

A CITY

Positioned on a total surface area of 25,000 m², the multipurpose complex Babylon Centrum has already become a landmark in the Liberec region.

It's function does not end in merely commercial activity, but has become a social gathering place for the community.

WITHIN A CITY

Converting former industrial buildings into functional and architecturally pleasing infrastructures is an issue that concerns many city planners, especially in Europe. The reclaiming of abandoned manufacturing buildings in industrial areas is a recurrent problem. This is because companies, once part of the fabric of the city, have gradually moved to the outskirts of the urban center looking for larger, unencumbered areas with easier access to highways in order to facilitate transportation. The result is huge, neglected properties that often represent not only a challenge to architects, but also great opportunities to both private developers and local communities. Liberec is a town in the Czech Republic with an old weaving tradition, but the looms are now silent in all of the factories. One of these factories, the former Hevda, was transformed to accommodate the new Centrum Babylon, now a landmark of the region. In order to proceed with the project, the cooperation of the local government was necessary despite the dismal economic situation of the country. In turn, the city could develop thanks to the projected tourism boost fueled by such an investment. Indeed, Liberec has many attractions; most noted are its gardens, the local zoological garden (the oldest in Europe) and the botanical garden (now featuring several, rare plants). Both gardens have become symbols of the city. In addition, the geographic landscape with its mountains and the town's proximity to Poland and Germany are some of the reasons that led to the creation of Centrum Babylon. Situated not far from the city's downtown, Centrum Babylon is a multipurpose complex consisting of five



basic, yet large units taking up 25,000 m²: a covered shopping mall, dining facilities, funfair and sports facilities, an "Aqua park" and a hotel with a "Business Center" annex.

The multipurpose Centrum Babylon has become more than just a shopping mall, it is rather a gathering place where people can meet and socialize.

The complex design of the Centrum Babylon was carried out in the following stages.

The first stage

The first stage of the works commenced in the spring of 1998. The focus of construction concerned the shopping mall and part of the restaurant areas. That stage involved the repairing of 25,000 m² of the old sections; only the exterior walls of the old sections were left and some heavily damaged parts were replaced. The basement below, which spanned some 4,000 m² was cleared out and then renovated as all the existing floors had to be demolished and



replaced. Such an ambitious project could only be accomplished through the use of first-rate installation products. Right from the beginning, Mapei took part in the construction by supplying products for the floor and wall installation.

To adhere the ceramic tile on the cement-based screed, PRIMER G* was applied, a synthetic resin-based water dispersion primer, perfect for the treatment of surfaces prior to applying cement-based adhesives. Then, for the tile installation, a product that could guarantee a high adhesion and no meaningful shrinks was absolutely required owing to the treated surfaces.

That's why a KERABOND+ISOLASTIC* mixture was used in the ratio of 25 to 2. KERABOND* is a cement-based powder adhesive specifically designed for ceramic tiles, while ISOLASTIC is a flexible latex for cement-based adhesives. Another Mapei product, ULTRACOLOR, a fast setting grout, was chosen for the joints. Once the tiles were installed, the joints were brushed and cleaned of all residues and the grooves were filled with the mixture by means of a rubber float. The cycle included a final cleaning of the flooring, removing the layer of dust left by ULTRACOLOR with just a dry cloth. The same Mapei installation products were used for the wall tile as those used for the flooring, with one exception: KERACOLOR, a cement-based grout was used for the wall tile installation. The first stage of works and the main common areas were completed on November 1st, 1998.

The second stage

The second stage concerned the execution of the "restaurant unit". In this case, Mapei was also the partner of choice for the floors and wall tiling.

The same installation products used in the previous stage were supplied with one difference: the flooring in the areas with floor radiators required a higher ratio admixture of KERABOND+ISOLASTIC*.

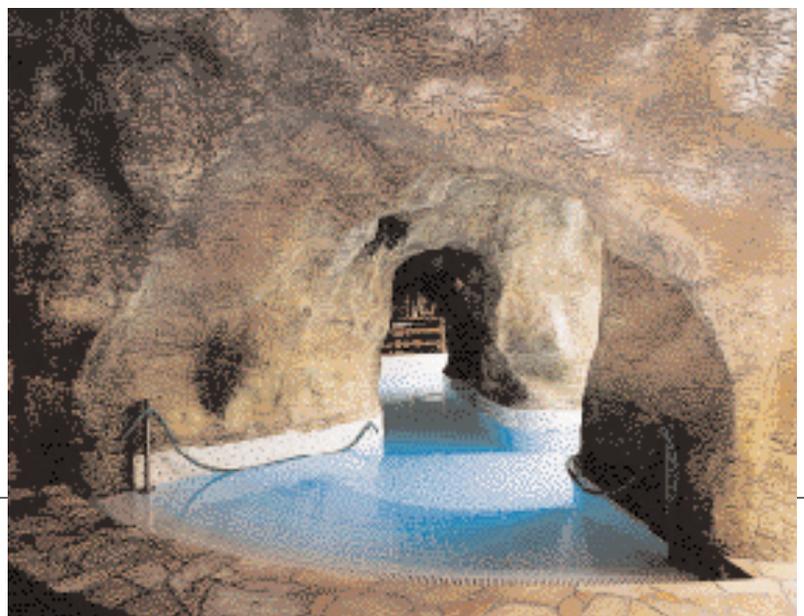
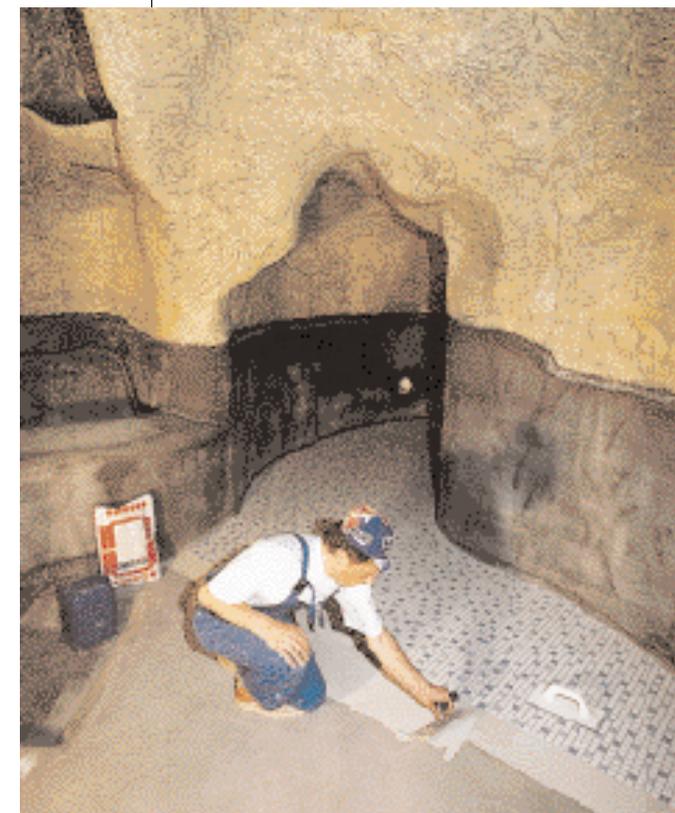
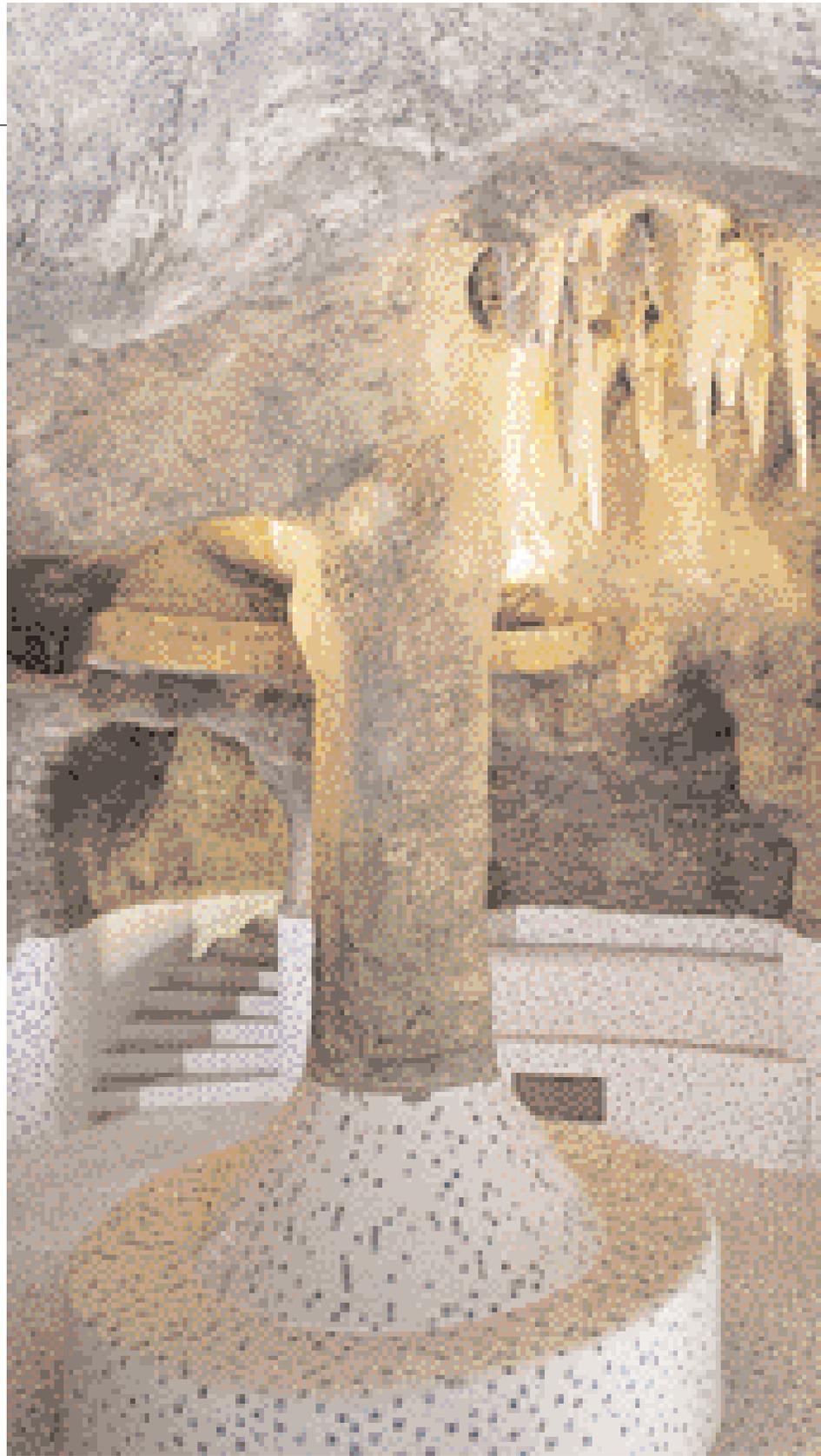
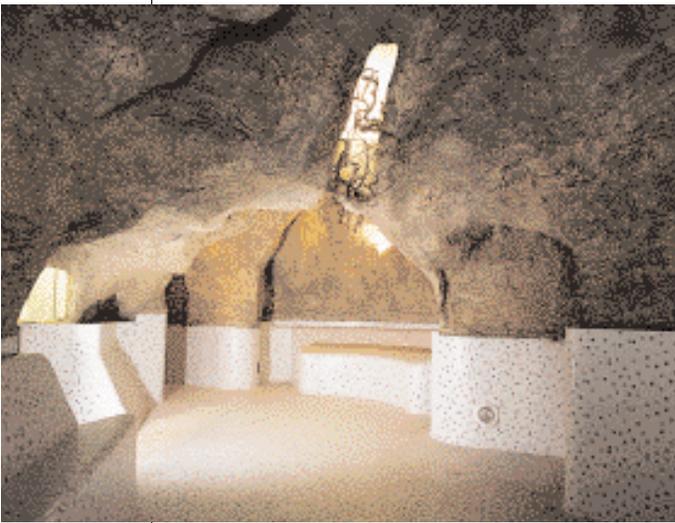
The renewal of the old 4,000 m² basement below was also quite difficult.

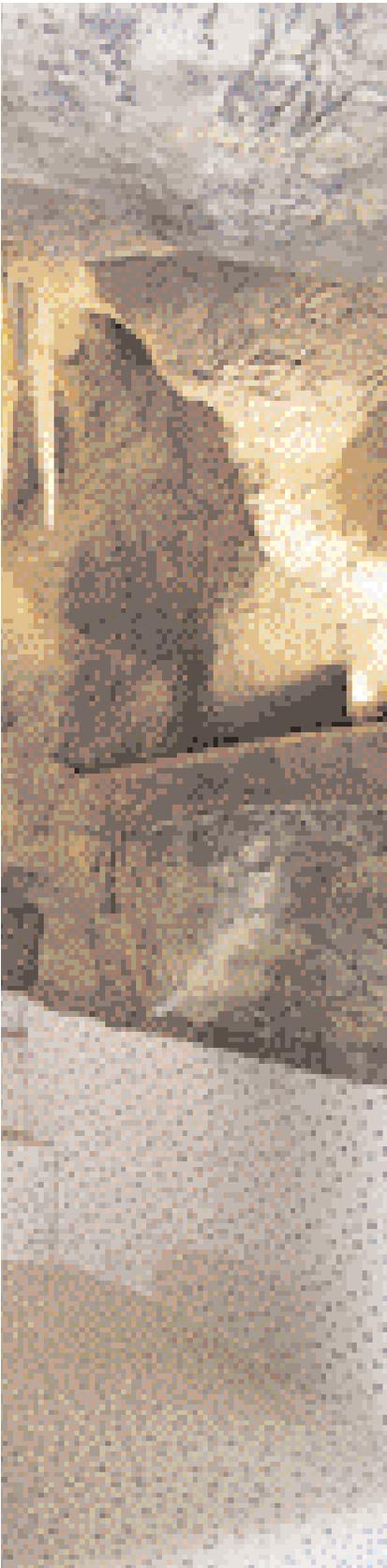
Here, to clean the stone pillars and remove the mortar and the residual binders, they made use of KERANET*, an acid-cleaner suitable for removing traces of cement and lime, as well as efflorescent salts. WALLGARD GRAFFITI REMOVER GEL*, a gel detergent used to remove

writings from all kinds of surfaces was also used.
This stage was completed in the second half of 1999.

The third stage

The third stage of the execution focused on the funfair. Here, too, as in the shopping mall, both the wall and floor tile installations made use of the same Mapei products. However, this part presented a specific problem, one that required the waterproofing of the staff bathrooms located right above the cellars without using membranes or sheaths outside the building mass. Mapei's solution was MAPEGUM WP*, a fast-drying flexible liquid membrane used as a waterproofing





and water-repellent adhesive that is totally solvent-free. Once it is laid and dried, MAPEGUM WP turns into a flexible and non-sticky waterproof sheath. Considered as the natural match for MAPEGUM WP*, MAPEBAND, a rubber tape for flexible sealing and waterproofing was used to seal some "difficult" places, like corners, expansion joints, water drains, etc. For the interior of the bowling hall, the floor installation was partly carried out with Cetris, a "reconstructed" wood for which KERALASTIC*, a two-component polyurethane adhesive mixed with FUGOLASTIC*, was used. This third stage was finished in December 1999.

The fourth stage

The fourth stage of execution consisted of the Aqua park, the most difficult one since it is one block in length. The Aqua park complex accommodates fitness rooms, solarium, massage areas, and restaurants. In short, it's a real relaxation center! The actual Aqua park consists of three connecting areas: the first one features several recreational facilities such as slides, mazes, children's swimming pools, etc. In the central area there is a large swimming pool with a hydro massage and fountains while in the third area the swimming pools are set in a system of communicating grottoes including sauna baths, massage areas, Turkish baths, etc. To carry out the fourth part of the Centrum Babylon, the existing rooms were demolished in order to build a large, central "atrium" and prepare for the planned grottoes. First, a large roof in reinforced concrete (about 600 m²) was built to set the grottoes around the swimming pools. This roof consisted of a steel lattice frame clad with gunite and sprayed with two or three layers of mortar. In order to improve its water resistance, IDROSILEX, a special integral

waterproofing component that helps to reduce the widespread porosity of the mortar was added to the cement-based mixture. A synthetic rubber latex, PLANICRETE*, was used to improve adhesion characteristics.

The rock relief was obtained by pressing some waxed paper into the top layer of mortar sprayed on the grottoes. As a final coat, MAPELASTIC*, a two-component cement mortar for concrete waterproofing, was applied to the sprayed mixture. The final color of the surfaces was obtained by means of several shades of ELASTOCOLOR*, partly sprayed and partly hand-applied by brush or roller. After completing the grottoes, the walls of the pools had to be leveled. Once the surfaces were cleaned and smoothed, they were treated with PRIMER G*, a synthetic-resin-based primer and a special mortar, NIVOPLAN, was used for the wall leveling.

NIVOPLAN*, combined with PLANITOP 100*, a fast-setting mortar, is most suitable for leveling horizontal and vertical concrete surfaces. The same leveling was carried out also for the flooring of the pools. The surfaces, primed with PRIMER G*, were leveled with ADESILEX P4*, a cement adhesive used to level uneven substrates. All the surfaces, both vertical and horizontal, were then treated again with PRIMER G* and, later, with a special water-repellent binder, MAPELASTIC* which was applied in two coats.

MAPELASTIC* was again used for the expansion joints, while MAPEBAND* was chosen for the waterproofing.

To check the quality of the work, a flood test was organized throughout the various development stages. After emptying out the pools, any small imperfections of the surfaces were leveled with NIVORAPID*, a fast-drying thixotropic leveling mortar, combined with the mixture LATEX PLUS*, a flexible latex especially designed to be used with NIVORAPID. Once these slight snags were solved, a ceramic mosaic was bonded on the bottom and walls of the swimming pools with KERABOND+ISOLASTIC*.

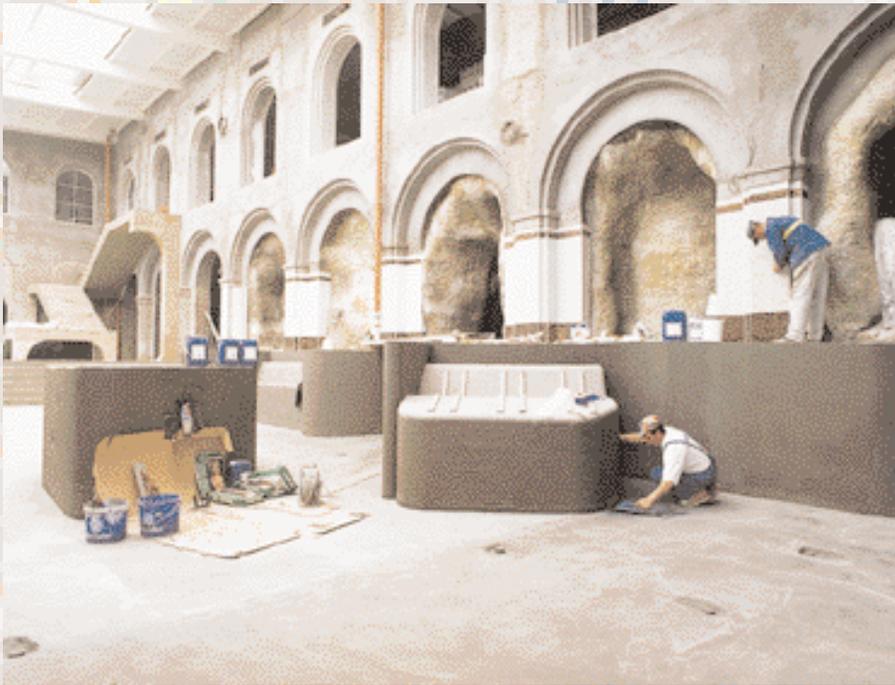
In this case, KERAPOXY*, a two-component epoxy grout, was chosen for the joints.

MAPESIL AC*, a single-component acetic silicone sealant was used for the sealing.

One of the many problems that had to be solved was the protection of the walls of the old sections from the considerable quantity of water found there. This was solved with ANTIPLUVIOL S*, a transparent siloxane, resin-based, water-repellent compound which is a ready-to-use product that doesn't need to be diluted and is easy to apply. In this part of the complex, the most important application stage was the waterproofing of the pools and rooms. For this purpose, plenty of AQUAFLEX*, a flexible, liquid waterproofing membrane was used.

The product is most suitable for the waterproofing of ceramic and natural stone floorings and was successfully applied in this area of the Centrum Babylon. After cleaning and preparing the substrate, the AQUAFLEX* coat was applied on the flooring and, once dry, it changed into a flexible and tenacious sheath that was ready for the tile or stone application. MAPEBAND* was used as the waterproofing system.

For the flooring of the paths round the pools and some relaxation rooms, installers opted for a special and valuable



Brazilian stone that is non-absorbent. The stone components were laid with GRANIRAPID*, a fast setting two-component system that is suitable for natural and artificial stones. The preparation procedures for this product are similar to those of other adhesives for tiles, but its use is recommended when needing to pave large surfaces quickly, especially if severe weather conditions are considered, as in this case. KERAPOXY* was used for the deep and uneven joints along the slabs. Again, the combination of KERABOND+ISOLASTIC* for the tiling and KERACOLOR+FUGOLASTIC* for the joints were chosen for the other Aqua park areas.

The final stage

The fifth and last stage of the project provided for a hotel with accommodation for 300 people and a Business Center annex. In these rooms, the ceramic tiling was carried out with the same Mapei products already used in the previous stages. In this particular case, KERABOND+ISOLASTIC was the installation system used along with KERACOLOR+FUGOLASTIC for the joints. KERALASTIC, a two-component polyurethane adhesive was also used in some penthouse suites and in the top floor terraces. Once applied and set, the mixture changes into a flexible film, that is shrink-free, waterproof, and assures perfect adhesion to tiles. For the waterproofing of the bathrooms, restaurants and common areas, MAPEGUM WP* was used combined with MAPEBAND, as described above. The entire Centrum Babylon was completed with the opening of the hotel in October 2000.





PROJECT DATA

Shopping mall (Stage 1):

Ceramic wall tiling: 450 m²
Ceramic flooring: 1,100 m²

Restaurants (Stage 2):

Ceramic wall tiling: 1,210 m²
Ceramic flooring: 4,600 m²

Funfair (Stage 3):

Ceramic wall tiling: 350 m²
Ceramic flooring: 2,150 m²

Aqua park (Stage 4):

Swimming pool ceramic tiling: 1,800 m²
Wall tiles - glass: 550 m²
Wall tiles - other: 2,300 m²
Floor tiles - routes (natural stone): 1,700 m²
Floor tiles - other: 2,500 m²
Water-repellent binders - pools: 1,800 m²
Water-repellent binders - other: 3,500 m²

Hotel and business center (Stage 5):

Ceramic wall tiling: 3,500 m²
Ceramic flooring: 2,000 m²
Water-repellent binders: 3,400 m²



TECHNICAL DATA

Centrum Babylon – Liberec (Czech Republic)

Project: conversion and structural upgrading of a former industrial center

Years of construction: Spring 1998/autumn 2000

Client: Centrum Babylon a.s. - Liberec

Project: Union Arch Liberec (architectural design), Sportprojekta s.r.o. - Brno (Aquapack); Sportakcent s.r.o. - Prague (Aqua park systems)

General Contractor: Sdružení Havax s.r.o. - Liberec

Material Supplier: Dorint s.r.o. - Liberec

Laying Contractor: Kodet s.r.o. - Kladno

Materials installed: ceramic tiles and mosaic, natural stone

Mapei products used: ADESILEX P4, ANTIPLUVIOL S, AQUAFLEX, ELASTOCOLOR, GRANIRAPID, IDROSILEX, KERABOND, KERABOND+ISOLASTIC, KERACOLOR, KERACOLOR+FUGOLASTIC, KERALASTIC, KERANET, KERAPOXY, LATEX PLUS, MAPEBAND, MAPEGUM WP, MAPELASTIC, MAPESIL AC, NIVOPLAN, NIVORAPID, PLANICRETE, PLANITOP 100, PRIMER G, ULTRACOLOR, WALLGARD GRAFFITI REMOVER GEL.

Mapei coordinator: Zdenek Runstuk

**The products mentioned in this article belong to the lines "Products for ceramic tiles and stone materials" and "Building specialty line". The technical data sheets are contained in the Mapei Global Infonet CD and in its Internet site www.mapei.com. Mapei adhesives and joints comply with EN 12004 and prEN 13888 standards.*

Adesilex P4 (C2F): rapid setting self back-buttering mortar with medium deformability for ceramic tiles

Antipluviol S: transparent siloxane resin-based water-repellent compound

Aquaflex System: flexible, waterproofing and anti-fracture liquid membrane

Elastocolor: protective and decorative elastic paint based on acrylic resins in water dispersion

Fugolastic: liquid polymeric additive for Keracolor FF and GG

Idrosilex: integral waterproofing for cementitious mortars

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

Kerabond (C1): cement-based powder adhesive for ceramic tiles (adhesive up to 5 mm thick)

Kerabond+Isolastic (C1): cement-based powder adhesive for ceramic tiles (adhesive up to 5 mm thick) added with flexible latex.

Keracolor FF (CG2): cement-based grout for up to 6 mm joints

Keracolor GG (CG2): cement-based grout for 4 to 15 mm joints

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

Keranet: acid-cleaner for ceramic tiling. Most suitable for removing efflorescent salts and the final cleaning of terracotta. Coming in powder (concentrated) or liquid (15% water solution)

Kerapoxy (RG): two-component, acid-resistant epoxy grout for min. 3 mm wide joints. Available in 26 colors

Latex Plus: elasticising admixture to be mixed with Keraquick for increased deformability and Nivorapid for improving deformability as well as adhesion on difficult surfaces

Mapeband: polyester reinforced rubber tape for flexible sealing and waterproofing of internal and external expansion joints

Mapegum WP: liquid elastic membrane for interior waterproofing

Mapelast: flexible, two-component cement mortar for waterproofing concrete, swimming pools and balconies

Mapesil AC: solvent-free, acetic-cross linking mildew-resistant silicone sealant available in 26 colors and transparent

Nivoplan: leveling mortar for 2 to 30 mm thick walls

Nivorapid: ultra-fast (4-6 hours) setting thixotropic cement-based leveling mortar for vertical surfaces, too, 1 to 20 mm thick

Planicrete: synthetic rubber latex for improving adhesion of cementitious mortars

Planitop 100: light grey and rapid-setting fine mortar for repairing and smoothing concrete and renders

Primer G: synthetic resin-based water dispersion primer low on volatile organic substances (VOC)

Ultracolor (CG2ArW): fast setting and drying grout for 2 to 20 mm joints, available in 26 colors; no efflorescence.

WallGard Graffiti Remover Gel: gel detergent for graffiti-damaged surfaces.

