

TOWERING ACHIEVEMENTS IN THE GOLDEN TRIANGLE

The Petronas Twin Towers and the Suria KLCC shopping centre are spectacular new landmarks in the Kuala Lumpur cityscape
by Felix Quek

The Kuala Lumpur City Centre (KLCC) project is Malaysia's most ambitious undertaking to date, a spectacular showcase for this progressive country of 25 million. The rest of the world will agree that Malaysia is moving in the right direction as it enters the new millennium: upward!

The 100-acre KLCC project is located in the Golden Triangle, the pulsating heart of the nation's capital, and its centrepiece is Malaysia's stairway to the skies, the Petronas Twin Towers: at 452 metres, the tallest in the world.

Visible from miles away, the shimmering spires have filled Malaysians with the sense of pride that New Yorkers feel for the Statue of Liberty, or Parisians for the Eiffel Tower.

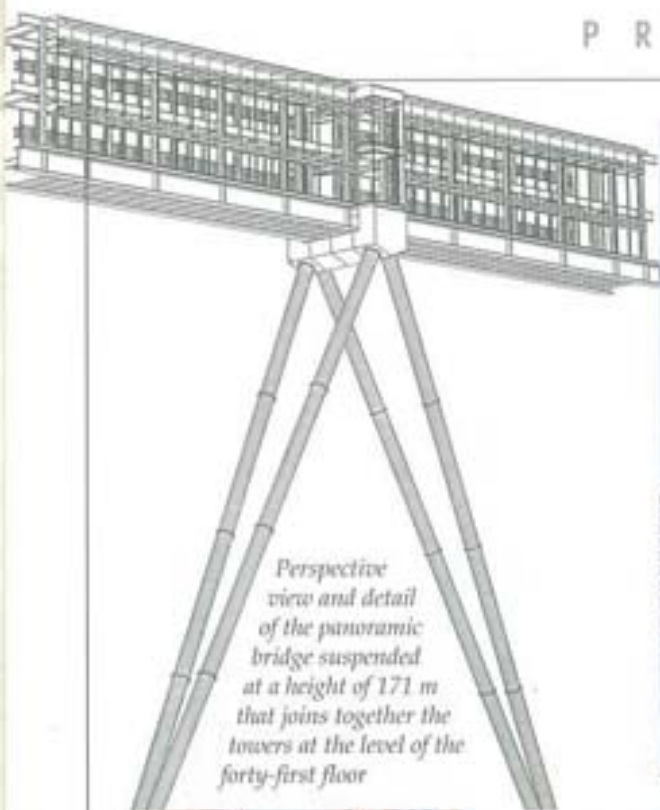
The complex technical aspects of the project made it without a doubt Mapei's biggest challenge in Asia so far.

The Petronas Twin Towers

Mapei's innovative products were essential for the completion of the soaring towers, where the movement of the structure had to be carefully compensated for. Immediately on entering the building one finds Mapei products underfoot in the granite flooring of the lift lobby. Mapei's revolutionary materials were used to install granite in all of the 170 lift lobbies of the towers on a total surface area of more than 4,500 square metres. Due to the nature of the building, the screeds were fortified with PLANICRETE 50, a synthetic rubber latex for greater adhesion, strength and resistance to moisture.

If a conventional system had been used, the flooring would not have been able to withstand the movements in the steel structure. Needless to say, PLANICRETE 50 perfectly satisfied the requirements. The 400 x 400 x 15 mm-granite slabs were then set with KERAFLOR Grey mixed with ISOLASTIC for added flexibility. The flooring was grouted with ULTRACOLOR for a high-quality colour-coordinated finish. Mapei products can do wonders under almost any conditions, whatever the specifications of a given project, but it is the technical support Mapei provides that makes it the brand of choice. During construction Mapei technical staff





Perspective view and detail of the panoramic bridge suspended at a height of 171 m that joins together the towers at the level of the forty-first floor



Below, drawing of the site plan and outline of the geometrical layout of the various tower levels inspired by the traditional design of Islamic arabesques; the square base represents the earth and the cardinal points and its overall intricacy mirrors the unfathomable nature of God



of flagship stores as well as international and regional newcomers that add variety to the shopping scene. Other attractions include theme restaurants and two spacious food courts to cater to the tastes of cosmopolitan



provided efficient on-site consultation regarding the best methods of installation. This close cooperation with the client is what makes Mapei unrivalled in its field.

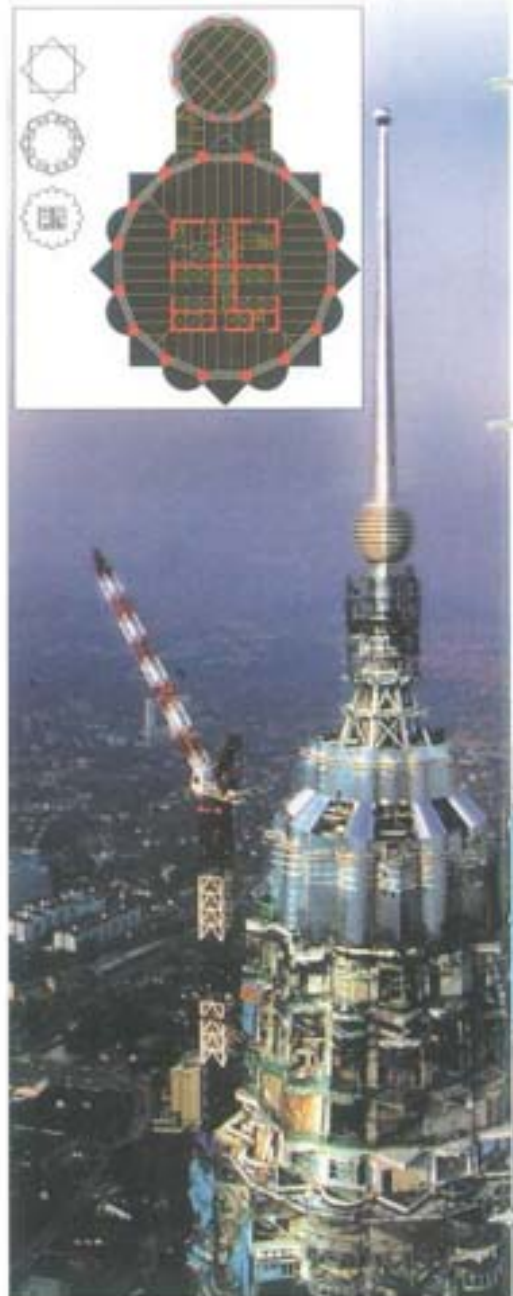
Suria, the light of the sun

The podium that anchors the Petronas Twin Towers houses the Suria KLCC shopping and entertainment complex, the like of which had never before been seen in Malaysia. The word Suria means "the light of the sun" in Bahasa Malaysia, and the Suria Centre is dazzling in its design, its size, and the quality of its tenants. A focal point for fashion, leisure and entertainment, the Suria KLCC rises on six levels above four levels of underground parking, covering a total area of 140,000 square metres, with 94,000 square metres of retail space. Suria KLCC features more than 250 specialty stores, including a large number

Kuala Lumpur, population currently 3 million and growing. For it to be truly awe-inspiring, the developers of the project knew that nothing could be left to chance and only the best would do. Mapei materials were selected to be used not only to install the flooring in the huge retail spaces but also for cladding the exterior of the Suria Centre. Mapei's winning combination of high-end products and technical know-how offered the sophisticated technical solutions that the Suria KLCC project called for.

Marble floors for the Suria KLCC Centre

To allow for the movement inherent in steel-frame buildings, the floors were

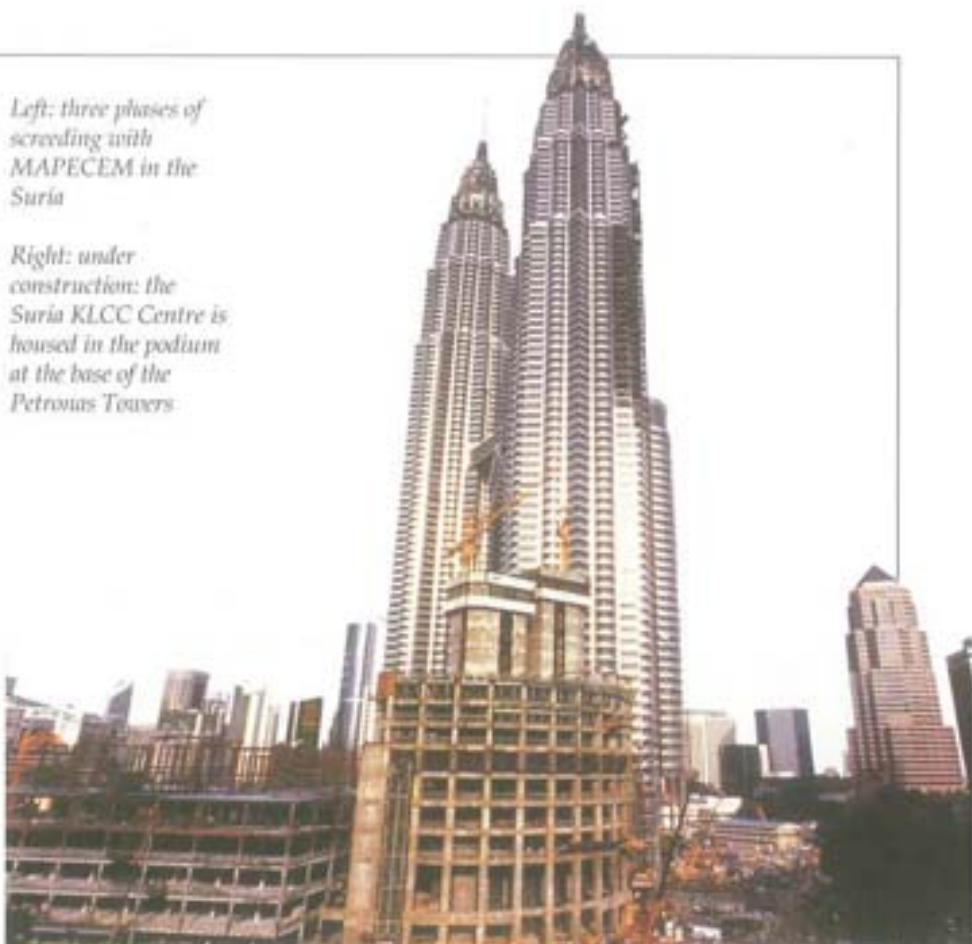




Left: three phases of screeding with MAPECEM in the Suria



Right: under construction: the Suria KLCC Centre is housed in the podium at the base of the Petronas Towers



designed with floating screeds formed over the structural concrete floor slabs.

MAPECEM special fast-setting hydraulic binder was used for the screeds, over which 20,000 square metres of marble slabs were installed with KERAFLOOR and ISOLASTIC, a flexible adhesive which allows for the movements of the building. The marble flooring was grouted with ULTRACOLOR rapid-setting and hardening cement-based grout.

It was a challenging task to make sure that the screeds could withstand the stress and movement of the building without cracks forming on such a large surface. Movement and expansion joints were sealed with MAPEFLEX PU21, an abrasion-resistant sealant for floors subject to heavy traffic and high movement. Mapei products were also used in the public bathrooms in the Suria KLCC. MAPELASTIC, a two-component flexible cement mortar was used to waterproof the concrete, and PLANICRETE 50 was used to prepare the 4,500 sq. metres of

screeds and renders. Homogeneous polished floor tiles were set with KERABOND and ISOLASTIC, which were also used to install homogeneous tiles on the walls. Grouting was done with KERACOLOR.

Cladding the exterior

The cladding of the Suria Centre has been Mapei's best work to date in Malaysia. The exterior wall tile installation not only had to withstand the building's movements, it also had to have sufficient adhesion and flexibility to absorb thermal shock. These requirements were met by using KERABOND and ISOLASTIC

flexible adhesive to bond more than 10,000 square metres of external cladding composed of factory-applied glazed ceramic tiles on precast concrete panels. With Mapei products to satisfy special construction requirements, the dream-like Petronas Twin Towers and the Suria KLCC project became a reality.

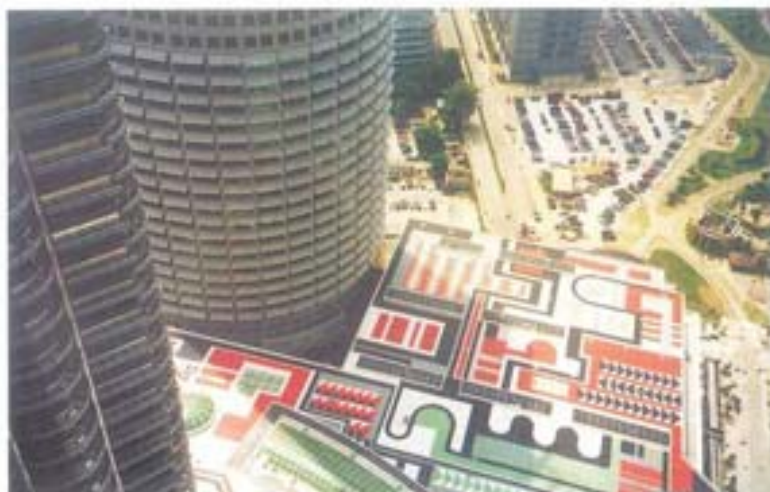
*Work in progress
Right: cladding the exterior of the Suria KLCC Centre (with detail)*





An international effort

Built as the headquarters of Petronas, the Malaysian state oil company, the Petronas Towers project was from the first an international effort. The American architect Cesar Pelli won the international competition for its design and contractors from many countries worked on various phases of its construction. Mapei's involvement, too, was international, with the combined contributions of material and personnel from Mapei (Malaysia) SDN BHD, Mapei Far East Pte Ltd., Singapore, Mapei Canada Inc. and Mapei S.p.A., Italy. Mapei is proud to be a part of these landmark achievements that are deservedly Malaysia's new pride and joy.



*Left, the finished product: the Suria's cladding completed
Above, the intricate roof design of the Suria KLCC Centre
Below, the soaring atrium of the Suria KLCC Centre*



*Riding high in the Petronas Towers:
left to right, Adriana Spazzoli, Felix Quek,
Giorgio Squinzi and David Ma,
Country Manager for Mapei (Malaysia Sdn Bhd)*



Felix Quek, left, with Louis Couillard of Mapei Inc. (Canada)



Left to right: Vittorio Rianno, Guido Trussardi and Luciano Trussardi from Mapei SpA (Italy)

CREDITS PROJECT:

Cesar Pelli & Associates

Associate Architect:

Adamson Associates

Architects of Record:

KLCC Berhad

Architectural Division

Structural Consultants:

Thornton-Tomasetti

Engineers, Ranhill

Bersekutu Sdn. Bhd

MEP Consultants:

Flack+Kurtz, KTA Tenaga

Sdn. Bhd.

Project Management

Consultant:

Lehrer McGovern

Malaysia

Tenant Interior

Consultant:

Studios

Landscape Design:

Balmori Associates

Curtain Wall Consultant:

Israel Berger &

Associates

Lighting Consultant:

Howard Brandston &

Partners

Vertical Transportation

Consultant:

Katz Drago Company

Exterior Maintenance

Consultant:

Lerch Bates & Associates

Security Consultant:

Techcord Consulting

Group

Life Safety Consultant:

Rolf Jensen & Associates

Acoustic and

Telecommunication:

Shen, Milsam & Wilke

Wind Tunnel Testing:

Rowan Williams Davies

and Irwin

General Contractors:

MMC Engineering &

Construction, HO Hup

Construction, Hazama

Corporation/JA Jones

Construction, Mitsubishi

Engineering &

Construction, Kukdong

Engineering &

Construction, Syarikat

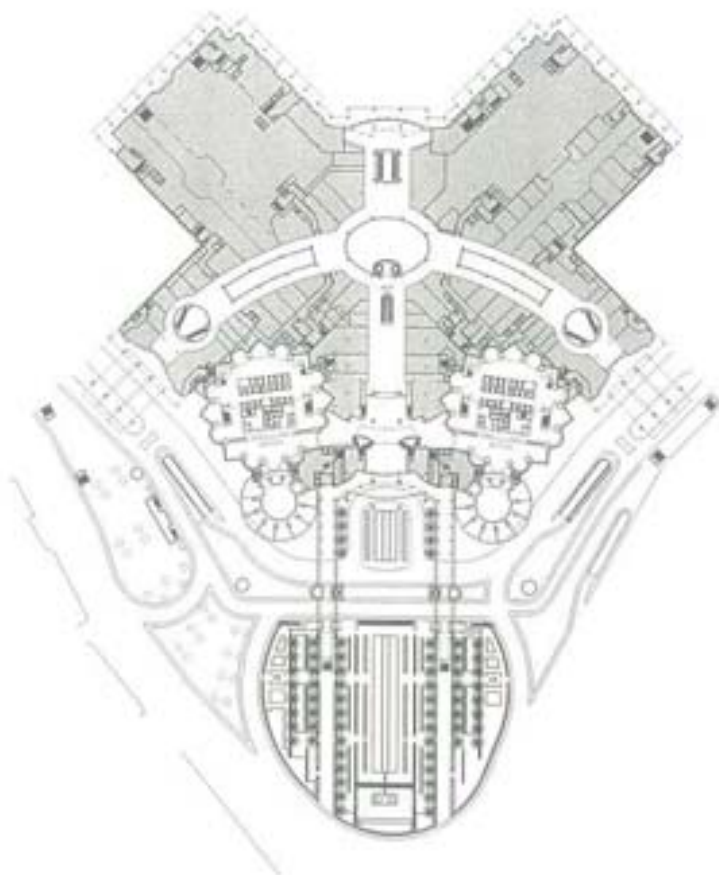
Jasatera

Client:

Kuala Lumpur City Centre

(Holdings) Sendirian

Berhad



TECHNICAL DATA

Project: KLCC Petronas Twin Towers

Year of installation: 1997-1998

Materials used: granite

Products used: Screeds prepared with
PLANICRETE 50

Granite set with KERAFLOR+ISOLASTIC and
grouted with ULTRACOLOR

KLCC Suria Centre

Materials used: Marble, homogeneous floor and
wall tiles

Products used: Retail spaces: screeds prepared
with MAPECEM

Marble set with KERAFLOR + ISOLASTIC
and grouted with ULTRACOLOR

Expansion and movement joints sealed with
MAPEFLEX PU21

Bathrooms: screeds prepared with
PLANICRETE 50

Waterproofing of concrete: MAPELASTIC
Floor and wall tiles set with KERABOND +
ISOLASTIC and grouted with KERACOLOR

*The products mentioned are manufactured by
Mapei Far East Pte Ltd., Singapore, and Mapei
S.p.A., Italy.*