

# Baiyun begins operations

## China's latest multimillion airport investment opens its doors

After four years of construction and an expenditure of some US\$2,370 million (19.6 billion RMB), Baiyun International Airport outside Guangzhou, China, held its grand opening in the first week of August 2004, with full flight operations starting the same week. On June 30, the airport's first phase construction including 54 sub-projects passed the State Acceptance Inspection and received the relevant operating certificates.

The new airport is located 28km from downtown Guangzhou, capital of Guangdong Province, a major industrial centre in southeast China and part of the Pearl River Delta. The new airport replaces the existing Guangzhou Baiyun International Airport which was built with one runway as a Chinese Air Force base in 1957. With a passenger volume of some 15 million in 2003 and a terminal with only six contact gates, that facility has been operating far over capacity for years.

The prime contractor, Parsons Corporation, is responsible for conceptual design and preliminary design of the passenger terminal and land-side functions and services under a US\$9.431 million contract that includes URS Greiner as subcontractor. A phased construction programme spans six years, with an initial capacity to handle between 25 to 27 million passengers. Contracts were signed between Parsons and the Guangzhou Baiyun International Group Corporation in November 2003 covering planning and design for second and third phases. These include a third runway and two additional concourses, plus terminal building expansions to accommodate from 130 to 150 gates and from 80 to 84 million passengers.

The just-completed airport (representing the first phase) covers 15km<sup>2</sup>, some 4.6 times larger than the old facility, and has capacity to handle 9,300 passengers an hour. The airport now fea-

■ Baiyun is one of China's three gateway airports, after Shanghai Pudong and Beijing Capital.



tures a central terminal with a 300m by 150m (or 45,000m<sup>2</sup>) footprint, with two curved boarding gate concourses extending on each side. The total terminal complex encompasses some 350,000m<sup>2</sup>. The terminal complex plus roadway system and parking cost US\$520 million.

The four concourses have a total of 46 contact boarding bridges, of which 13 are for international aircraft and 33 for domestic. In addition the tarmac will accommodate 12 remote hardstands for aircraft loading and unloading, six positions for overnight aircraft parking and two for VIP aircraft parking making a total of 66 aircraft stands. Six of the international passenger loading bridges provide double gate boarding for 747-400 aircraft; while seven are single gates. For domestic services, 29 gates can accommodate wide-body aircraft and four handle single-aisle aircraft.

Parsons Aviation project director Delong Liu describes the layout of the terminal as reflecting the Chinese practice in which management and operations are driven by the airport. This is in contrast, he says, with the American practice in which the airlines have a far more dominant role in determining terminal layout. As a result, the design of the new Baiyun's terminal is such

that passengers arrive and depart on separate levels. "There is absolutely no mixing of traffic flows, no traffic jams," says Liu. "This is a unique plan."

The main ticketing hall covers an area of 45,000m<sup>2</sup> and is divided into four basic quadrants – three for domestic operations, and one for international. Within the three domestic sectors are nine islands, each with 16 counters. The fourth international check-in quadrant has 36 counters. Retail outlets and services are concentrated mainly on the ground level of the main terminal with additional concessionaires both in the connecting buildings and the concourses. In all some 8% of the total terminal area is allocated for such commercial activities. Arriving passengers are received one level below where baggage carousels are located. Still under construction within the Terminal is a 400-room, three-star hotel with meeting space.

The east runway for aircraft approaching from the south is 3,800m long by 75m wide, rated ICAO Category 4F, and able to accommodate the A380. The west runway is 3,600m long by 45m wide, rated ICAO 4E. The terminal lies between the two runways with 2,200m between the two centre lines. There is no curfew, but the

### » catering for the crowds

On the west side of the Baiyun Airport complex is the new US\$47 million home of the Guangzhou Nanland Catering Company, a joint venture between China Southern Airlines (75%) and Hong Kong Sharpland Investment (25%). In addition to providing food services for China Southern, the firm has contracts with most of the other domestic and international carriers including Air China, Air France, Japan Airlines, Asiana, Singapore Airlines, Thai Airways and Malaysia Airlines. Elsewhere on the airport, LSG Sky Chefs with 14,000m<sup>2</sup> of space provides catering services for Lufthansa German Airlines, Air China and Hainan Airlines.

With 42,000m<sup>2</sup> of office and production space, Nanland is the largest catering structure in China, although production at Beijing International's catering company is greater. Nanland's daily production capability is 39,000 meals a day compared to 24,000 at its old airport's facility. In making the move to the new airport, Nanland has added 18 new Isuzu refrigerated HiLoader trucks each costing about US\$153,000, giving it a fleet of 31 such vehicles. In addition, virtually all production equipment is new, according to Richard Lo, director of operations.

Among these is a fully automated warehouse unit with 2,720 pallets from Shenzhen CIMC-Tianda Airport Support, 58 Dagard Boussac cold storage units from Dagard Boussac, cooking units from Angelopo, fast cooking Polaris Techno Jump units from Belluno in Italy, bread dough blenders from Pietroberto and Aubusson cake blenders. Dish washing dish systems are from Diskomat of Sweden. The security control room is equipped with Samsung Syncmaster 955 DF fire control system with IBM Think Vision monitors. The Panasonic FS 16 Digital Disk Recorder WJ-HD 500 B and A models provide back-up records.



■ The US\$2.37 billion Baiyun International airport extends 7km by 3km, and includes a passenger terminal, aircraft maintenance and cargo facilities.

airport has no plans to operate 24 hours until operations require.

The control tower is 112m high with 14 control and monitoring positions – seven for the east runway, six for the west, plus one main position.

Under construction but not expected to be completed until 2007 is Line Two of Guangzhou's metropolitan light rail system. It will operate from the city directly to a station at the terminal building's lower level. The train is a product of a joint venture between Bombardier Transportation and Changchun Car Company. The first of 26 Bombardier Movia trains were built in Germany with the remainder made in China.

Until this project is completed, passengers reach the airport by vehicle via the six-lane Airport Expressway. Airport parking for up to 25,000 cars is provided.

The terminal complex presents departing passengers with a spectacular vista, almost akin to viewing some modernistic temple. The roof of the main building is a sweeping arc with one decorative section made of translucent Teflon, "something like Denver International," says Liu. The rest of the roof is made of aluminium, at its highest some 40m above the floor. Some 140,000m<sup>2</sup> of Chinese-made laminated glass curtain was used in the connecting buildings, among the largest such expanse in the world. "The structure looks like a crystal palace," Liu adds.

## Well connected

Air France began an A340-300 service between Guangzhou and Paris in January 2004, the first non-stop service by a European carrier. Lufthansa operates a daily A340-600 service to

■ UK seating manufacturer OMK supplied 14,000 seats to Baiyun International. OMK's Trax seating has individual seat pads which can be easily changed.



Munich via Shanghai, and China Southern began a B777 service to Paris in late June. United Airlines is eyeing the region, and opened a sales office in Guangzhou in April which the airline refers to as "another city United is interested in serving in the future."

China Southern Airlines is not only the largest tenant of Baiyun International, but is part owner. The company invested US\$458 million (3.76 billion RMB) to take about an 18% share of

the airport and has made it a hub. The airline operates 40 check-in counters fitted with baggage handling equipment supplied by FKI Logistex Crisplant. Guangzhou Airport Development Project officials in consultation with China Southern have selected almost all systems for passenger check-in, ticketing and baggage handling and screening throughout the airport. Security x-ray screening equipment includes Smiths Heimann scanners and Smiths Multi Zone metal detectors. Moving sidewalks and escalators are from Hitachi, with Otis of Germany supplying a moving sidewalk in the international departures area.

China Southern has 35 dedicated boarding bridges for domestic and international departures. The airline's Director, Party Committee Affairs Department, Tang Yong says, "The new airport gives us the capacity to launch more flights and increase frequencies." The airline handled some 7.8 million passengers last year involving 72,000 flights.

In 2003 the airline operated 334 routes of which 274 were domestic reaching every provincial capital in Asia, plus 42 international destinations and 18 to Hong Kong. The company's fleet numbered 132 aircraft, and in June two ERJ145 aircraft were added, the first of an order of six. The ERJs will operate shuttle services between smaller airports throughout the Pearl River Delta region of south China and Guangzhou.

China Southern's cargo terminal is another joint venture project between the airline and the Airport Authority. It covers an area of 100,000m<sup>2</sup>, roughly 10 times larger than the facility at the old airport, and is one of the largest such facilities in China. The airline also holds a 51% interest in Guangzhou Aircraft Maintenance Engineering Company (GAMECO), a joint venture between China Southern and Hutchison Whampoa (China) from Hong Kong. **Norman Sklarewitz** ■

## investment grows elsewhere in china

Due to open in 2004, the new international terminal at Chongqing Jiangbei in western China is on schedule to begin operations in early December. The airport is breaking ground in several new areas, not least in its design and layout. The Civil Aviation Authority of China (CAAC) and the City Province of Chongqing, contracted UK-based airport design company Arup in 2000 to develop an international terminal for this fast-growing airport situated at the head of the Yangtze river. Arup worked with subcontractor Llewelyn Davies and introduced a modern glazed design that other regional airports in China are already looking to emulate. Phase I comprises a 65,000m<sup>2</sup> terminal complex that provides capacity to handle eight million passengers a year, with the option to increase this to 15 million under a future phase II. Arup is a member of the joint venture team selected at the end of 2003 to design the new terminal at Beijing International in time for the 2008 Olympics. Dutch planners NACO, architects Foster and Partners, and Arup are working with the Beijing Institute of Architectural Design and Research on the US\$2 billion Terminal 3 expansion project that will raise annual capacity from 27 million to 60 million passengers by 2015.

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