



MINISTRY OF TRANSPORTATION AND TELECOMMUNICATIONS

DESIGN OF THE EXTENSION AND ADDITION OF OTHER AUXILIARY INSTALLATIONS AT THE STATE AIRPORT OF CHANIA 'I. DASKALOYANNIS'

PROJECT BUDGET:	110.000.000 €
ARCHITECTURAL DESIGN:	AETER S.A.
STRUCTURAL DESIGN:	KANON CONSULTING (2004-2006, 2009)

The design of the extension of the State Airport of Chania consists of two phases:

- The structural design of the works for the improvement of the existing airport terminal building.
- The structural design for the extension of the airport terminal and the improvement of its surrounding area.

The same project includes the design of auxiliary buildings, such as the depot building and the shelter where terminal waste is temporarily kept.



View of eastern extension of the main terminal during construction

Improvement of the existing airport terminal building

The existing two-storey building is designed in a 7.20x7.20m column grid. The column dimensions measure 60x60cm, while the beam dimensions are 60x50cm. In both directions of the building, two-storey multi-column frames exist at 7.20m spacing - thus enabling the terminal to resist earthquake action in any direction. The foundation is made up of a grid of foundation beams.

Improvement works to the terminal building include the demolition of an existing reinforced concrete ramp and covering of the void with a composite floor, the demolition of the existing staircase towards the landing field and its replacement with a new one and the basement column strengthening.

Extension of the airport terminal

The existing terminal building will be extended towards both of its' sides. In addition to the existing column grid, the design criteria for the extension's structural form will not only maintain the boundary lines of the two major faces of the terminal - the face towards the city and the face towards the landing field - but also maintain the superstructure levels as well. Once the works end, the terminal will measure 240.80m long and 70.80m wide.

The extension towards the eastern side is made by adding 12 grids 7.20m long, and consists of a two-storey structure with a partial basement. For uniformity reasons, the column and beam dimensions will be kept the same as the existing building.

Like the former, the expansion towards the western side is also a two-storey structure made up of 7 grids 7.20m long.

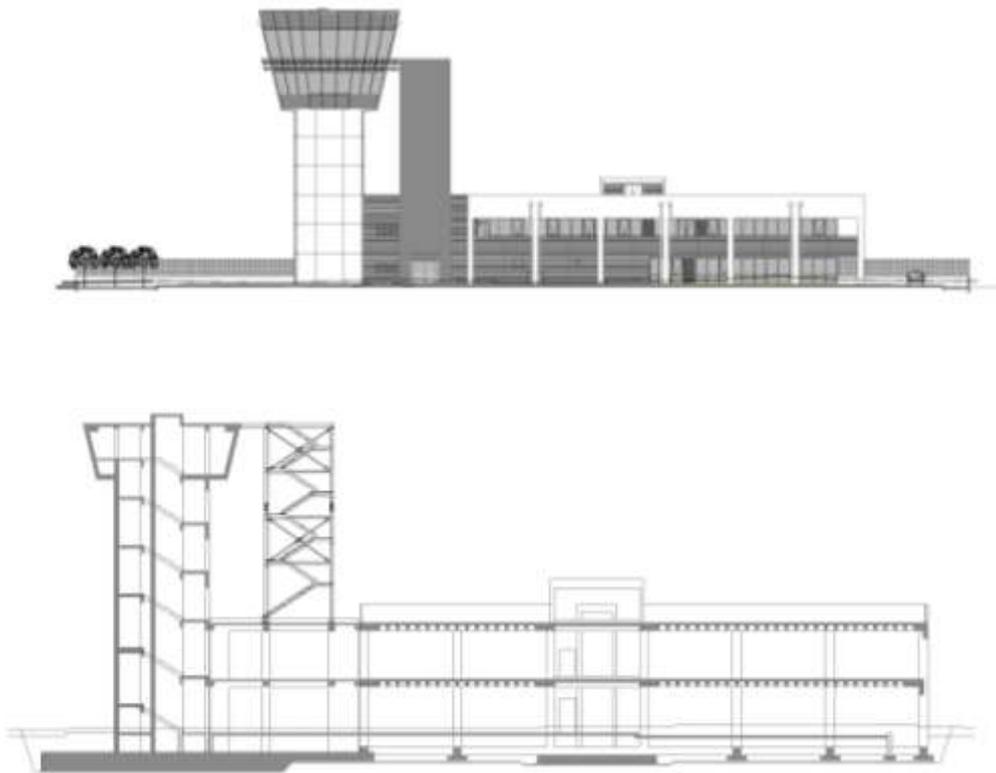
Control tower and building

It is comprised of three structurally independent buildings (a) the control building, (b) the control tower and (c) the connecting corridor of the two, which includes a steel staircase which serves as an emergency exit to the tower.

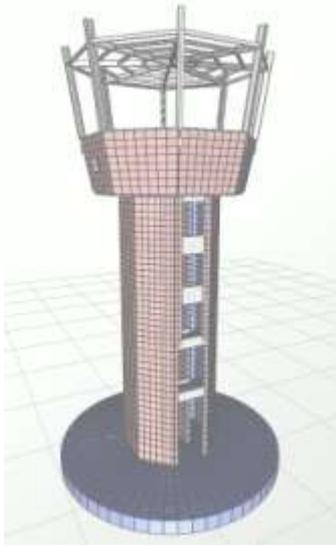
The central building is two storey high and its structural framework is comprised of parallel three column frames spaced at 6.60m. Due to the large spans between the columns of the frame and the lack of beams so that electrical / mechanical routings are facilitated, the slabs of the two floors are voided 50cm thick.

The control tower has an octagonal shape and is comprised of seven stores. Its total height is 30.42m. Its structural frame is a reinforced concrete shell 30cm thick up to the deck level. The observation deck is covered by an octagonal steel frame covering structure.

For the safe resistance of the seismic forces, which are significant in the island of Crete, and to ensure the tower stability, the foundation is a 17.0m circular raft with a thickness of 1.30m.



Architectural elevation and structural framing section of the control buildings and tower



Landing field staircase canopy

A steel canopy covering the new access staircase and measuring 164.0m long (22x7.20+2x2.80) and 17.60m wide will be constructed along the longitudinal face of the terminal towards the aircraft parking area. In order to block the sun from blinding the offices located on the eastern side, a 3.40m wide narrow cantilever metal canopy will also be constructed along the eastern expansion face towards the landing field.

Luggage longshoring shelter

A 5.10m high one-storey steel structure located in the eastern side of the terminal, the longshoring shelter will measure 29.25m long and 64.80m wide. The shelter's roof consists of a 10cm thick solid reinforced concrete slab supported by steel beams, while its structural form consists of two-span (14.70m and 14.55m) composite steel beams placed every 7.20m. Finally, the foundation will be constructed using reinforced, concrete foundation beams.

SAP 2000 model of the control tower



Control tower of Chania Airport during construction