



FUNCHAL CENTRUM

On the island of Madeira a new poly-functional centre is the hallmark of a city planning development

A 10 year long dream became reality in just thirty two months. We are talking about the works at the Funchal Centrum, which may be considered the renovation of an entire neighbourhood in the city of Funchal, capital of the Portuguese island of Madeira. The city planning development included a poly-functional area (commercial, residential and business) covering 45.000 m², a hotel and a car park with approximately 1,400 parking spaces, for a total investment of 125 million Euro.

And as the manager of the Funchal Centrum Antonio Henriques was only too keen to remind us: "In 1990 the idea of this project started with the purchase of the antique needlework house.

In 2000 we extended the area with the purchase of the Multiger building and the Madeirense de Tabacos company". The countdown for the project started in 2003 and the work was completed in 2007. Right from the design phase, the Funchal Centrum became the centre of the lives of all the inhabitants of the city and the island of Madeira, both for its central position and the novelty appeal of the complex itself and for the wide array of goods offered.

The city needed to be brought back to life, and to do so the inhabitants were given the chance of going back to living in a central urban area.

The area called Residence (which includes 150 apartments in various sizes) is right next to the shopping

center Dolce Vita Funchal, which comprises 70 shops. Trade in the area around the complex also reaped the benefits, thanks to the flow of new clients attracted to the supermarket, hotel, cinemas and health club and the easy parking.

The Importance of Good City Planning

The roads system was also improved. For example, a new roundabout was built to ease the flow of traffic entering the Centrum.

"The new complex will be one of those rare – and maybe last – chances of a project involving an entire block, at least so close to the ancient centre of a city", declared the designer, the

Spanish architect Ricardo Bofill, considered to be one of the most representative figures of the post-modernist movement in Europe.

"The homes, hotel and shopping centre will guarantee that it will be used uninterruptedly during the daytime, right up to the early hours of the morning, so as to avoid this area of the city becoming abandoned at a time when there is normally no life". Put simply, in the words of Ricardo Bofill, "the complex will bring added value to this part of the city, the Centrum will be the centre of Funchal".

The building itself has had a high architectural impact on the fabric of the city, and not only as a reference point for the visitors, but also as a work of contemporary architecture within the context of Funchal.

Being so closely located to the building which houses the national postal service, to the Citizen's Shop, the Courthouse, the Conservatory, various notary offices and the State Treasury, this complex, which is much more than just a commercial centre, represents a building which is complementary to the public services.

Mapei products joined the field right from the very start. In fact, the structure was located in an area below the



2

groundwater level and a large amount of waterproofing work had to be carried out.

In particular, the foundations were waterproofed with PLASTIMUL bituminous emulsion waterproofer, which once dry forms a flexible layer resistant to water, and LAMPOSILEX ultra fast setting and drying hydraulic binder for plugging any source of water, even under pressure.

Structural Interventions

Mapei products were also recommended and employed for the structural work. To repair the concrete, the first step was to clean and protect the reinforcement rods with MAPEFER corrosion-inhibiting cementitious mortar. The damaged areas of the concrete

Photo 1. An external view of the Funchal Centrum which is comprised of three main hubs (commercial, residential and business), a hotel and a large car-park.

Photo 2. The marble laid on the kitchen floors was bonded using KERABOND+ISOLASTIC and the joints were sealed with ULTRACOLOR PLUS.

Photo 3. An internal view of the Centrum.

were then repaired using MAPEGROUT THIXOTROPIC fibre-reinforced mortar and PLANITOP 100 rapid-setting fine mortar for smoothing concrete and renders.

For the structural strengthening of the building for the shopping centre, which had to be structurally stronger



3

IN THE SPOTLIGHT

KERABOND

It is a normal (1) cementitious (C) adhesive of class C1 according to EN 12004 standard. It has been awarded the **EMICODE EC1** ("very low emission level of volatile organic compounds") mark by GEV. It is a grey or



white powder composed of cement, fine-grade, synthetic resins and special additives formulated in the Mapei Research and Development Laboratories. KERABOND is ideal for indoor and outdoor bonding of ceramic tiles and mosaics of all types on floors, walls and ceilings as well as for spot bonding of insulating materials such as expanded polystyrene, expanded polyurethane, rock and glass wool, wood-cement and sound-deadening panels, etc. It has been awarded the **CE** mark in compliance with Annex ZA of **EN 12004** standard.

than had originally been calculated, MAPEGROUT HI-FLOW shrinkage-compensated, fibre-reinforced grout was proposed and was applied to implement the sections of the pillars, beams and floor slabs.

The Funchal Centrum car-park is on five storeys, all of them below ground level. Each floor has pre-cast concrete guttering around the entire perimeter of the building.

The elements were bonded in place with KERAQUICK high-performance adhesive mixed with LATEX PLUS instead of water to improve its elasticity, to meet the requirements for



4



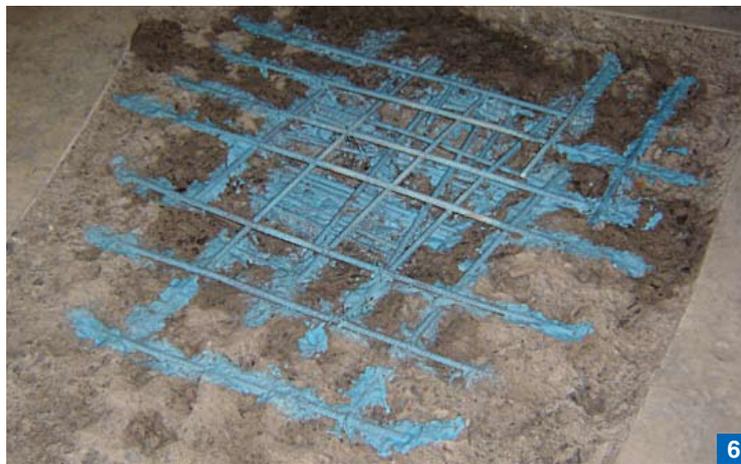
5

Photo 4. Large-sized porcelain tiles were laid on the walls using the KERABOND+ISOLASTIC system and grouted with ULTRACOLOR PLUS.

Photo 5. The bathroom surfaces in the apartments were waterproofed with MAPEGUM WPS.

Foto 6. The reinforcement rods were cleaned and protected with MAPEFER corrosion-inhibiting mortar.

Photos 7 and 8. MAPEGROUT HI-FLOW was used to increase the section of the pillars and the thickness of the floor slabs.



6



7



class S2 (highly deformable adhesive) according to EN 12004 standard.

The guttering was waterproofed with MAPELASTIC two-component flexible cementitious mortar for protecting concrete.

The lift surfaces were waterproofed using IDROSILEX PRONTO cementitious mortar, while KERALASTIC two-component polyurethane adhesive was recommended to bond the natural stone slabs on the metal plate floors in the lift cabins.

Laying in Different Environments

Within the Funchal Centrum there is a residential area (the Residence) which has 150 apartments in various sizes. Inside the apartments, MAPEGUM WPS flexible liquid membrane with a synthetic resin base in water dispersion was employed to waterproof the bathrooms.

Then, before laying the large-sized porcelain tiles and marble slabs, the parti-

tion walls were primed with PRIMER G. KERABOND mixed with ISOLASTIC instead of water was recommended to improve its characteristics up to the requirements of class C2ES2 (highly deformable, improved cementitious adhesive with extended open time) according to EN 12004 standard.

The joints were then grouted using ULTRACOLOR PLUS high-performance, fast-setting and drying polymer-modified mortar.

The marble floors in the kitchens were also laid with KERABOND+ISOLASTIC and grouted with ULTRACOLOR PLUS. The concrete thresholds were laid with KERALASTIC.



This article was taken by "Realtà Mapei Portugal", issue n.4, the in-house magazine published by Lusomapei, the Portuguese subsidiary of the Mapei Group, which we would like to thank.

TECHNICAL DATA

Funchal Centrum, Funchal, Madeira (Portugal)

Period of Construction: 2003-2007

Period of the Intervention: 2003-2007

Intervention by Mapei: supplying products and technical assistance for structural strengthening; for waterproofing the foundations, the lift areas, the bathrooms surfaces; for laying porcelain tiles and slabs and grouting joints in the bathrooms, kitchens and lift cabin

Designer: Ricardo Bofill

Works Director: Afonso Arriaga (Concreto Plano)

Contractor and Laying Company: Concreto Plano

Laid Materials: porcelain tiles, marble slabs and natural stone slabs.

Mapei Distributor: Flagame

Mapei Co-ordinator: Mário Jordao, Lusomapei (Portugal)

Mapei Products: the products mentioned in this article belong to the "Building Speciality Line" and "Products for Ceramic Tiles and Stone Materials" ranges. The technical data sheets are available at the web site: www.mapei.com.

Mapei adhesives for ceramics and stone materials conform to EN 12004 and have been awarded the CE mark in compliance with Annex ZA, standard EN 12004. Mapei grouts for ceramics and stone materials conform to EN 13888.

Almost all the Mapei products for laying floors and walls have been awarded the EMICODE EC1 ("very low emission level of volatile organic compounds") mark by GEV.

Mapei products for the protection and repair of concrete surfaces and structures have been awarded the CE mark in compliance with EN 1504 standards. Mapei levelling and smoothing compounds and pre-blended mortars for screeds conform to EN 13813 standard and have been awarded the CE mark in compliance with annex ZA, standard EN 13813.

Idrosilex Pronto (CE EN 1504-2, coating (c), principles PI, MC and IR): cementitious mortar for waterproofing underground masonry and for structures containing also drinking water.

Isolastic: flexible latex additive to be mixed with Kerabond, Kerabond T, Kerafloor and Adesilex P10.

Kerabond (C1, EC1 R, CE EN 12004): cementitious adhesive for ceramic tiles.

Keralastic (R2, CE EN 12004): high performance two-component polyurethane adhesive for ceramic tiles and stone material.

Keraquick (C2FTS1 becomes S2 if mixed with

Latex Plus, EC1, CE EN 12004): high performance, deformable, rapid-setting cementitious adhesive with no vertical slip for moisture stable ceramic tiles and stone material.

Lamosilex: ultra fast setting and drying hydraulic binder for plugging water leaks.

Latex Plus: latex admixture inducing elasticity to be mixed with Keraquick.

Mapefer: two-component corrosion-inhibiting cementitious mortar for reinforcing rods.

Mapelastic: (CE EN 1504-2, coating (c), principles PI, MC and IR): two-component flexible cementitious mortar for waterproofing balconies, terraces and bathrooms.

Mapegrout Hi-Flow (CE EN 1504-3): shrinkage-compensated fibre-reinforced grout for concrete repair.

Mapegrout Thixotropic (CE EN 1504-3): shrinkage-compensated fibre-reinforced thixotropic mortar for the repair of concrete.

Mapegum WPS: flexible, liquid membrane for waterproofing bathrooms and internal shower booths.

Planitop 100 (CE EN 1504-2, coating (c), principles PI, MC and IR): light grey, rapid setting, fine mortar for repairing and smoothing concrete and renders.

Plastimul: bituminous emulsion waterproofer and adhesive.

Primer G (EC1): synthetic-resin-based water dispersion primer with very low VOC content.

Ultracolor Plus (CG2, EC1): fast-setting and drying, high performance, anti-efflorescence, water-repellent polymer-modified grout for joints from 2 to 20 mm. With DropEffect® and anti-mould with BioBlock® technology.

