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3. Painting Hangar at Fiumicino Airport, Rome (Italy)

Owner: Alitalia
Architect: Austin Italia S.p.A.
Engineers: Concrete structures:
 Ricardo Morandi
 Steel structures:
 C. Pesenti & L. Nusiner
Contractors: General contractor:
 A. LO. SA. S.p.A.
 Steel structures:
 Saporiti – Tradate
Duration of work: 18 months
Service date: 1982

The hangar dimensions are 72 m span, 90 m length and 25 m interior height.

Basically, the steel structure of the hangar is made up as follows:

- Two rows of columns 72 m apart. The column spacing in the hangar longitudinal direction is 18 m. The columns were welded in the workshop and then transported by train to Fiumicino. The length of the welded elements was 25 m.
- The main longitudinal truss beams, 18 m span, at an elevation of 25 m. These beams support the transverse truss beams, which are 6 m apart and span 72 m. The upper and lower chords of the transverse truss beams are HE profiles, while the diagonals are composed of parts of channels or angles. All field connections were bolted, and the beams were erected fully assembled. The truss beams support the roof D.L. + L.L. and six longitudinal runways. Special movable teleplatforms are suspended from the runways to allow the various painting and washing equipment to approach an aircraft from any position. The truss height at the eaves is 6 m, and the ridge 7 m.



Fig. 2 Erection of steel trusses

The erection works were planned in such a way that it was possible to carry on simultaneous work on the roof (purlins and corrugated steel sheeting), installation of the roof equipment (ventilation ducts, pipes for fluids, sprinkler system) and concrete work at ground level (main ducts, concrete floor). This was made possible by the erection of a movable platform 72 m wide and 20 m long, suspended from the runways at elevation + 25 m. This platform made the work safe and quick.

Loads:

- | | |
|--|-------------------------|
| – roof D.L. | 0.80 kN/m ² |
| – roof L.L. | 0.60 kN/m ² |
| – wind load | 1.00 kN/m ² |
| – equipment | 0.75 kN/m ² |
| – main air conditioning duct at the centreline of roof | 72.00 kN/m ² |
| – walkways L.L. | 2.00 kN/m ² |
| – runways D.L. | 2.00 kN/m ² |
| – cranes D.L. | 200.00 kNm |
| – teleplatforms | 180.00 kN |

Steel work total weight: 1500 t.

(C. Pesenti, L. Nusiner)

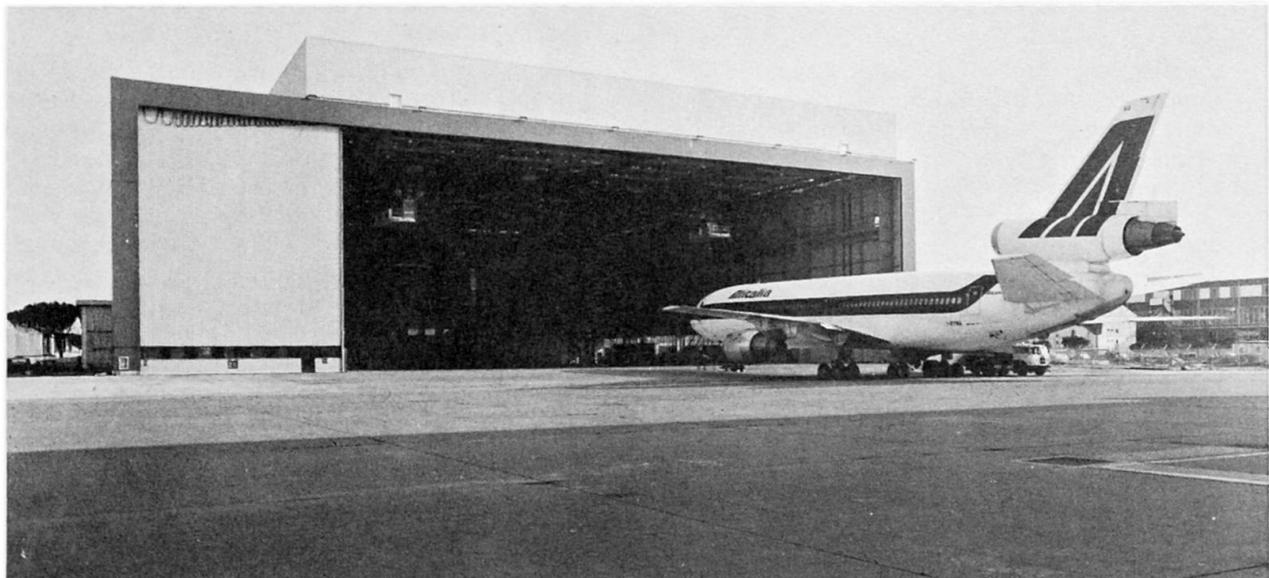


Fig. 1 View

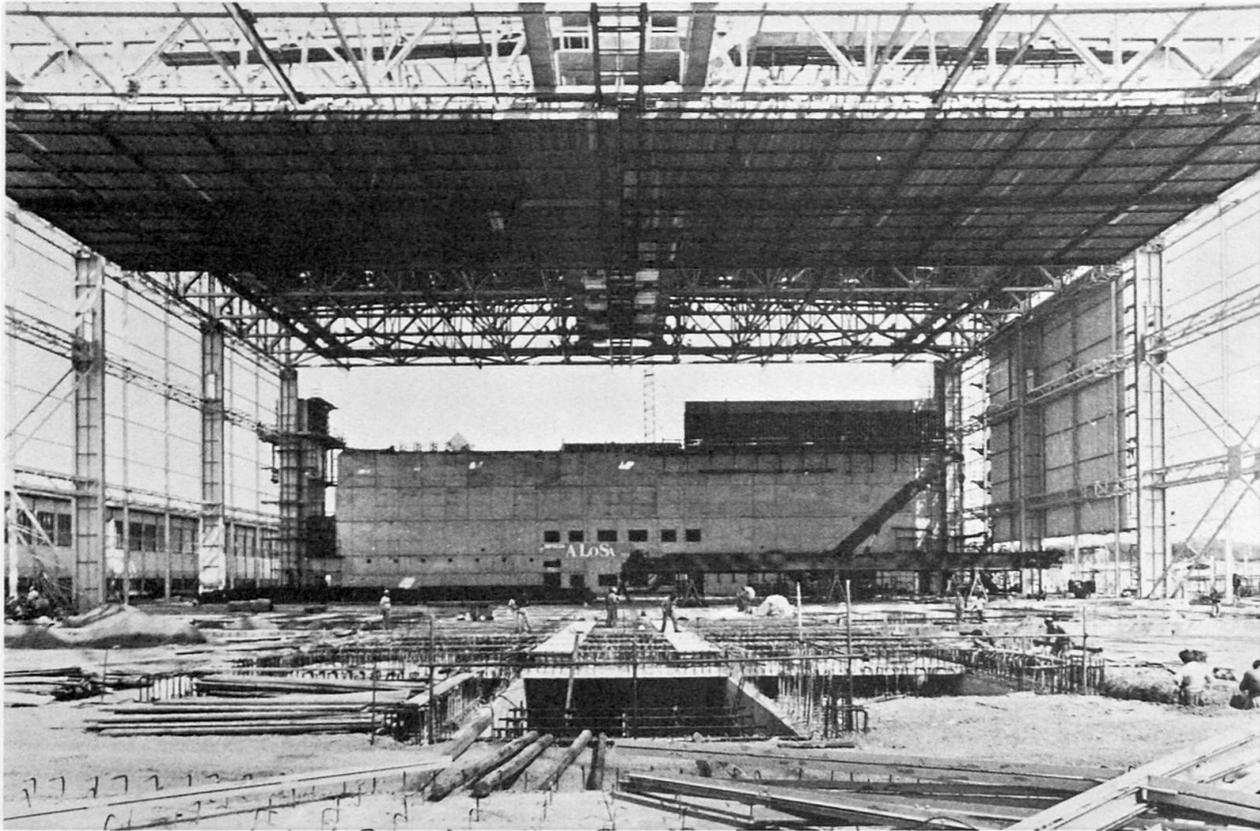


Fig. 3 The movable platforms allow the works to proceed at two levels simultaneously



Fig. 4 Internal view