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Three Pacific Place

Transparent glass box

Pacific Place, the Queensway complex has added a baby brother to the family of office towers, hotels and retail outlets. Three Pacific Place is a 38-storey office tower separated from its siblings by Justice Drive and just downhill from another Swire Properties project, StarCrest. Its development thus completes a self-contained network of offices, hotels, shops, serviced apartments, restaurants and cinemas.

Three Pacific Place

Transparent glass box

Conceived in the early 1990s, the project was not realised until years later, when Swire finally completed acquisition of all the lots on the site. Approval from the Town Planning Board to develop the office tower was obtained in 1999 and construction began in mid 2002. With a total GFA of 59,827 sq m, the building has 34 floors of office accommodation and a three-level basement car park. New technology has added an exciting twist to the streamlined modernist design, which gives a nod to Pacific Place in its use of staggered edges; by making possible the creation of a totally transparent glass box with the same wind loading and thermal performance as the older generation of glass buildings. The vertical setbacks also improve the flexibility of the layout, by generating extra corner offices.

Transparence and views

The architect, Wong & Ouyang, has maximised the building's view of Victoria Harbour toward the northwest by adopting a side core placed near the east elevation. The amount of usable floor area, which ranges from 1,257 sq m to 1,447 sq m per floor, is also increased by this approach. The span between the core wall and the perimeter is 16 m, but daylight will penetrate the space nonetheless because of the use of a full height clear glass curtain wall.

The building is accessed through an impressive, 18 m high lobby wrapped in wall-to-wall glass mounted on a cable net system. Cables hung from the ceiling soffit are threaded

through stainless steel spider supports, embedded in the floor and tensioned. The glass panels are then hung on the spiders.

Three Pacific Place is the first project in Hong Kong to make use of this glass system. According to Swire Properties project manager Ir Gilbert Law, several options were considered, including the commonly used glass fin, steel support system and the cable truss system used at Oxford House, one of the company's properties in Quarry Bay.

"Our senior management's vision is to have a glowing entrance lobby which will be visible from as far as Admiralty Station. We carried out a long design study and our facade advisor felt that the cable net system was the most suitable for Three Pacific Place, so we went for it. It creates a very clean space and gives the lobby character," Ir Gilbert Law said.

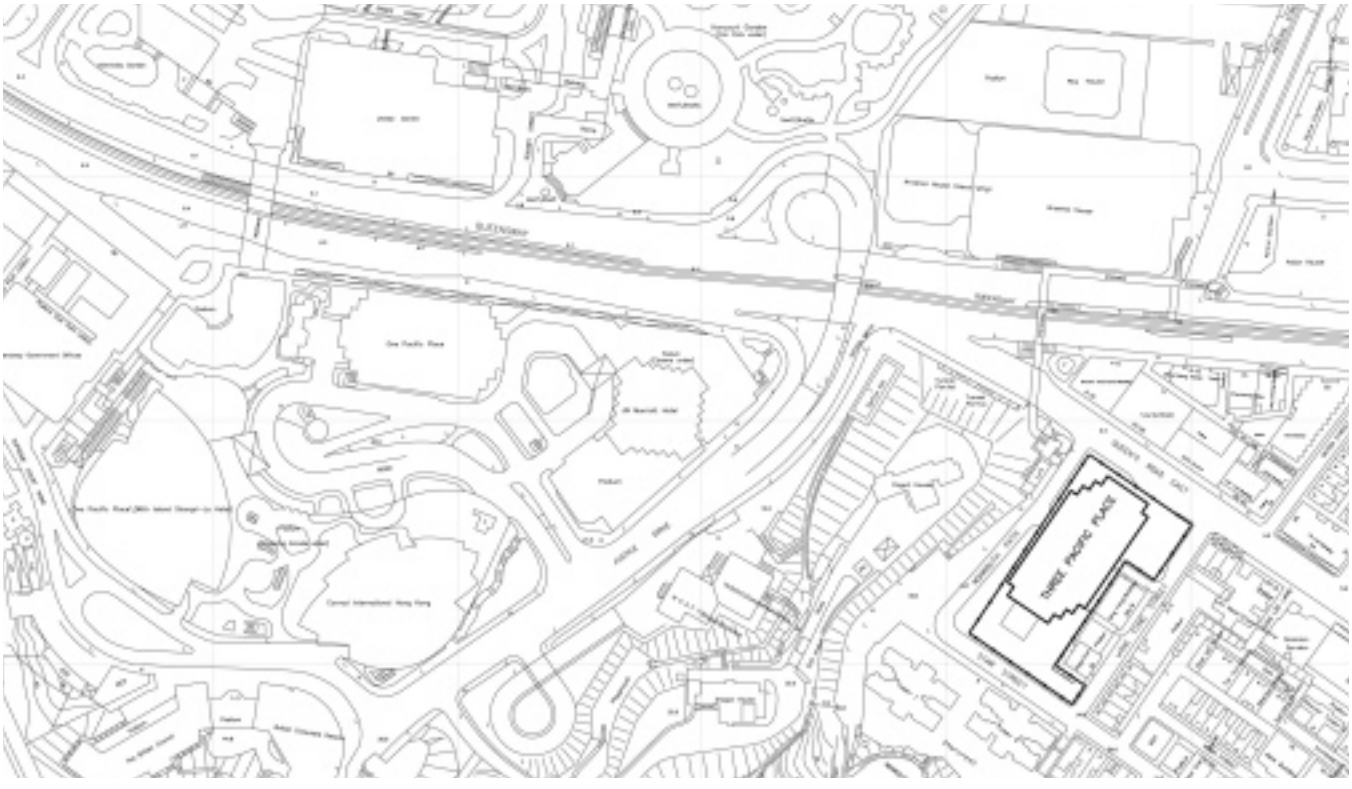
At close range, the facade's transparency will highlight the photographic wall covering the core wall. Eschewing the conventional practice of plastering lobbies with stone and timber, the developer has opted for something more unusual: a wall made up of one layer of oven formed glass overlaying a second layer of laminated glass etched with selected images with a heritage theme. A third layer of acrylic diffuses light from behind. A 3D modeling software was used to develop this photographic wall.

A level with superior headroom has been created for "visionary tenants" on the top floor of the building. Skylights and the clear glass facade blend into each other in the two-storey high space, making for a singularly lofty experience that is bound to impress clients.

With the top level set aside for a double height and skylighted office, building services engineers were challenged to find space for tucking away the plant room, lift machine room and maintenance gondola. These are hidden behind a slanted wall behind this office equivalent of the penthouse suite and, externally, masked by a sloping aluminium grille shaped to resemble a crown. The grille will be lit from beneath to produce a twinkle that, together with the glowing lobby, will ensure the building is visible from near and afar at night.

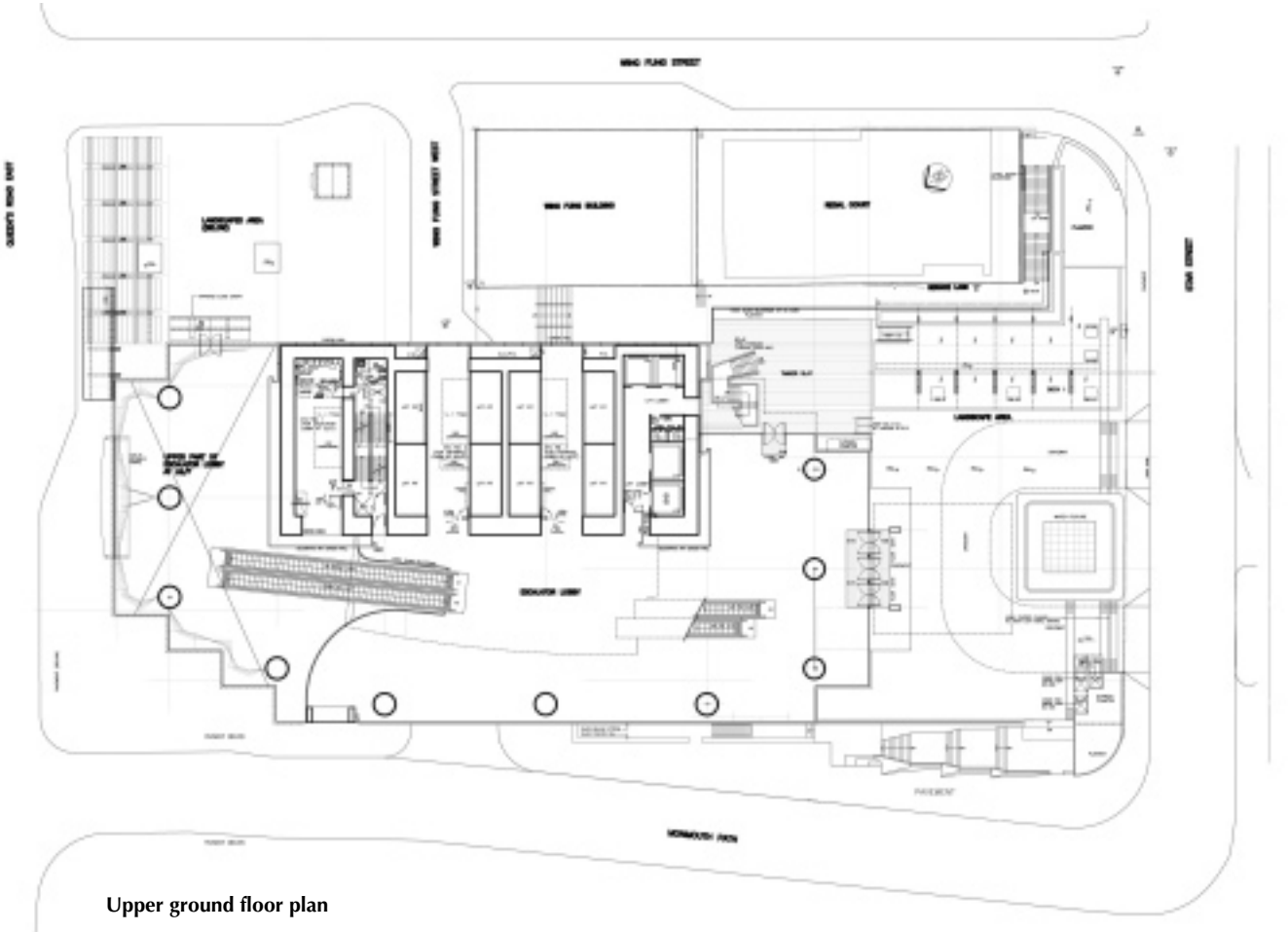
Energy efficiency

In the typical office, a 1.5 m wide, 2.75 m high panels of low-e double glazing that match the 750 mm x 500 mm ceiling grid, ensuring the latter will align exactly with the mullion positions. The European-fabricated curtain wall is a semi-unitised system of panels comprising two layers of 8 mm Luxguard Superneutral heat

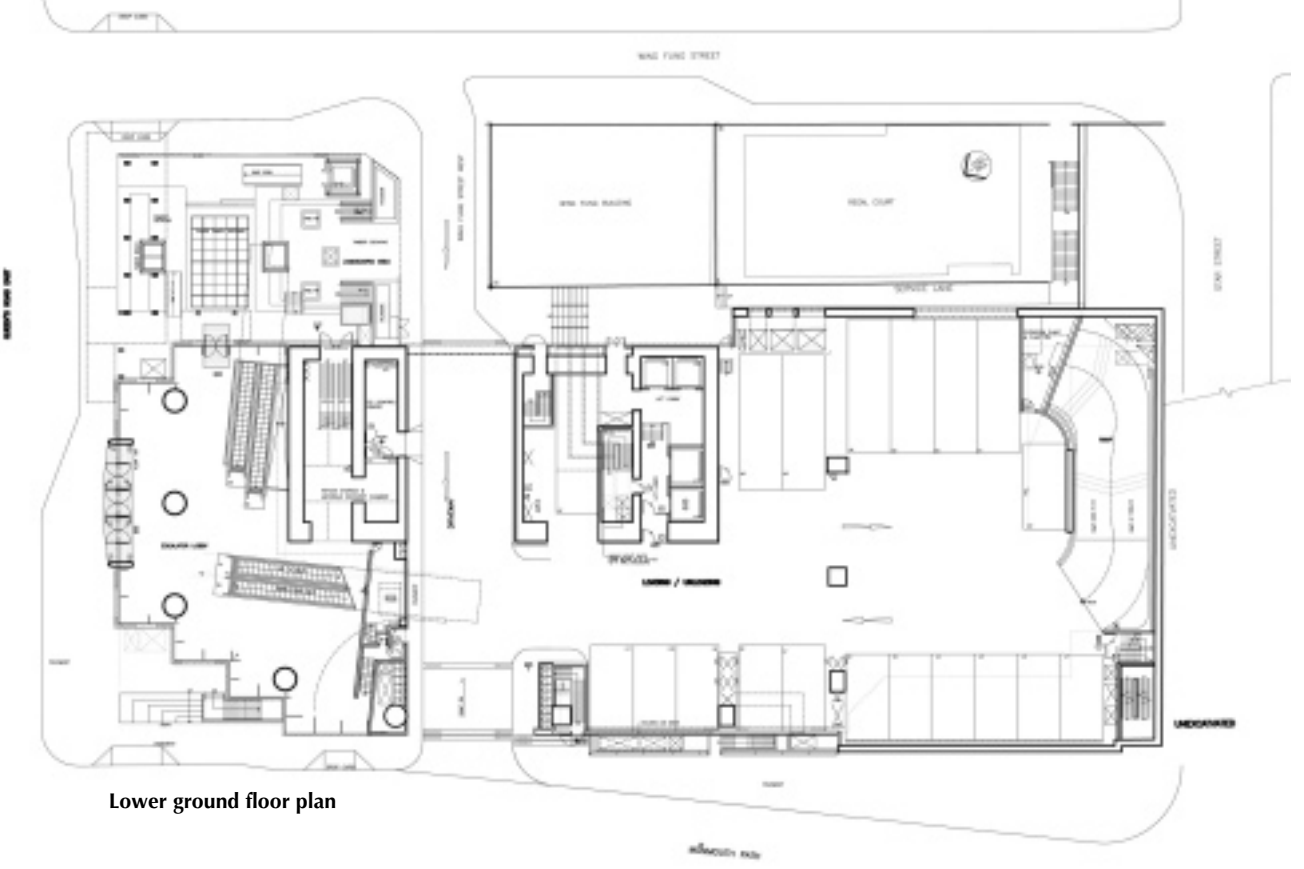


Entrance at Queen's Road East

strengthened glass sandwiching a 12 mm thick air space. A low-e coating on the underside of the outer panel filters out harmful radiation and minimises heat gain while permitting daylight to penetrate the building. As a result, the air-conditioning load will be reduced, as will the need for artificial lighting. To improve the building's energy performance even more, sunshades and vertical fins were added



Upper ground floor plan



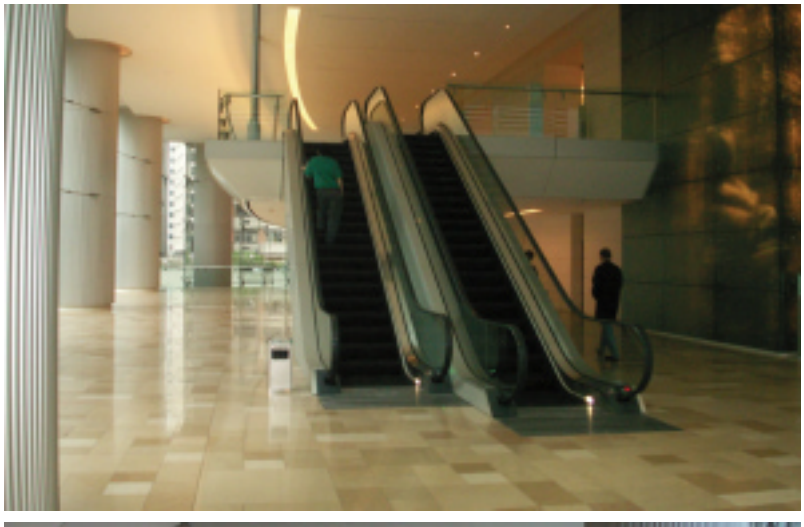
Lower ground floor plan

following a solar path study to determine their optimum width. The 600 mm wide shades and vertical fins form a mega grid system that complement the low-e curtain wall. Energy efficiency is further enhanced by the use of T5 low glare florescent tubes for office lighting.

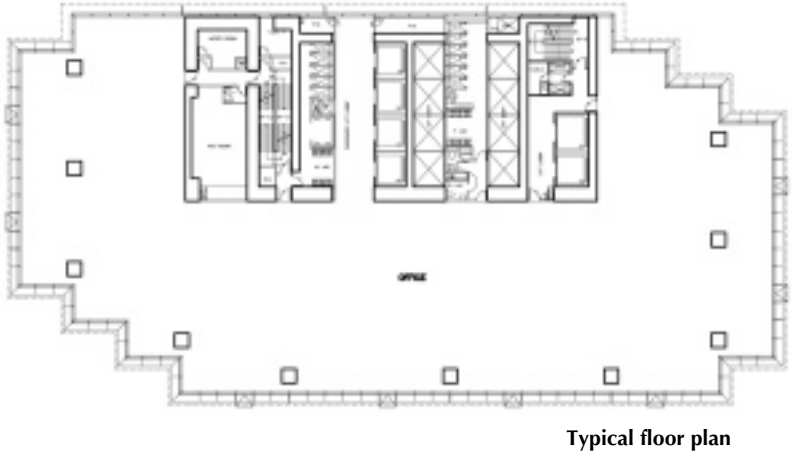
Three Pacific Place is understood to be one of the first buildings to use fresh water cooling since government policy was changed in 1999 to favour this practice. Water cooling consumes less energy than air-cooled systems and an estimated 98% of the water used is recycled. Optimum energy efficiency will be maintained at all times by a building management system (BMS) from Satchwell that monitors and controls the performance of all the building services, including lighting effects in the public area and indoor temperature. Being an open system, the BMS will also facilitate link-up with the BMS in the existing Pacific Place.

Green construction

Three Pacific Place is the first building project in Hong Kong to adopt e-tendering. A dedicated



Lobby on upper level



Typical floor plan

Lift lobby

website was set up by the e-tendering company icFox to distribute tender documents as well as to accept tender submissions for both the main construction contract and sub-contracts. The concept is far more than a mere paper-saving exercise, as it has the potential to allow the client to apply cost modeling and benchmarking based on the prices submitted. Ir Law said e-tendering would be considered again for future projects, but at such an early stage of the concept's adoption, the more complex applications are not expected to be realized in the short term.

Environmentally friendly construction methods were employed by the main contractor, Gammon Skanska, to build the office tower. A five-day cycle was achieved through the use of green and safe methods such as a self-climbing

Entrance at Star Street

form for constructing the core wall and aluminium table forms for the floor slabs. The composite columns were fabricated off site, the 7.8 m sections being delivered to site with all steel fixing around the H beams already in place. Staircases were constructed using ready-made permanent steel formwork while a dry wall, Hardiwall, was used for internal partitions. Some building services fittings, such as drains, risers and air ducts, were also prefabricated off site as modules which were transported to site for assembly. A refuse chute sprinkler system devised by the contractor to suppress dust was well received by EPD and was subsequently uploaded onto their website as a recommendable environmental measure.

The building was topped out in November 2003 and occupation permit was granted in August 2004. To improve its accessibility, a 300 m long subway is being built linking it with the Admiralty MTR station as well as the rest of the Pacific Place development. The 4.5 m wide tunnel is equipped with travelators and is expected to complete in mid-2006.

Developer
Swire Properties Ltd

Architect
Wong & Ouyang (HK) Ltd

Main Contractor
Gammon Skanska Ltd

HK-BEAM Achievements for Three Pacific Place

The Three Pacific Place Commercial Development is the latest new office premises to be certified under HK-BEAM (Hong Kong Building Environmental Assessment Method) which is the private sector initiative which gives recognition for enhanced environmental performance in the design, operation and maintenance of buildings.

HK-BEAM sets out around 60 "best practice environmental criteria" for environmental sustainability in building. Three Pacific Place achieves most of the criteria — from energy efficiency and environmental friendly materials, to construction pollution, indoor environmental quality and provisions for efficient building operation maintenance. The outstanding performance of this project achieves the highest HK-BEAM rating of Excellent!

Examples of environmental features possessed by the premises as recommended / recognised by HK-BEAM include:

- Installation of a raised floor truncking system applied to all office levels which allows flexibility for building services relocation;
- Provision of an energy efficient office lighting systems which consists of T5 fluorescent tubes fitted with high frequency ballasts (these are 20% more energy saving than traditional models, with visual comfort benefits).
- Adoption of reusable formwork systems for superstructure construction which conserves virgin timber consumption. Columns were built by steel formworks whilst horizontal structural elements such as slab and beams were constructed by metal table form systems and timber originating from sustainable sources.

Employment of a comprehensive electrical metering system to monitor energy consumption (input power, energy and maximum demand) of all major building services facilities, including as chillers, HVAC airside equipment, lighting, lifts and potable water pumps.