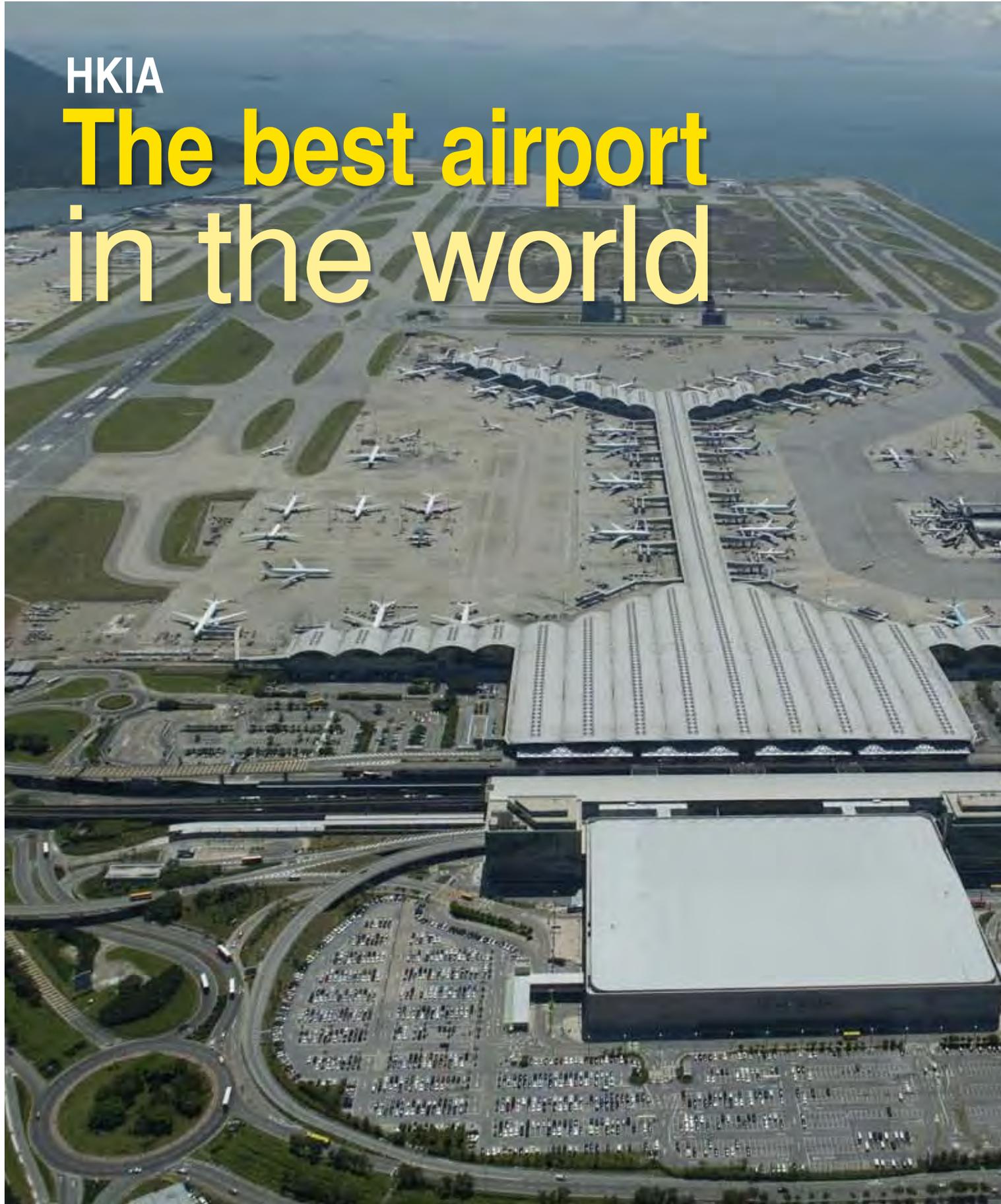


HKIA

# The best airport in the world

PHOTO: AIRPORT AUTHORITY





Hong Kong International Airport (HKIA) is located less than five flying hours from half of the world's population. HKIA is the third busiest international passenger airport and operate the busiest international cargo facility in the world.

In 2010, 50.9 million passengers used HKIA and some 4.1 million tonnes of air cargo passed through Hong Kong. HKIA is connected to about 160 destinations, including around 45 in the Mainland, through about 900 daily flights by over 95 airlines.

Since it was commenced operations in July 1998, HKIA has earned the recognition as the world's best airport close to 40 times. With the opening of Terminal 2 in June 2007, HKIA is now a two-terminal and two-runway facility. The 65,000-strong airport community serves as the key contributor to Hong Kong's position as a leading international and regional aviation centre.

A HK\$50 billion investment, HKIA has been one of the largest engineering and architectural projects in the world. In recent years, HKIA invested an average of more than HK\$2 billion a year to expand capacity and enhance airport facilities. Facilities completed in recent years included Terminal 2, 10 new cargo stands, HKIA Tower, the Airport World Trade Centre and the new SkyPier.

PHOTO: AIRPORT AUTHORITY



Terminal 1

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Terminal 2



PHOTO: AIRPORT AUTHORITY

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PHOTO: AIRPORT AUTHORITY

## Designing a masterpiece



The Airport Authority's aim was that from the day the new airport opened, the passenger terminal would be a spectacular and exciting introduction to Hong Kong that was at all times supremely efficient and very user-friendly. Airport transport has played an important role in Hong Kong's commercial success. Reaching that goal required a great deal of insight and the consideration of many details. The Airport Authority (AA) issued the chosen designers of the terminal building, the Mott Consortium (MC), with a series of objectives and performance criteria.

Some of the AA's objectives, such as the requirement that departing passengers generally would be able to pass through the terminal with minimal level change from the point of entry to exit via the air bridges, seemed fairly obvious. Such criteria, however, have been overlooked in many airports around the world where travelers are expected to negotiate stairs and escalators while carrying baggage. Accordingly, arriving passengers generally pass through the terminal on one level: the floor below the departures level.

Ease of access through the terminals is even more important for disabled travelers, and throughout the building the AA has sought to incorporate the needs of all travelers. Where it is necessary to change levels, ramps have been installed at a gentle gradient of 1:20, allowing wheelchair passengers to use and operate their own chairs right up to the cabin door of the aircraft.

The terminal as well as the acoustic insulation properties of roofing and cladding materials were carefully considered by the Authority with a detailed energy audit for the whole building.

The aim has been to develop an airport that will serve the needs of the Special Administration Region (SAR) of Hong Kong, China in the 21st century. Therefore, the terminal has been designed for maximum flexibility, so that it can be easily modified to incorporate future developments. In some areas facilities have already been built into the design to house potential future equipment. For example, pains were taken to ensure that the terminal is able to cater for the new generation of super-jumbos that may be developed early in the 21st century. Should these aircrafts arrive, the airport will expect up to 800 passengers to disembark from a single aircraft, which would greatly tax pedestrian circulation routes created for today's needs. The AA anticipates the need to handle such flows in the near future.

An important consideration for the design team has been to design a terminal that could be built within a specified budget. The AA's concerns about the costs went beyond the initial construction price with economical operation; maintenance has been determined as an important design criteria as well.

The amount of artificial lighting required has been minimised by the use of a significant amount of glazing, which will



have the benefit of giving travelers an all-round view of the spectacular scenery surrounding Chek Lap Kok. Daylight from skylights, which occupy around 5% of the roof area, is bounced off reflectors towards the roof to create soft lighting within the terminal. Artificial lighting fittings have been placed mainly on supporting columns for easy access.

There is very little lighting or other services contained in the roof. The vast majority of services have been installed under the floor and can be reached by lifting floor panels. The roof itself was designed to be fabricated onsite in curved 36 sq m sections for ease of construction.

Careful attention was paid to the International Air Transport Association (IATA) and Airport Council International (ACI) planning guidelines that define globally the standards of service at airports. These standards emphasise the benefits in terms of passenger comfort by creating an atmosphere of "calmness, clarity and convenience."

The interior designers did their part in creating "calmness" or a serene environment through the use of subdued backgrounds and neutral colors throughout the terminal.

Retail facilities found in the Sky Mall



have also been carefully planned so that passengers can make purchases at appropriate points as they travel through the terminal. A substantial amount of space, roughly 30,000 sq m of the total terminal area of 515,000 sq m, has been set aside for retail use in the first phase.

### **Wings of Flight**

The wave form of the terminal's roof design is symbolic of flight. The exterior cladding features extensive use of glass, creating a feeling of openness and transparency that is critical to the success of the building. The use of glass also furthers the building's symbolism by echoing the perceived lack of physical restriction associated with flight. The roof's formation allowed the designers to develop the themes of light and space when considering the area beneath. The appearance of the roof reinforces the passenger movement below as the longitudinal lines of the vaults designate flow and provide a strong directional quality.

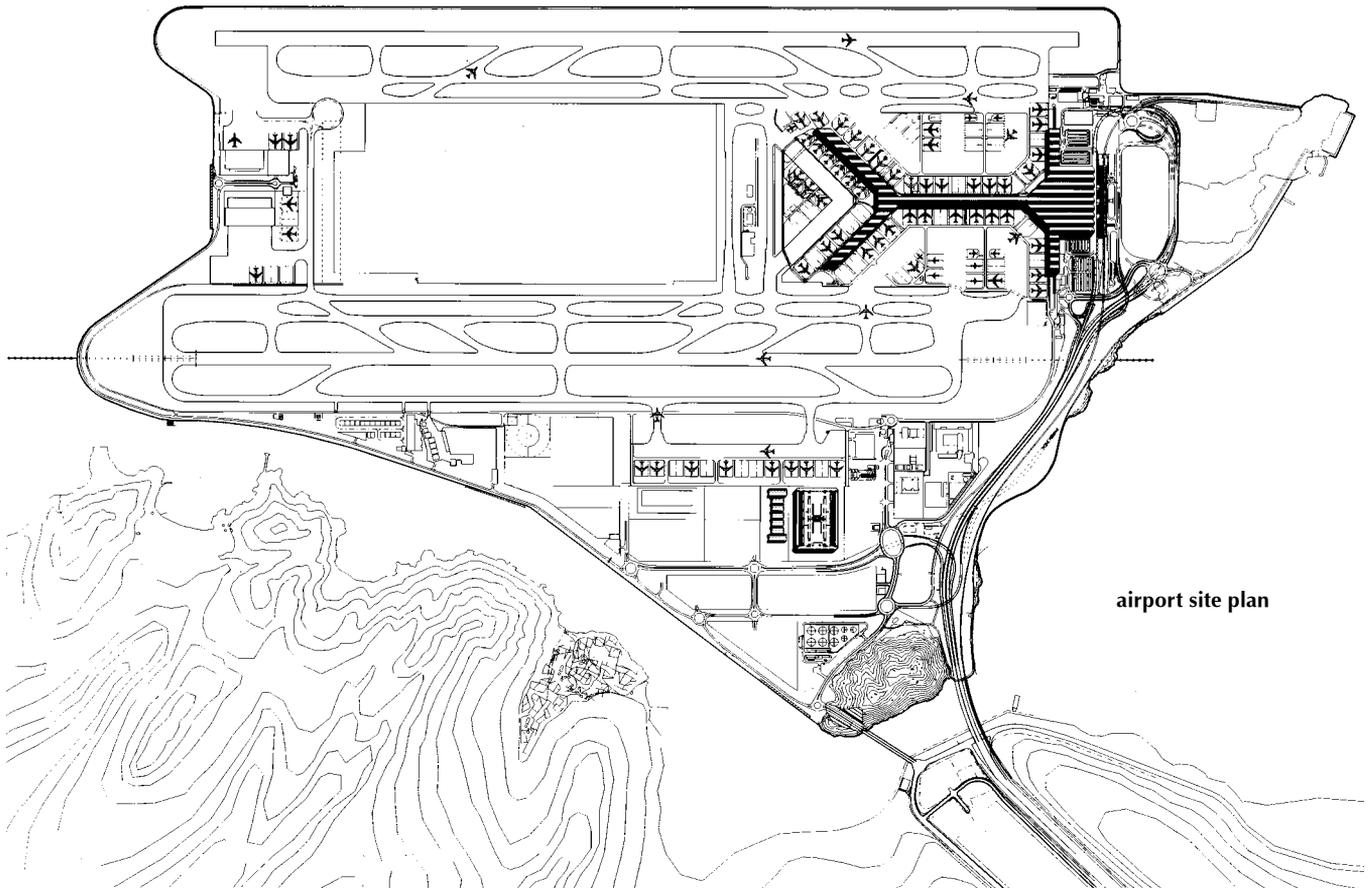
The award of the commission followed the preparation of a short-list of first seven, then three, consortia. The decision to award the design to the Mott Consortium came at the end of February 1992 and by the middle of March of the same year, the team was mobilised and had set up within the AA's offices. The design brief was to "bring life to and develop the

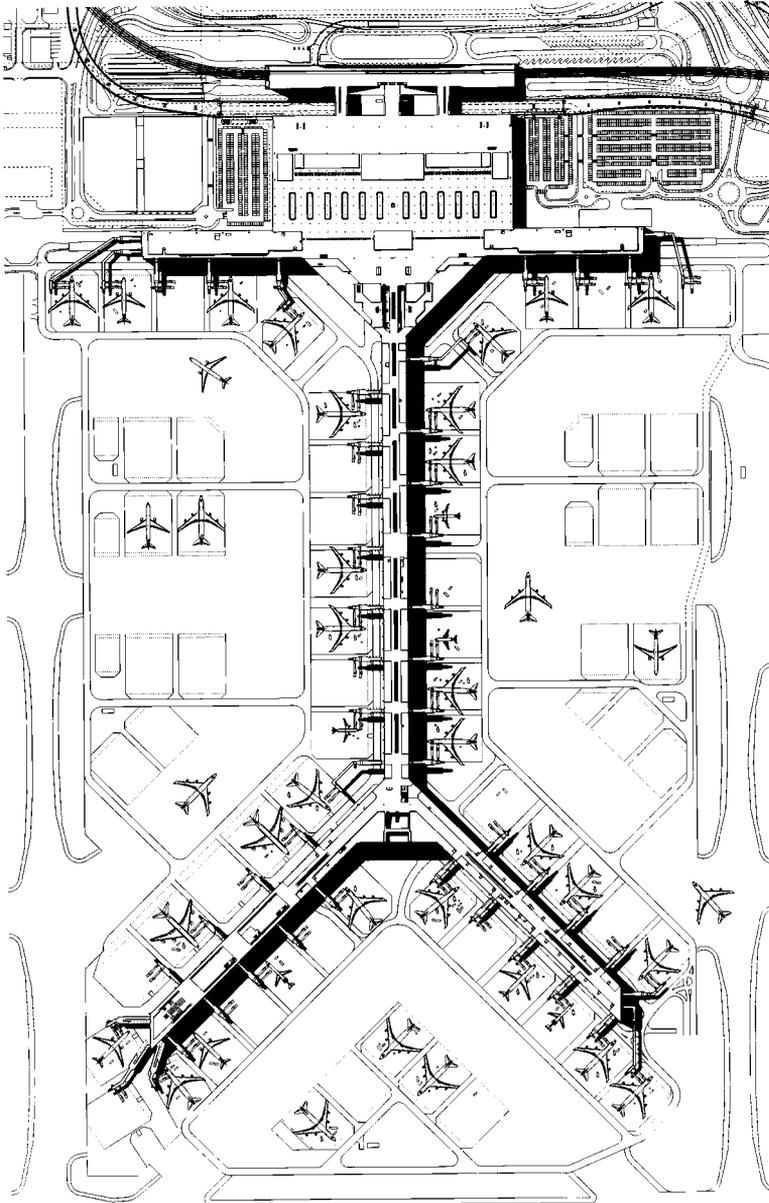
Master Plan" - the initial establishment of the unique Y-shaped footprint.

The formation of the design consortium was strictly regulated by the design criteria set by the AA, which insisted that the team must include an architect who had been involved in the design of at least one international airport and an airport operator familiar with the complexities of such a building.

The Mott Consortium was a joint venture of comprising Mott Connell (Engineers), Foster Asia (Architects) and the British Airport Authority (Operators). The team had to compete for the design work based on the master plan prepared on behalf of the AA by Greiner Maunsell.

The terminal building was designed so that passengers would be in no doubt that they were in an airport, able to see the movement of the planes and other airport activity around them. Visibility and clarity were major criteria for the designers. The design team wanted the passengers not just to be able to find their way around the





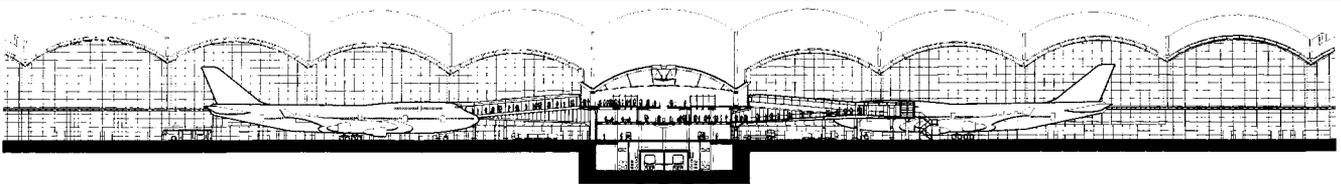
arrivals level plan



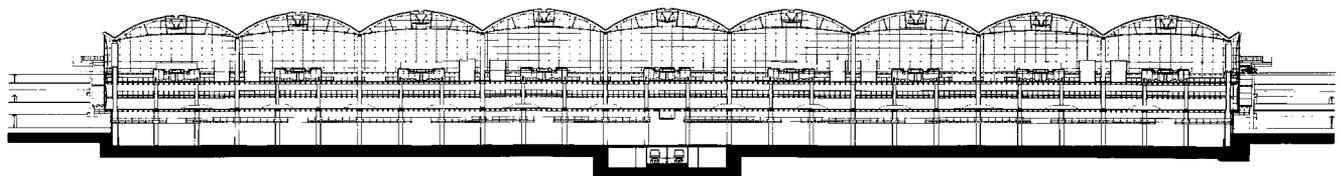
building, but also to see the airport and its surroundings. The glass walls were therefore designed to be as unobtrusive as possible so people can see the views beyond and not the walls themselves. The external walls have been designed to allow passengers to enjoy views of the aircraft and airfield activity set against the backdrop of the mountains of Lantau Island.

The function of an airport building is very simple: People and luggage arrive together, they are split, processed separately, and then reunited. It is not a difficult concept, but it can easily be compromised by poor passenger terminal design. The consortium has concentrated on every aspect of the design so that passengers and their baggage can achieve effortless progress through the building.

The challenge to the architect was to design an airport building in which people felt comfortable; one that performed its intended function efficiently and quietly so that the passengers could feel at ease and free to look forward to the journey ahead.



cross section through concourse looking east



cross section through processing terminal



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Aviation is one of our core sectors offering services for both airside and landside developments. We have been working at Hong Kong International Airport for over 20 years. We designed the original airport terminal and have helped Airport Authority Hong Kong to further develop and increase capacity, with the new North Satellite Concourse and the current Midfield Concourse development plans.

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Hong Kong International Airport - Terminal 1



Cathay Pacific Flight Training Centre



Regal Airport Hotel



Novotel Citygate Hong Kong



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## Hong Kong International Airport Midfield

A joint venture of Mott MacDonald and Arup has been appointed by the Airport Authority Hong Kong (AA) to provide full design consultancy services and construction support services for the Phase 1 Development of Hong Kong International Airport Midfield.

Phase 1 of the project, which is scheduled to be complete in 2015, will include a new midfield concourse with 11 bridge-served stands and 9 operational stands to meet future demand at the airport.

The joint venture will be supported by

architect Aedas, engineer Atkins and a range of other specialist consultants in delivering the new facility.

The midfield area is located between the two runways is the last piece of airside land on the airport island available for large-scale development.

Mott MacDonald and Arup have worked together on many similar projects, including HKIA and Heathrow Terminal 5 and individually have played key roles in many major airport projects around the world.



## Cathay Pacific Cargo Terminal

The Cathay Pacific Cargo Terminal, which will be operated at arms' length from Cathay Pacific Cargo by a separate management team in CPSL, will set new standards in operational efficiency, environmental design and service levels.

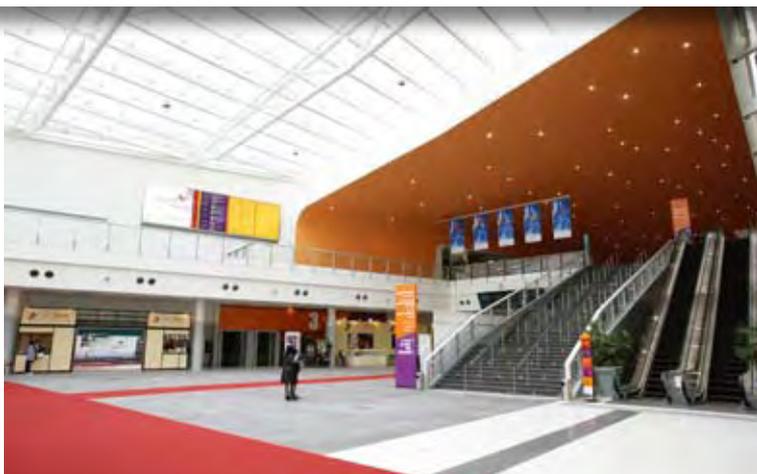
The new terminal, which is approximately 280,000 square meters and occupies a site area of approximately 10 hectares, is scheduled for completion in 2013. It will include the construction of an eight-storey warehouse with access ramps and an office building, along with a semi automated Material Handling System (MHS).

A HK\$4.2 billion construction contract was awarded to Gammon - Hip Hing to build Cathay Pacific's new cargo terminal. The contract comprises the construction of an eight-storey warehouse in precast/in situ concrete; ramps to the warehouse and an

office building. It also includes co-ordination of Material Handling System (MHS); building services and finishing.

The lead consultant for the project is Meinhardt, the architect of the terminal is Aedas, and the quantity surveyor for the project is WT Partnership. The MHS contractor is Siemens while the two contractors for the foundation work are Gammon/Tysan and Bachy Soletanche.





## AsiaWorld-Expo

AsiaWorld-Expo is a world-class exhibition and event venue offering over 70,000 square metres of rentable space for exhibitions, conventions, concerts, sports and entertainment events. This state-of-the-art venue is located at the centre of an extensive and efficient air, land and sea transport network connecting Hong Kong with the Pearl River Delta and the world's business capitals.





## Airport North Satellite Concourse and Sky Pier

In January 2010, the North Satellite Concourse and the Sky Pier at Hong Kong International Airport were officially launched. The 20,000 square metre North Satellite Concourse with 10 extra bridge-served parking stands is built to serve the rising number of narrow-bodied aircraft using the airport. Both facilities were soft-opened in December.



PHOTO: AIRPORT AUTHORITY

## Airport World Trade Centre

Airport World Trade Centre is a Grade A office tower for leasing standing right next to Terminal 2, airport express train station, bus/taxi terminals and cross-boundary coach station. It is equipped with first-class business and conference facilities as well as members' club, fine dining and other reception services.

## SkyCity Marriott Hotel

The Hong Kong SkyCity Marriott Hotel provides more than 650 rooms and five star luxury. Setting on a 2.7-hectare site along the waterfront to the east of the terminals, the hotel includes high-tech rooms, extensive meeting facilities, various dining, entertainment and recreational options.

## Regal Airport Hotel

The Regal Airport Hotel is connected to Terminal 1 by an air-conditioned bridge. The hotel provides superb accommodations with 1,171 rooms, extensive meeting and conference facilities and an extensive array of high quality restaurants and bars serving Chinese and international cuisines.

## Novotel Citygate Hong Kong

The Novotel Citygate Hong Kong is only five minutes from the airport and AsiaWorld-Expo. With direct access to MTR, it takes about 30 minutes to the city centre. The Novotel Citygate Hong Kong features 440 rooms, two restaurants, a bar, extensive meeting and banquet facilities, a swimming pool and a 24-hour gym.



SkyCity Marriott Hotel

## HKIA Fast Facts

	Terminal 1 (T1)	Terminal 2 (T2)
Location	Terminal 2 (T2) is adjacent to the existing Terminal 1 (T1)	
Floor area	570,000 sq m	140,000 sq m
Passenger check-in counters	288	56 (can be expanded to 112)
Internet access	Free Wi-Fi throughout T1, T2, North Satellite Concourse and SkyPier	
Customer Services Centre	Located on 7/F	Located on 5/F
Trolleys	Non-restricted area: 6,700 Restricted area: 3,500	Non-restricted area: 460
Public seats	Public area: 11,700 Food court: 1,200	Public area: 700 Food court: 400
Public lifts	115	32
Public toilets	50 toilet blocks	10 toilet blocks
Nursing rooms	21	5
Shops	<ul style="list-style-type: none"> <li>• Over 200 retail shops (mostly in restricted area)</li> <li>• Over 60 catering outlets</li> </ul>	<ul style="list-style-type: none"> <li>• About 80 retail shops (mostly in non-restricted area)</li> <li>• Over 20 catering outlets</li> <li>• Entertainment:               <ul style="list-style-type: none"> <li>- Aviation Discovery Centre</li> <li>- 4D Extreme Screen</li> <li>- i-Sports</li> <li>- Asia Hollywood</li> </ul> </li> </ul>
Parking spaces	<ul style="list-style-type: none"> <li>• Car parks 1, 2 and 4 provide about 3,200 spaces</li> <li>• Coach station at T2 provides 36 pick-up bays for coaches</li> </ul>	
Multi-modal transportation from T1 or T2	<p>Connection with local destinations:</p> <ul style="list-style-type: none"> <li>• Airport Express Line arrives in Central downtown in 24 minutes, AsiaWorld-Expo in 1 minute.</li> <li>• Franchised bus companies operate 40 routes.</li> <li>• Local tour coaches make around 670 trips a day from HKIA to downtown.</li> </ul> <p>Connection with the Pearl River Delta:</p> <ul style="list-style-type: none"> <li>• Mainland Coaches make 460 trips between HKIA and 115 PRD cities and towns every day.</li> <li>• Ferries at SkyPier arrive at ports in the PRD in 30-90 minutes.</li> <li>• SkyLimo (Mainland Limousines) operates a fleet of 290 vehicles serving HKIA and the PRD cities every day.</li> </ul>	

### Hong Kong International Airport

Official name	Hong Kong International Airport
Airport opening	July 1998
Connectivity	Over 95 airlines operate flights to about 160 locations worldwide, including around 45 destinations on the Chinese Mainland.
Total airport site area	1,255 hectares
Passenger throughput (in 2010)	50.9 million
Air cargo throughput (in 2010)	4.1 million tonnes
Flight handling capacity	61 flights per hour at peak hours
Terminals	Two (Terminal 1 and Terminal 2)
Runways	Two (South and North Runways)
Runway length	3,800 metres
Aircraft Parking Bays	Passenger apron: 59 frontal stands, 27 remote stands Cargo apron: 34 stands
Airport workforce	About 65,000
Services hours	24 hours, all year
Hotels	Regal Airport Hotel - Linked to Terminal 1 by covered walkway SkyCity Marriott Hotel

(Source: HKIA)



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#### Project Reference:

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Kowloon Station - Sorrento,  
Hotel Harbour Plaza 8 Degree,  
Shenzhen SZMC LaoJie Station



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