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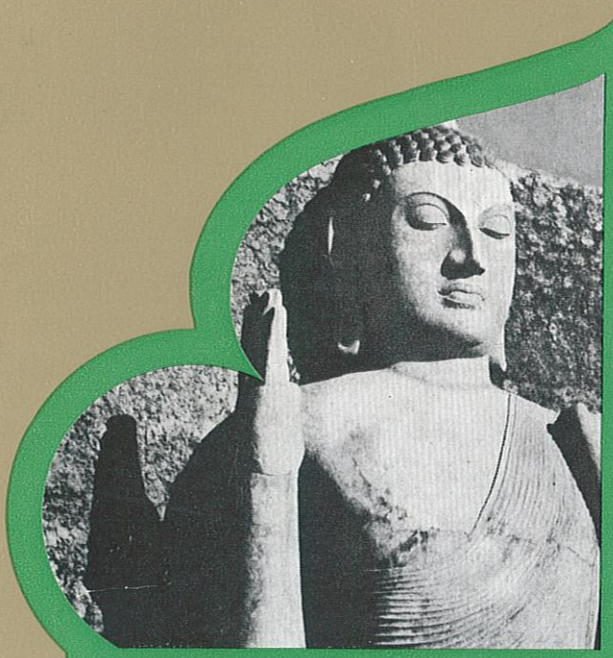
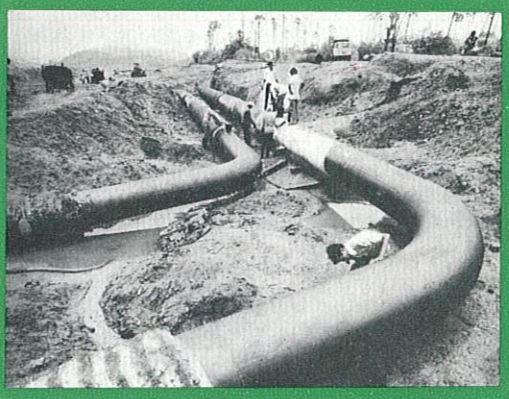
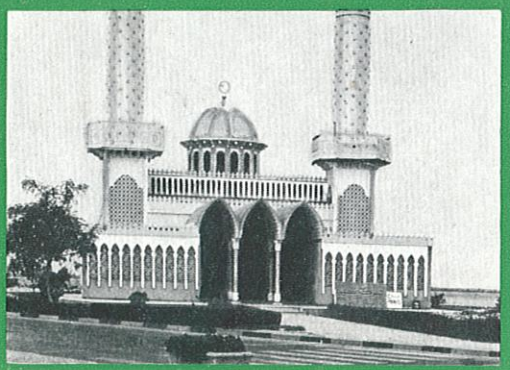
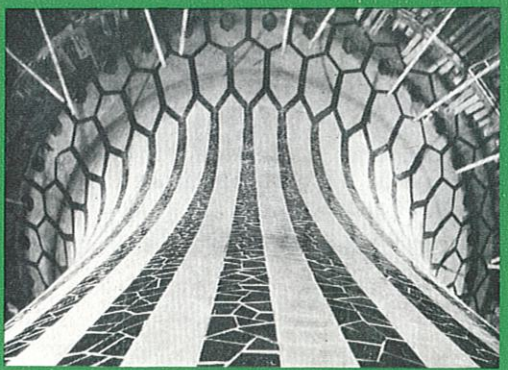








A modern serai for aviation bedouins

The New Abu Dhabi International Airport (NADIA), designed by Aeroport de Paris, is now a reality. This consulting organisation had designed the Charles de Gaulle airport in Paris, noted among airports for its architectural excellence. And as befits the creative organisation, Aeroport de Paris intended to create another architectural landmark taking into account the functional needs of modern air travel and local cultural background, desert landscape and traditions. As Mr. Paul Andreu, Chief Architect, Aeroport de Paris, explains, "During the design of the Abu Dhabi terminal I have often thought of a transit passenger, a bit tired, arriving at night, in this round point of the satellite; aircraft will be positioned all around, linked up with gangways; and here is the passing traveller with one hour to spend under the large green and blue vault, shimmering with lights, in peace . . . And I was taking pleasure in thinking that he would be going off again with an extra souvenir and Abu Dhabi for him would be no longer only an abstract name on the map but already a place."

Mr. Andreu did not merely think of the transit passengers but also of those who commence and terminate their air journey at Abu Dhabi. Of a total of three million passengers per year. Of facilities that will be current and adequate in the year 2000 A.D. and beyond. Of 58,000 square metres of floor area. Of the varied and intricate finish of the terminal complex which absorbs a third of the total cost of the project.

NADIA, the dream, has now taken full shape. Engineering Construction Corporation Limited (ECC) has played a significant and commendable role in shaping this dream airport terminal.

It is relevant to go back to 1976 when ECC took on its largest single order valued at 121 million Dirhams (Rs. 280 million). The order was placed on ECC by the Japanese joint venture of Takenaka Komuten Co. Ltd. and Kumagai Gumi Co. Ltd., the prime contractors. Starting mobilisation in the closing months of 1976, ECC has now completed the phased demobilisation. It has sent back in batches the 1,000-odd employees it took to Abu Dhabi, and has dismantled the plant infrastructure facilities installed for the concrete structural work.

One can visualise a passenger landing at NADIA and go on a tour of the terminal complex—occasionally waiting to recall the designer's rationale for establishing a specific facility.

Mr. C.R. Ramakrishnan, Managing Director, ECC (left) and Mr. N.M. Desai, Chairman and President, Larsen & Toubro Limited (whose wholly owned subsidiary ECC is). In the background is the traffic building of the New Abu Dhabi International Airport terminal complex when it was under construction by ECC

The terminal complex has six main sections—the traffic building (arrival and departure lounges, etc.), state reception building, control tower, satellite concourse, prepassage ways and link gallery. The airport is designed for simultaneous parking of eleven aircraft, including five jumbos. Incoming aircraft will be contact-parked to satellite building through its five prepassage ways. Eleven telescoping gangways connect the aircraft with boarding and disembarking galleries, emanating from the satellite.

In concept and execution the satellite building is a unique piece of architecture. Located 250 metres from the centre of the traffic building, the statellite will be the centre of activity with embarking and disembarking passengers. It is a mushroom-shaped structure with a diameter of 72 metres. Here, emanating from a small round pond situated on the ground floor, a column rises up, widening and spreading radially to a height of ten metres. Then it returns with a smooth curve line to form the first floor level. The design of the blue and green ceramics for the column continues on the vault, then on the first floor level funnel shaped gallery circling the central column. The architect has conceived the satellite core as something akin to a fountain of oil jutting out from the ground. As Mr. Andreu explains, "very little light and heat will enter from the outside; it will be a bit like a huge cave, cool and bright, a calm and peaceful place, but also . . . a very original place." In its conception has gone "research in the cultural background of Arabian architecture, respecting the climatic and functional restraints for a solution which has to be both beautiful and suitable."

From the satellite, the incoming passengers will proceed to the main transit building for baggage claim and immigration, health and customs formalities through a 60-metre access corridor (link gallery) which is a vaulted passage with only port window openings.

At the end of the link gallery from the satellite, the arriving passengers can see the central interior garden and perhaps those who come to receive them at the other side of the garden and the pool around it. They would be far enough to avoid security or customs problems but close enough to exchange brief messages.

Conveyors well adapted for jumbo jet loads deliver the baggage for checking by customs who have 12 counters to do this work—so that waiting is minimised. Much of the travel can be done by means of moving paths and escalators from the disembarking point to catching a taxi waiting along the pavement. The airport has parking facilities for 1,750 cars. Landscaping and greenery mark the approach to the airport from the city. One of the special features of the main traffic buildings is a mosque with a capacity for 200 people.

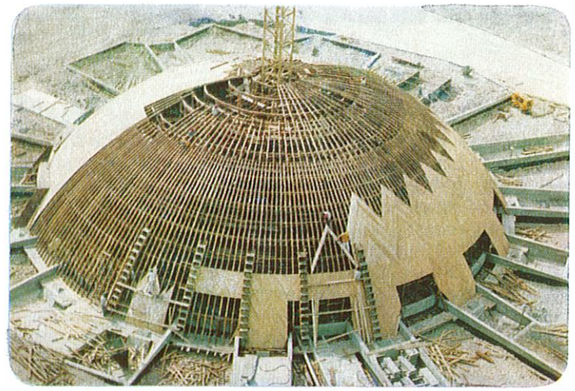
The state reception building is also noted for its special architectural features. It is designed to create a vision of another desert scene—the oasis. The inverted saucer-shaped structure, 40 metres in diameter at the base, provides for an ideal Arab reception to visiting heads of state. On the ground surrounding the base of this structure is a shallow water moat which is visible from inside. This building has its own entry road and private aircraft parking apron and taxiway. Besides the building is an esplanade for official receptions and guard-of-honour inspections.

The highest structure of the terminal complex is the control tower. It is 35.7 metres tall and is connected by a gallery to the air navigation technical block—situated on the ground floor of the traffic building. The cabin platform is situated at 33.3 metres and the controller eye is situated at 34.5 metres. The ground floor and the tenth floor (27.2 metres) of the control tower are connected by a lift. A stairway provides access from the tenth floor to the technical and cabin levels, situated on the 11th and 12th floors respectively. All other tower levels are served by an emergency stairway.

But for the control tower, the whole terminal complex maintains a low profile merging with the desert landscape. As Mr. Andreu explains, "the airport is built in a desert. We have to keep the beauty of it, the beauty of the extreme simplicity of an earth with almost an even colour blending with the sky and expressing both calm and intensity . . .

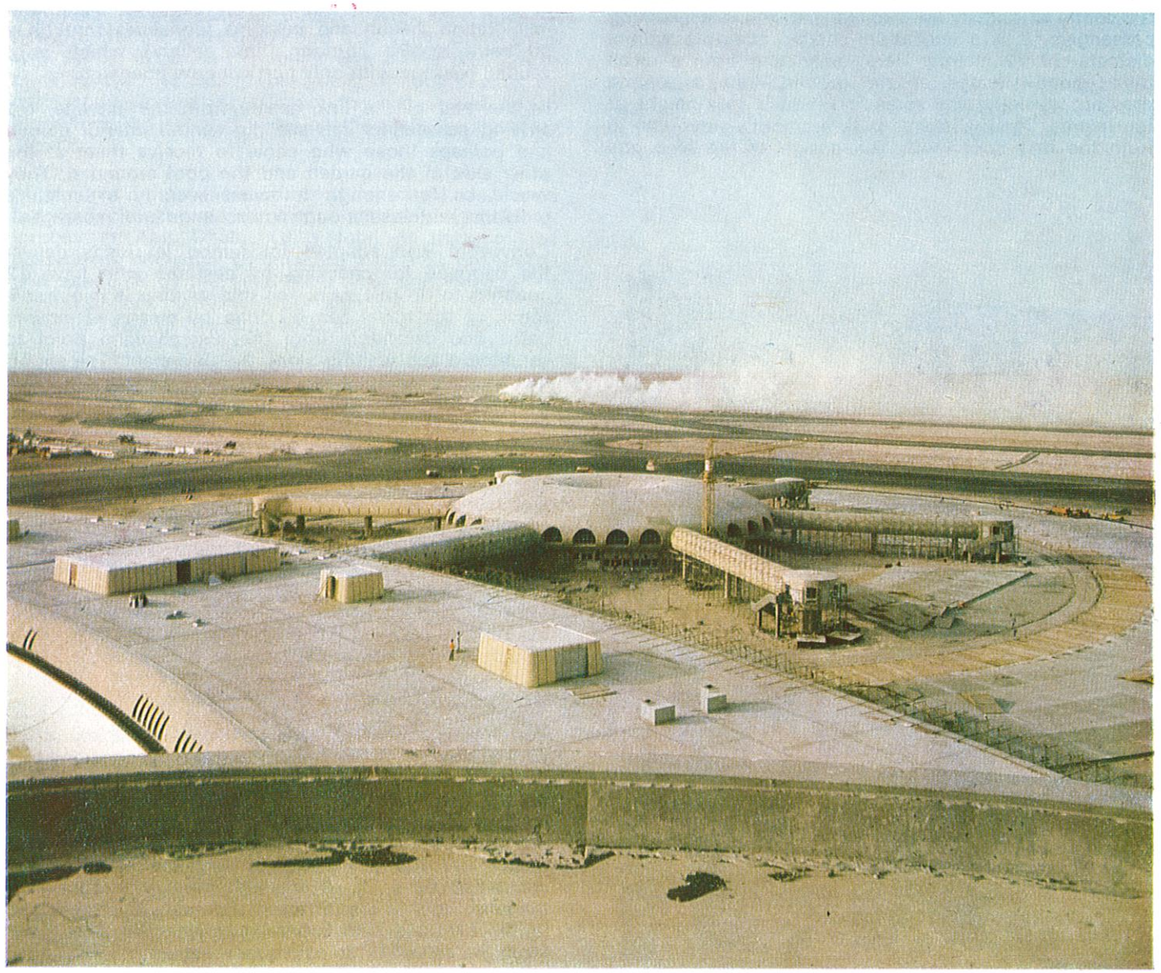
"In return, the buildings, and particularly the terminal, have to create something new in the landscape, a bit like a city in an oasis, thanks to greenery which is concentrated on the approaches to the buildings and in the car park.

". . . These masses, all lightly tinged, will recall somewhat a city by their diversity and their nature; from the bottom to the top, the curved mass of the building for arrivals and departures; the low domes of the state reception building and the satellite, a higher dome for the mosque, the column of the control tower widening out towards the sky; these masses modern and original, remain near enough to the masses of the traditional architecture to appear familiar in the landscape."

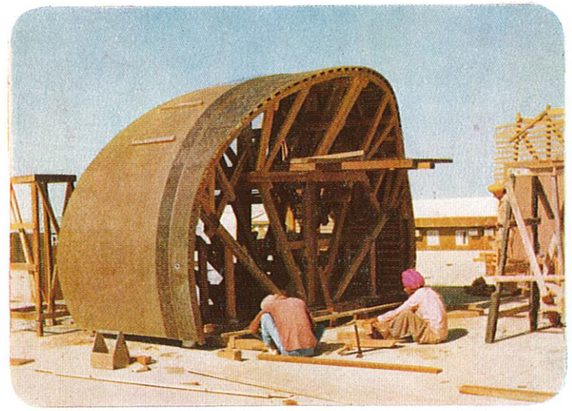


Right: Form work for the state reception building under construction

Below: The satellite building at NADIA



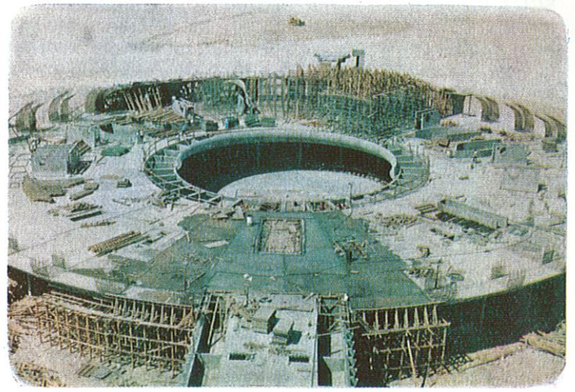
ECC has finished shaping an architectural dream—a Taj for the aviation industry and has moved on to other areas after carrying out another successful overseas assignment. But NADIA will not be just another job. It will be a landmark in ECC's long and eventful history. ECC's core staff back home and those at the desert site will



Above: Timber form work for the in-situ portion of the satellite and link gallery junction

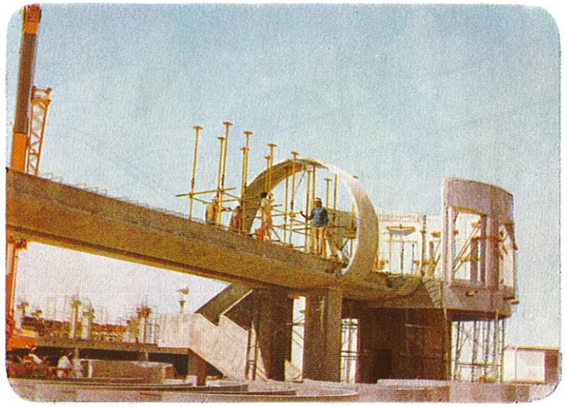
Top right: View of the first floor level of satellite building

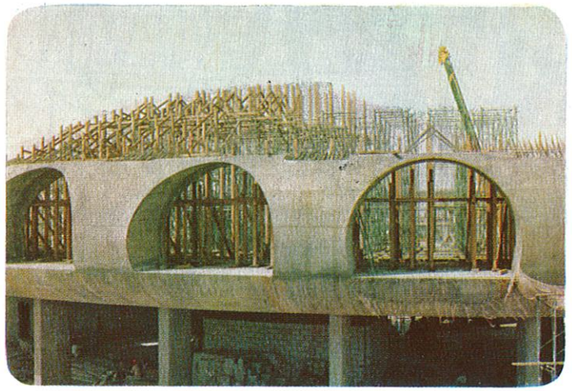
Below centre: Erection of precast units for the passageways



Bottom left: Bay windows of the satellite building

Below: Scaffolding for the control tower under construction

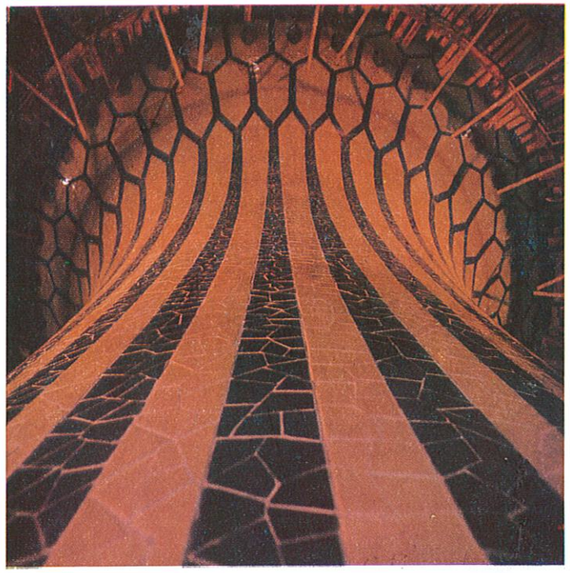




remember NADIA as a challenge accepted with awe, faced with grit and completed with satisfaction. NADIA would be cited as a working or standing monument to ECC's constructive capabilities.

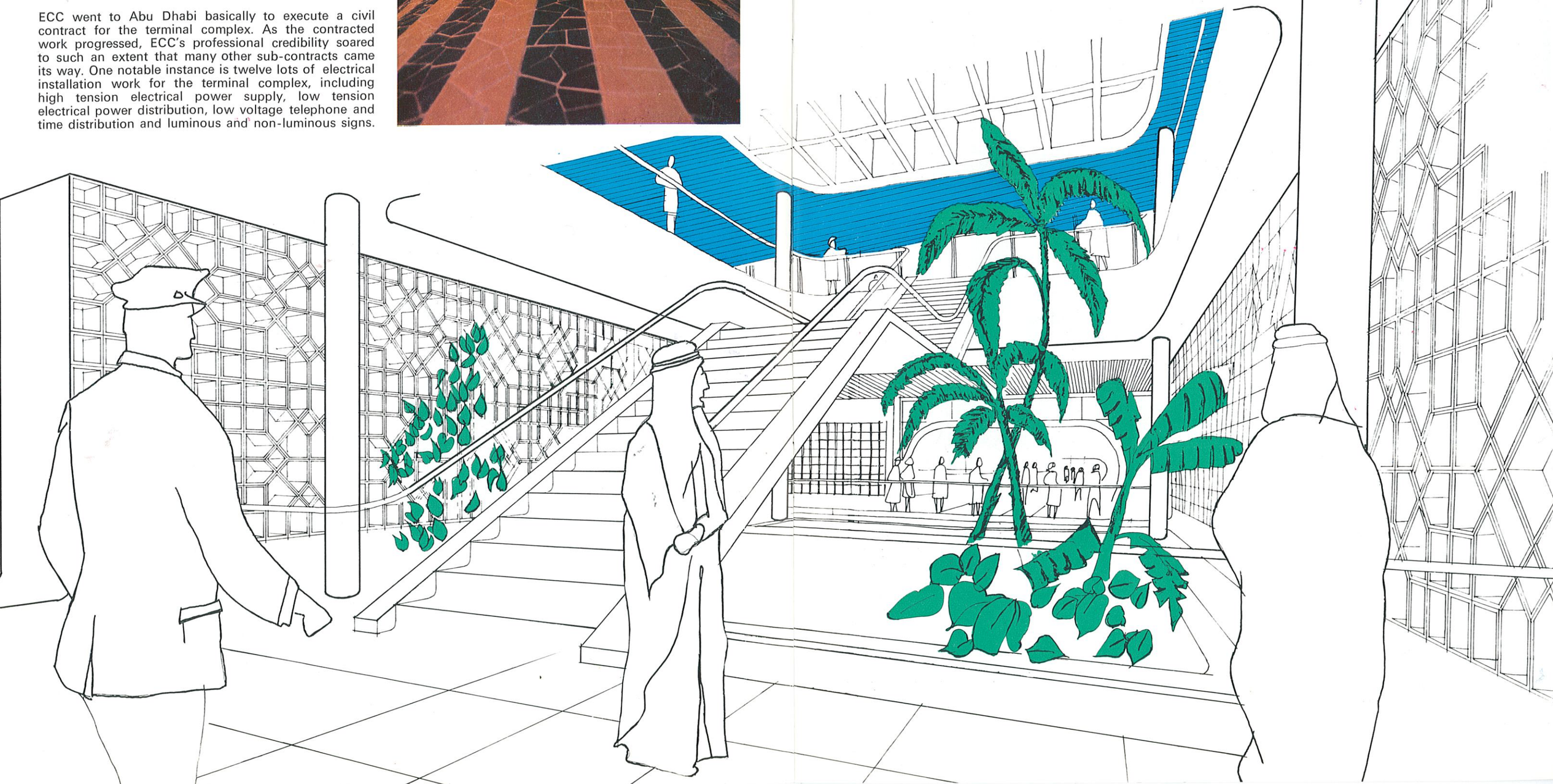
ECC's involvement in the NADIA project offered scope for the development and export of diverse materials from India—crazytype ceramic and stoneware mosaic is one outstanding example. Bombay was the scene for composing and mock-up assembly of many of the intricate tiling patterns used at NADIA. Once assembled, the parcels were numbered, crated and shipped to Abu Dhabi to be put in place according to the arrangement worked out earlier in Bombay. Mock-ups were also done for the precast elements used in the NADIA structure.

ECC went to Abu Dhabi basically to execute a civil contract for the terminal complex. As the contracted work progressed, ECC's professional credibility soared to such an extent that many other sub-contracts came its way. One notable instance is twelve lots of electrical installation work for the terminal complex, including high tension electrical power supply, low tension electrical power distribution, low voltage telephone and time distribution and luminous and non-luminous signs.



Left: The central column of the satellite building showing the crazy glazed ceramic tiles. Each tile was first assembled in Bombay, numbered and packed for site reassembly at Abu Dhabi

Below: Central reception lounge at the first floor of the traffic building



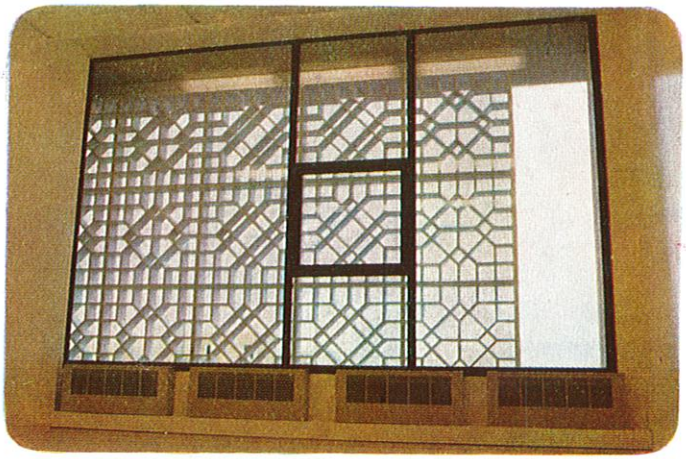
Top left : View of the traffic building showing precast facade units on the runway side

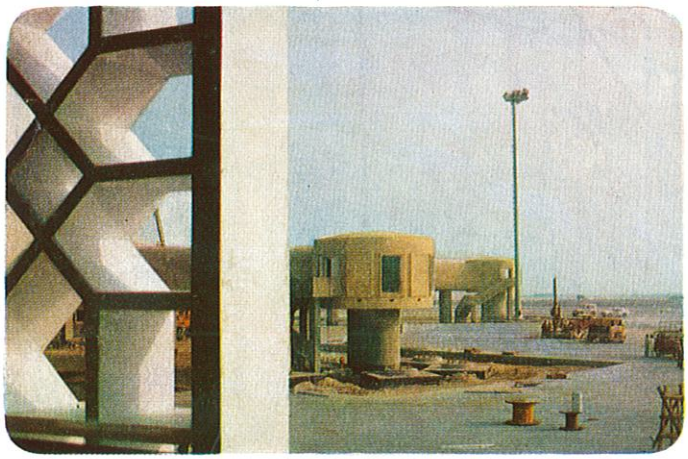
Top right : View showing pierced screen units

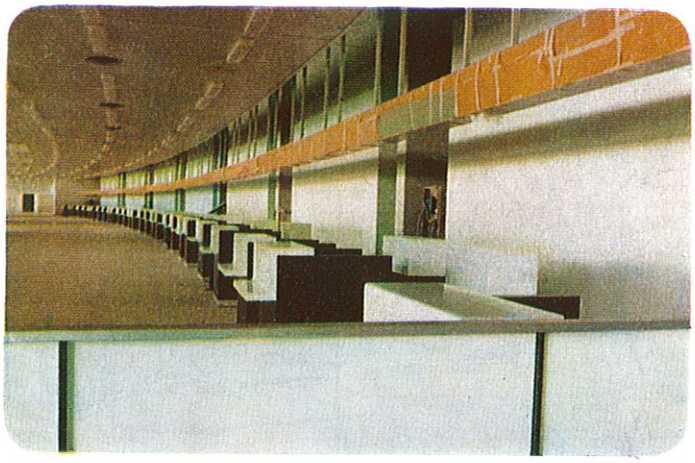
Left centre : A close-up of pierced screen unit (at left) with prepassageways at right

Right bottom : Typical internal view of accommodation for staff members at site

Left bottom : Reception lounge—also showing glazed tile work of traffic building canopy







Scientific & Technical Manpower

A single, most impressive, achievement about India's scientific and technical manpower is that India, today, has the world's third largest number of scientists, technologists and engineers, exceeded only by the USSR and the United States. There are now about 1.5 million Indians with graduate or post-graduate degrees in science, engineering, agriculture and medicine. The average rate of growth of the manpower has been nine per cent per year.

—A. Ramachandran in TIME