

One Central Macau

One more luxury multifunctional complex was completed in Macau with Mapei products

The Macau Special Administration Region is located at the mouth of the Pearl River and facing the South China Sea in the east and west. Bordering on the Chinese province of Guangdong, it is 60 km southwest of Hong Kong and 145 km from Guangzhou. Today, it has a land area of 29.5 km² and an estimated population of 542,200.

This small area of land was under Portuguese rule from the beginning of the 16th century until December 1999, when Macau was handed back over to the People's Republic of China.

A Top-Level Multifunctional Complex

Macau is being praised as the "Las Vegas of China", due to its numerous entertainment facilities. It had been heightened with remarkable and spectacular building developments. One of the latest landmarks is the mixed-use development project One Central Macau.

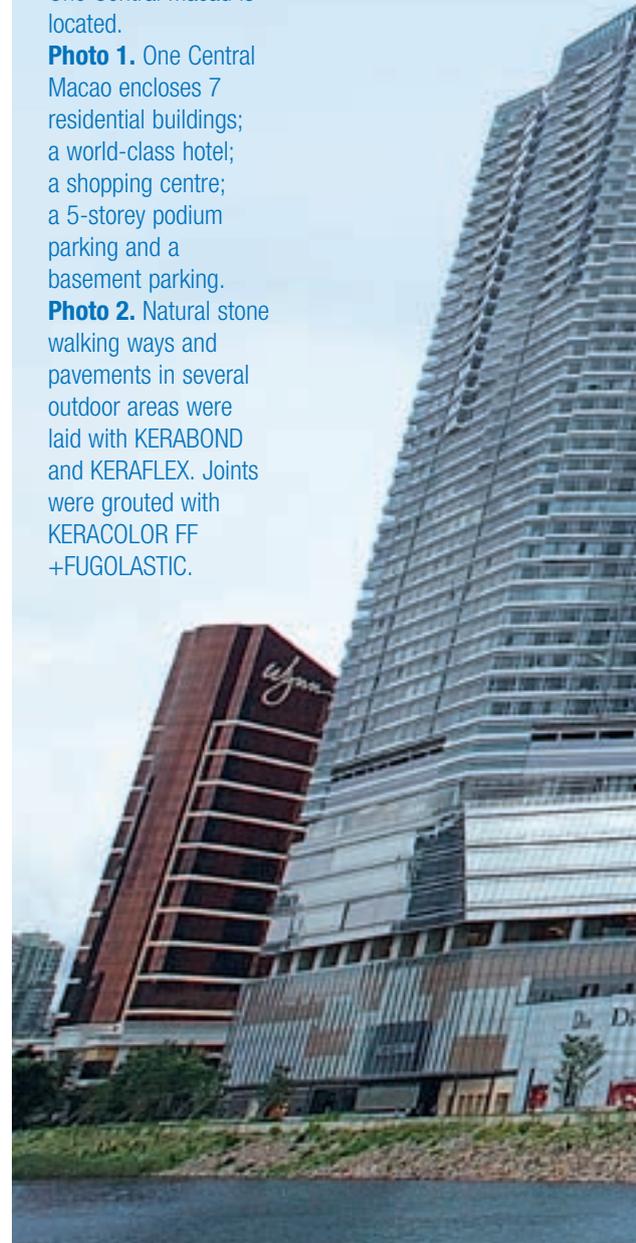
Located at Nape District, the heart of Macau Peninsula, it offers unparalleled panoramic sea-view. One Central Macau covers a total of 262,000 m² ground floor area with a construction cost of over 376.6 million Euros.



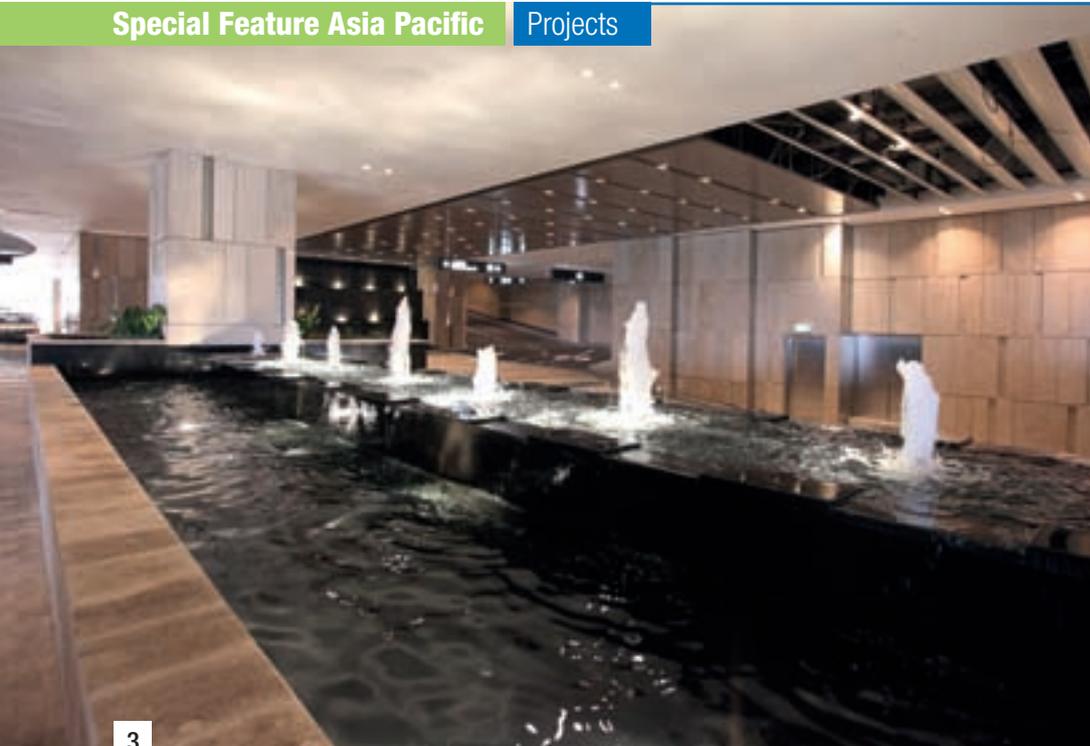
Above. Macau faces the South China Sea in the east and west, bordering on the Chinese province of Guangdong. Beside the islands of Taipa and Coloane, it encloses the Macau Peninsula, where the new complex One Central Macau is located.

Photo 1. One Central Macao encloses 7 residential buildings; a world-class hotel; a shopping centre; a 5-storey podium parking and a basement parking.

Photo 2. Natural stone walking ways and pavements in several outdoor areas were laid with KERABOND and KERAFLEX. Joints were grouted with KERACOLOR FF +FUGOLASTIC.







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This project combines exclusive residences and serviced apartments in 7 buildings; a world-class hotel managed by The Mandarin Oriental Hotel Group; a 5-level club house hosting swimming pools, gardens and playgrounds for children; a 3-storey retail shopping mall complex with the world's leading luxury brands; a 5-storey podium parking; a 2-storey basement parking.

Mapei's Contribution

The developers aimed at offering a first-class and urban luxury lifestyle experience for the residents in One Central Macau. To

fulfill such aspiration, the complex had been planned and designed by world class companies in the industry such as Kohn Pedersen Fox Associates PC.

For the construction, only materials with high-quality and reliability were selected. The reputation of Mapei's products matched both requirements completely. Indeed, thanks to its Hong Kong subsidiary (Mapei China Ltd), Mapei had already gained a reputation in the local building industry and had already supplied products and technical assistance in prestigious projects such as the construction of Ocean Park, the new local

IN THE SPOTLIGHT

KERACOLOR GG

It is an improved (2) cementitious (C) grout (G) for joints of class CG2 complying with standard EN 13888. It is ideal for grouting interior and exterior floors and walls in all types of ceramic tiles (single fired, double fired, klinker, porcelain tiles, etc.), terracotta, facebrick and stone material (natural stone, marble, granite, agglomerates, etc.).



KERACOLOR GG is a mixture of cement, graded aggregates, synthetic resins, special additives and pigments. The following features are obtained when mixed with the right water ratio and used correctly: good compressive and flexural strength; good resistance to freeze/thaw cycles; good durability; good abrasion resistance; low shrinkage, good resistance to acids with pH > 3.

It can contribute up to 3 points to obtain the LEED (Leadership in Energy and Environmental Design) certification.

Photo 3.

TOPCEM PRONTO, NIVOPLAN+ PLANICRETE, MAPELASTIC, FIBREGLASS MESH (N.B. This product was superseded on several markets by MAPENET 150), MAPEBAND, KERACRETE+ KERACRETE POWDER, KERAPOXY, PULICOL and MAPESIL AC were used in the fountains and water features.

Photos 4, 5 and 6.

After preparing the substrates with TOPCEM PRONTO and NIVOPLAN+ PLANICRETE, the surfaces in the swimming pools were waterproofed with MAPELASTIC strengthened with FIBREGLASS MESH, and MAPEBAND tape for the corners; KERACRETE+ KERACRETE POWDER adhesive system was used to lay the ceramic mosaics while joints were grouted with KERAPOXY.



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branch of Barclays Bank, as well as the Venetian Macau (see *Realtà Mapei International* n. 26) and the City of Dreams (see *Realtà Mapei International* n. 32) resorts and the Four Seasons hotel.

Mapei's waterproofing systems, ceramic and stone installation tiling systems, rendering and floor screeding solutions and other complementary products were adopted for different applications in this project which began in mid 2007 and were completed in January 2010.

Laying Stone Materials in Outdoor Areas

External areas of One Central Macau enclose a podium, covered walkways, landscape walk-

ways, a relaxation fountain court, a seating area at the club house and a residential garden. Marble and other natural stones slabs of different sizes (300 x 300 x 15 mm, 300 x 600 x 15 mm) were laid on the walkways and floorings with KERABOND and KERAFLEX cementitious adhesives, while KERACOLOR FF pre-blended, high-performance, polymer-modified cementitious mortar with water-repellent DropEffect® technology was used for grouting the joints. After laying and grouting, KERANET acid-based cleaning solution was used to clean the surfaces.

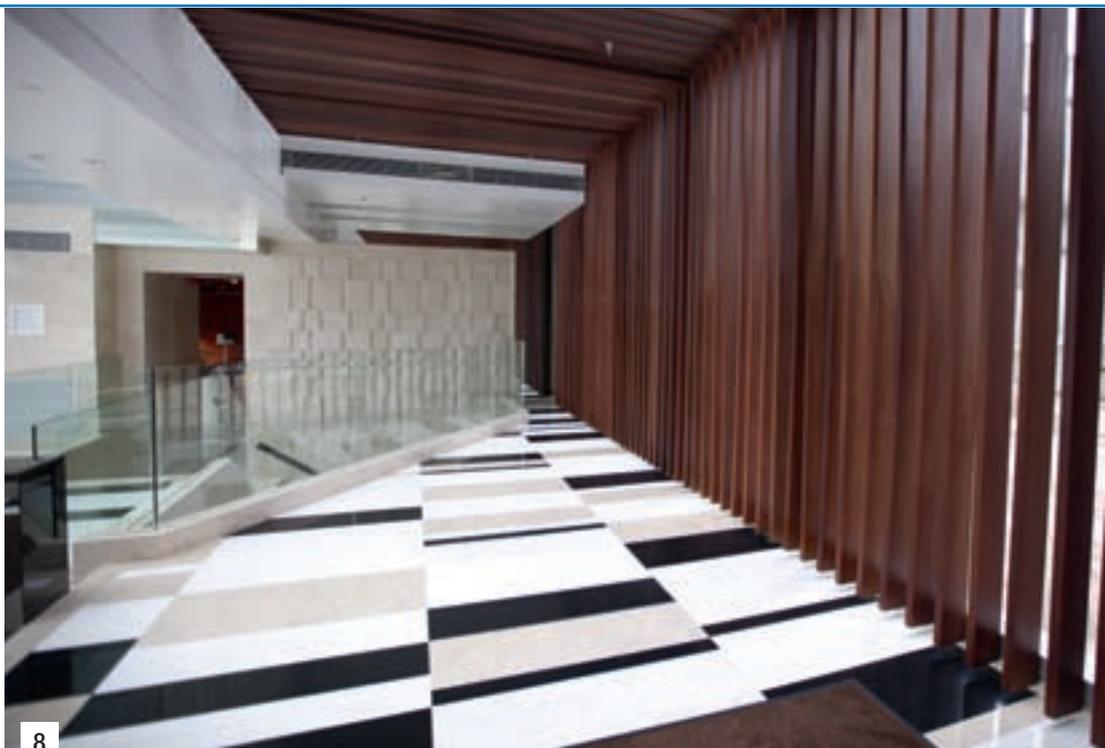


Photo 7. In the club house lobby and on the terraces of residential apartments porcelain tiles and natural stone slabs were laid on walls and floors with KERABOND, KERAFLEX and KERAFLEX MAXI (N.B. the latter was superseded on several markets by KERAFLEX MAXI S1). KERACOLOR FF, KERACOLOR GG and KERACOLOR SF, mixed with FUGOLASTIC, were used to grout the joints.

Treating Substrates and Laying Ceramics in the Water Features and Fountains

Mapei solutions were also used in the fountains and water display at podium and drive way area, as well as in the water display at the residential tower lobbies and in the water cascades at the gardens of the club house and residential gardens. For building the screeds TOPCEM PRONTO ready-to-use, controlled-shrinkage mortar was used, while NIVOPLAN smoothing mortar, mixed with PLANICRETE synthetic latex rubber, was used to level the substrates.

MAPELASTIC two-component, flexible cementitious mortar, strengthened with FIBREGLASS MESH (N.B. this product has been superseded on several markets by MAPENET 150), and MAPEBAND (used as both alkali-resistant rubber tape and as sealing gaskets)



were used to waterproof the surfaces.

KERACRETE+KERACRETE POWDER adhesive system was used to bond 600 x 600 x 15 mm stone slabs in the fountains and water features. Joints were grouted with KERAPOXY high-performance, anti-acid epoxy mortar. PULICOL (N.B the product has been superseded in several markets by PULICOL 2000) solvent gel was used for removing adhesive and grout residues from the laid surfaces.

Expansion joints were sealed with MAPESIL AC pure, anti-mould, acetic silicone sealant.

Waterproofing and Laying Ceramics in the Swimming Pools

The above-mentioned products (TOPCEM PRONTO, NIVOPLAN+PLANICRETE, MAPELASTIC+FIBREGLASS MESH, MAPEBAND, KERACRETE +KERACRETE POWDER,

KERAPOXY, PULICOL and MAPESIL AC) used for the water features were also supplied for preparing the substrates, waterproofing the surfaces, laying marble, natural stones and mosaics in the swimming pools located in the club house (a 50 m infinity pool, some indoor and outdoor Jacuzzi pools, some indoor & outdoor kid's pools, a padding/foot message pool) as well as for the private pools located at the top of some residential units.

Laying Ceramic Floor and Wall Coverings in the Apartments and in the Club House

45 x 95 x 8 mm ceramic tiles and 300 x 600 x 15 mm marble and natural stone slabs were laid on floors and walls in the club house lobby, on the external façade, in the kitchen and bathrooms, in the residential tower lobbies, on stairs, in service rooms, lifts, terraces, kitchens and bathrooms.

IN THE SPOTLIGHT

KERAFLEX MAXI S1

It is a deformable (S1), improved (2) slip resistant (T) cementitious adhesive (C) with extended open time (E) of class C2TE S1 according to EN 12004 standard. It is particularly suitable for interior and exterior bonding, up to 15 mm thick, on floor of ceramic tiles of every type and size on uneven substrates and renders; of stone materials, provided that they are not sensitive to moisture; for spot bonding of insulating materials in interior etc. Its Low Dust

technology allows the amount of dust emitted while mixing to be drastically reduced compared with standard cementitious Mapei adhesives, making the work area more comfortable and healthy for floor layers.

It features low viscosity, it is easily workable; it is highly thixotropic and can be applied on a vertical surface without sagging or letting even heavy and large tiles slip. It ensures perfect adherence to all materials normally used in building. It has a particularly extended open and adjustability time.

It can contribute up to **3 points** to obtain the **LEED** (Leadership in Energy and Environmental Design) certification.





In the shopping mall numerous ceramic floorings were laid with KERAFLEX+ PLANICRETE SP.

For bonding these surfaces KERABOND, KERAFLEX and KERAFLEX MAXI (N.B. the latter was superseded on several markets by KERAFLEX MAXI S1) adhesives were used while joints were grouted with KERACOLOR FF, KERACOLOR GG and KERACOLOR SF cementitious grouts, mixed again with FUGOLASTIC.

300 x 300 x 8 mm porcelain tiles and 300 x 600 x 15 mm natural stone slabs were laid on floors and walls in the shopping mall and in some famous brand name shops, in the washrooms, in the toilettes and service areas, as well as in the corridors and walking areas.

The adhesive chosen for this application was KERAFLEX, mixed with PLANICRETE SP.

This latex formula was specially developed and is distributed on Far East markets by Mapei Far East, the Singaporean subsidiary of the Mapei Group. 

TECHNICAL DATA

One Central Macau, Macau (People's Republic of China)
Designers: Wong & Tung International Ltd., Kohn Pedersen Fox Associates PC
Period of Construction: 2006-2010

Period of the Intervention: mid 2007 – January 2010
Intervention by Mapei: supplying products for waterproofing and treating substrates, laying ceramic and natural stone wall and floor coverings in several residential buildings,

external areas, in the club house and in the shopping mall
Client: Hong Kong Land Ltd., Shun Tak Holdings Ltd.
Contractor: Hip Hing Engineering (Macau) Co. Ltd.; iTop Construction Material & Engineering Co. Ltd.
Laying Company: Masterpoint, Yearfull, Sun Yu Chau, San Yiu Cheong
Laid Materials: marble, natural stones, ceramic tiles
Mapei Coordinators: Roger Kwan, Mapei China Ltd. (Hong Kong, PRC)

MAPEI PRODUCTS

The products mentioned in the article belong to the "Products for Ceramic Tiles and Stone Materials" and "Products for the Installation of Wooden Floors" ranges. The technical data sheets are available at the web site: www.mapei.com.

Mapei's 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 are also GEV-certified and have been awarded the EMICODE EC1 ("very low emission level of volatile organic compounds") mark by GEV. Mapei mortars for renders have been awarded the CE mark in compliance with EN 998. Mapei products for repairing and protecting concrete structures comply with EN 1504 standards. Mapei cementitious mortars and membranes used for waterproofing before installing ceramics comply with EN 14891 standard. Mapei sealants conform to ISO 11600 standard.

More than 150 Mapei products can contribute to obtain the LEED (Leadership in Energy and Environmental Design) certification.

Preparing the substrates and waterproofing

Fibreglass Mesh: alkali-resistant glass fibre mesh for reinforcing protective waterproofing layers, anti-fracture membranes and thermal insulation systems. N.B The product has been superseded in several markets by MAPENET 150.

Mapeband: alkali-resistant rubber tape with felt for cementitious waterproofing systems and liquid sheaths.

Mapelastix (CE EN 1504-2, coating (C), principles PI, MC and IR; EN 14891): two-component, flexible cementitious mortar for protecting and waterproofing concrete surfaces, balconies, terraces, bathrooms and swimming pools.

Nivoplan (CE EN 998-1, type GP, cat. CS IV): smoothing mortar for internal and external walls and ceilings for thicknesses from 2 to 30 mm.

Planicrete: synthetic latex rubber to improve adhesion and strength of cementitious mortars.

Topcem Pronto (CE EN 13813, CT-C30-F6 A1_m, EC1 R Plus): ready-to-use, normal-setting, controlled-shrinkage mortar for quick-drying (4 days) screeds.

Laying ceramic and stone material

Fugolastic: polymer liquid admixture for Keracolor FF, Keracolor GG and Keracolor SF.

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

Keracolor FF (CG2 WA, EC1 R Plus): pre-blended, high-performance, polymer-modified cementitious mortar with water-repellent DropEffect® technology for grouting joints up to 6 mm wide.

Keracolor GG (CG2 WA, EC1 R Plus): pre-blended, high-performance polymer-modified cementitious mortar for grouting joints 4 to 15 mm wide.

Keracolor SF (CG2 WA, EC1 R Plus): fine-grained, high-performance white cementitious mortar for grouting joints up to 4 mm wide.

Keracrete+Keracrete Powder (CE EN 12004, C2T, EC1 R Plus): two component adhesive system made of a ready to use mixture of sand and cement and a latex. This mixture forms a high-performance adhesive with no vertical slip and is suitable for ceramic tiles, glass mosaic and stone material.

Keraflex (CE EN 12004, C2TE, EC1 R Plus): high-performance cementitious adhesive with no vertical slip and extended open time for ceramic and stone tiles.

Keraflex Maxi (CE EN 12004, C2TE S1): high-performance deformable cementitious adhesive with no vertical slip, extended open time for ceramic tiles, particularly recommended for laying large porcelain and natural stone tiles.

N.B. The product was superseded on several markets by KERAFLEX MAXI S1.

Keranet: acid-based cleaning solution for ceramic tiles.

Kerapoxy (CE EN 12004, R2T, RG): two-component, high-performance, anti-acid epoxy mortar and adhesive with no vertical slip for laying and grouting ceramic tiles and stone material.

Mapesil AC (F-25-LM): pure, anti-mould, acetic silicone sealant for movements up to 25%.

Planicrete SP: synthetic latex rubber to improve adhesion and strength of cementitious mortar. N.B. This product was specially developed and is distributed on Far East markets by Mapei Far East.

Pulicol: solvent gel was used for removing adhesive and paint residuals from the laid surfaces. N.B. The product has been superseded in several markets by PULICOL 2000.