ABOUT ISSUES RELATED TO ENVIRONMENTAL SUSTAINABILITY.

THE FOCUS OF ATTENTION AT FORTHCOMING "UNIVERSAL EVENTS" WILL ALSO BE OF GLOBAL INTEREST.

SAVE
THE
DATE

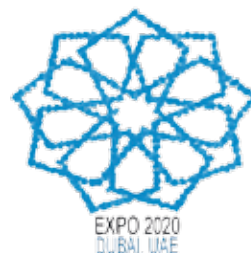
EXPO 2017

This International Exhibition (an intermediate event and not a World Expo) will be held in the Kazakh city of Astana during the period from 10th June to 10th September 2017. The theme chosen by the organisers will be "Future Energy" and will touch on topics related to the responsible and efficient generation of energy in the immediate future and interaction with the environment, with special reference to renewable energy sources.



EXPO 2020

The theme of the next World Expo will be "Connecting Minds, Creating the Future" and will coincide with the 50th anniversary of the founding of the United Arab Emirates, the Nation's Golden Jubilee.



These are two important events in which Mapei will once again play a key role through its products and technology.

Realtà Mapei International will, of course, be providing a full account of what goes on. Plenty of space and attention will be devoted to these events by a magazine, which, due to the number, quality and internationality of its readers, feels increasingly... "universal".


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