

1983 PROJECT SUMMARY

Haj Terminal , King Abdul Aziz International Airport
Jeddah , Kingdom of Saudi Arabia

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An airport and support facility for passengers bound for the Holy City of Mekkah .

Date of Completion : 1981 (partial) ; 1982 (full) .

I. Objectives

Pilgrimage to Mekkah is considered the most important act of Islamic faith. Every Muslim is required , if able , to perform Haj at least once in his life .

The increase in purchasing power and the development of modern modes of transportation have resulted in the annual growth , now massive , of arriving pilgrims to Jeddah airport . A separate and special facility was required to handle these Mekkah-bound travellers .

A large volume of pilgrims with highly diversified needs are obliged , for administrative reasons , to remain in the facility for some time . The area symbolises the " gateway to Mekkeh " ; a peaceful environment is required to make as tranquil as possible this transition to the realm of spirituality . Practical requirements must be met to provide shelter from the intense heat and to accommodate the many and diverse needs of this large group .

II. Description and History

The only commercial centre in close (70 km) proximity to Mekkah , Jeddah airport receives all air traffic bound to the Holy City . The site for King Abdul Aziz Airport extends along the shore of the Red Sea north of Jeddah . The Haj Terminal covers a site area of 105 acres .

Arriving pilgrims in 1965 numbered 50,000 ; a decade later in 1975 that amount increased tenfold to 500,000 ; the projection for 1985 is one million .

Many pilgrims are travelling for the first time to accomplish this most significant journey ; the incidence of cultural shock is manifold . Most are elderly with specific needs . The sudden passage from highly varied individual behaviours to a collective spiritual experience is symbolised by the ritual donning of white garments on a cleansed body for the first step onto sacred ground .

The very uncomfortable climate is characterised either by very dry desert winds or by sea breezes bringing high humidity . The average maximum temperature is 97° F (36° C) and the mean relative humidity is 64% .

Description of Project

The master plan is composed of two identical halves , each comprising five modules , separated by a central landscaped mall . Each module consists of 21 square units joined in a 3 x 7 rectangle fortified on the perimeter by stiff double pylons .

Each unit measures 150 x 150 ft. (47.5 x 47.5 m) and is defined by four pylons at each corner from which are suspended 16 ft. diameter steel rings supporting the tent-like fabric roofs .

Together , the complete fabric roof is made up of 210 white tent units and is on the scale of a small city . All utility , power , and communications systems run through large underground corridors beneath the mall . A total of 20 wide-body aircraft aprons surround the modules .

Upon deplaning , passengers enter an air-conditioned upper level administrative facility that is an independent structure within each module . Leaving the immigration facilities , they descend a ramp into the lower , main area , where are located facilities for accommodation , sleeping , food preparation , etc . Administrative , information , banking , and postal facilities are housed in shop-like shelters ; long arrays of shops lend an atmosphere not dissimilar to Arabian souks .

III. Design , Construction , and Use

The roof shape is the consequent inspiration of the visual impact of large-scale nomad settlements and the response to the severe climate . A precise study of air-movement patterns led to the double-curved tent shape whose peak is the open supporting ring . The shape creates a movement of cool air under its surface , carried mechanically from above to the lower , ground areas . The fiberglass roof fabric is a Teflon-coated double membrane . strong , lightweight , and translucent .

Pre-assembled on the ground , all 21 tent units of each module were raised simultaneously by electronically synchronised equipment . Stabilising cables , paired for safety , join together the tension rings and secure the fabric to the pylons .

The ground plane is paved with coral and coral sand . All structural members were imported ; infill materials were obtained on-site or nearby . Most of the labour force was of Philippine origin ; handworkers were trained on-site to work with the technology of the fabric roof structures .

The process to erect one tent unit spans a 45-day period ; the structure was completed over 29 months . A full scale prototype of two tent units was erected to verify the performance of the membrane and all connection details . The data relating to shape and materials resistance was analysed by computer for comparison with the theoretical model .

IV. Construction Schedule and Costs

An Americal group of general planners was contracted to develop the Haj Terminal project in association with the Saudian Airways Engineering Corporation . An early solution was submitted in 1965 by other planners ; these proposals were not elaborated . In 1977 , the current architects designed the project along the lines of the former plan . The construction process began in 1978 ; three of the ten previsioned modules were in use for the 1981 pilgrimage . A future expansion of five additional modules on each side is previsioned .

Information on the cost of this project is not available .

V. Project Significance

Considering the recent emergence of the Saudian economic situation , the evocation of a typical , local architecture may be understood in terms of referrence , imagery , symbolism . There existed no cultural reference to sedentary buildings ; there were no constraining site features ; the client's financial assets were not limited . Thus , if respective of the climatic conditions , this , as any , new construction has the potential of defining what is or will become (modern) Saudian architecture .

The rapport developed between the Haj itself and the highly-dimensioned means of execution of the megastructure re-define and may surpass the (original) concept of pilgrimage .