Düsseldorf International Airport

On December 2, 1998, the joint venture “airport 2000 plus” – under the technical leadership of HOCHTIEF Construction AG – was awarded the EUR 379 million contact to rebuild and extend Düsseldorf Airport. It set to work the very same day.

The project followed the terrible fire of 1996, which put the terminal, with the arrivals area, check-in hall and gates, out of action. Rebuilding was essential – but this was also seen as an opportunity to make Düsseldorf International into one of Europe’s most modern airports.

The biggest challenge was the need to carry out all the work without interrupting airport operations – a requirement similar to repairing a car while it is underway. This made great demands on work sequencing and logistics expertise, as well as on safety and security.

The work involved created one of the largest construction operations in Europe – in exceptionally cramped conditions.

The result: a huge central building, 390 m long and 90 m wide, with a vast roof construction that has been left fully visible, a new Pier B, 170m by 70m, and a new two-level underground garage with parking for 780 vehicles. One striking feature of the airport is the ultra-modern Sky Train, which plies between the different part of the main building and the new ICE high-speed railroad station.

Düsseldorf International can now rightly claim to be of the most passenger-friendly airports in Europe, a verdict confirmed by the excellent ratings it has received in IATA surveys.

HOCHTIEF
CONSTRUCTION AG

Hub of aviation in Germany's most populous region

Düsseldorf International is Germany's third-biggest airport, with some 15 million passengers a year. Ultimately, it will be able to handle an annual 22 million passengers. As the biggest and most important airport in the federal state of Northrhine-Westphalia, Düsseldorf International sought to confirm its leading regional role and also set new standards in safety and security, ease of orientation, high quality and short distances.

The contract comprised the extension of the central building to include Terminals A/B and C, construction of a new Pier B and the building of an underground parking facility, complete with a 250m elevated approach road.

But before construction and conversion work could begin, key parts of the old central building and the complete Pier B had to be demolished. This required optimum precision and care, especially in the vicinity of the tower, to avoid any vibration that might have disturbed the sensitive instruments.

In all, some 350,000 m^2 of built-up space had to be torn down and the debris disposed of in line with strict environmental stipulations.
Even before all demolition work was completed, construction had already begun. This was vital in order to meet the tight deadlines, for instance the requirement that the new central building and the new Pier B should be able to go into operation in just 31 months. At times, despite the limited space available, 1,000 people were deployed on site, and some work went on around the clock.

Focus on **safety** and **security**

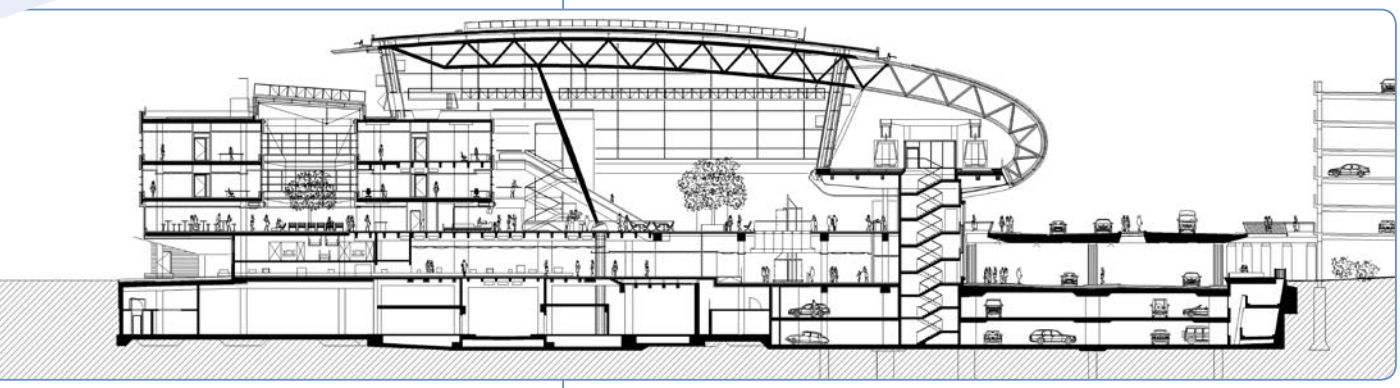
Throughout the work, the cramped conditions and the key need to avoid disrupting airport operations posed special problems. The positioning of the cranes, for instance, had to be planned in close consultation with the German Air Traffic Authority to avoid interfering with the radar and sight of the controllers in the tower.

In addition to the normal work and safety rules, there were stringent access stipulations, particularly with regard to the airport's inner security area. Access to or departure from the individual building sites was permitted only at designated points.

Safety and security considerations also governed the supply procedures for construction materials. All consignments of materials to the site and back were in convoys, with a follow-me vehicle to guide them between taxiing aircraft operations.

Building site pollution and noise nuisance had to be minimized, and damage or disruption avoided. Particular care was needed in all areas of aircraft movement – after all, dust sucked into an aircraft's engines during take-off could have caused serious damage.

In view of the background to the work, particular emphasis was placed on fire protection. Throughout the airport, sophisticated fire detection and fire-fighting systems have been installed, with innovative concepts for smoke exclusion and smoke extraction. In conjunction with an electronically controlled "intelligent" escape guidance system, these ensure maximum safety. Altogether 15 percent of the EUR 379 million construction expenditure went into fire protection measures



Project data

Client	Flughafen Düsseldorf GmbH
Main contractor	HOCHTIEF Construction as leader of a joint venture with Bilfinger Berger and Philipp Holz-mann
Gross floor area	276,000 m^2
Building volume	1,260,00 m^3
Retail areas	10,000 m^2
Concrete	112,000 m^3
Formwork	670,000 m^2
Reinforcement	12,300 t
Steel construction	3,750 t
Contract value	EUR 379 million
Period of performance	1998-2003

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