

## JUAN CARLOS I AUDITORIUM (MADRID)

### Main data:

- ✓ Location: Madrid
- ✓ Scope of Works: Detailed design
- ✓ Client: Madrid City Council
- ✓ Date of project: 1989-1992
- ✓ Opening date: 1992
- ✓ Main feature: Singular concrete structure
- ✓ Construction area: 2500 m<sup>2</sup>

### Summary:

This structure is located inside the Juan Carlos I Park and has been designed as an auditorium for outdoors cultural and sports activities. The capacity of the auditorium is 9500 people; it is extendable to 12500 with provisional chairs and up to 15000 people if the perimeter of the structure is occupied with people standing.

The structure of the stands is made of precast concrete. Under the stands there are dressing rooms, a cafeteria, locker rooms and warehouses.

The stage is a rectangular platform suitable for several pieces of stage machinery. At the back of the stage there is a large cybernetic fountain, designed for incredible light and sound shows. The fountain has a range 90 m long, 20 m wide and 18 m high. All the hydraulic mechanisms are activated by electromagnetic valves and they are located submerged under the fountain.

The stands of the auditorium are divided into 5 different spaces: three of them are rectangular and in the corners there are two triangular stands. Between them there are the access stairs. The structural scheme is simple: the stands are closed with perimeter concrete walls, and they are made of a grid of precast concrete beams and in-situ concrete pillars. Above the beams there are precast panels, which are the spectators' seats. The rectangular stands are 35 x 45 m, and the triangular stands are an isosceles triangle, 30 m high and a base 35 m long.

The structure of the fountain is a reinforced concrete, circular segment wall. In plan it is 26 m high and has a 100 m chord length. The walls are 1,40 m high and 0,30 m thick. The water pumps are located under this structure.

