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Summary

E. Zietzschmann

Airport architecture

(pages 275–280)

A recent and exceedingly complex problem in architecture is that of ground installations for air traffic.

The unforeseeable and powerful development of aviation is indicated by the following data:

London Airport

5.3 million passengers in 1960,
80,000 tons of freight per year.

Zürich Airport

(size of average European airport)
1.3 million passengers per year,
16,000 tons of freight per year.

Vital questions in airport construction and developement and solutions which have been proposed up to the present.

Present-day air travel, in summary form:

Travelling time extremely short–a quarter or a sixth of railway times.
Enormous loss of time in passenger control.

Proposed improvements:

1 Elimination of waiting periods.
2 Elimination of movement between aircraft and waiting lobbies.
3 Acceleration of baggage expedition.
4 Improved baggage expedition methods.
5 Separation of enplaning and deplaning passengers.
6 Separation of passengers from visitors.
7 Diminution of time between the air terminal and the city centre by means of helicopter and train services.
8 Elimination or diminution of noise and smell of jets (112 decibels during 10 to 20 second take-off).

The noise problem is also important with regard to nearby housing. In the air terminals proper a reduction to 40–50 decibels in ticket offices and administration offices is desirable; 55 decibels for the waiting lobbies and 80 decibels for baggage areas.

9 Solution of problems inherent in the nature of air traffic which, unlike railway networks, is owned by numerous terminal installations. (Example: Idlewild.)

Principal factors in airport planning

The number of passengers
type of passengers (transit or terminal)
number of accompanying persons
number of visitors on holidays etc. attracted by airport activity (Necessity for terraces, restaurants, lobbies.)
type and size of craft which use airport
the necessary land area
sound isolation
weather conditions
possibilities of expansion

The solutions

A

The air terminal on one level:

Practical in small towns. Long passenger walks, no stairways.

B

The air terminal with bus facilities:

Passenger movements restricted to one level. Access to aircraft via buses or airport conveyances first suggested by Eero Saarinen for Dulles International Airport, Washington. Passengers are conveyed on the first level from the lobbies to the aircraft whose doors are likewise situated a few metres above the ground. These conveyances have an entrance on either side with, in each case, a seat for the conductor. 90 passengers can be transported in each journey. The doors of the vehicle are at the same height as the exits of the waiting lobbies and the aircraft doors, with which they are connected by telescopic bridges. These vehicles replace finger concourses.

(Cost $ 100,000.)

C

The air terminal with a system of tunnels and satellits:

The landing area and apron are kept free of pedestrians. The passengers are moreover sheltered from weather, noise and accidents. The runways are constructed on a higher level than the terminal building. Passengers pass from the main terminal building through the tunnels to the satellites, around which six to eight aircraft may be parked at the same time.

(Suggestion for the new Cointrin-Geneva Airport. Executed at Los Angeles. Lufthansa proposition: that each satellite building contain all services in order to reduce waiting time.)

Advantages: aircraft servicing by underground passages (petrol, oil, air etc.), underground transportation of baggage.

Disadvantages: long passenger movements without visual connection with the aircraft.

D

Air terminal on two levels:

For the airport frequented by propeller and jet aircraft. The smaller craft are reached at ground level, the larger on the upper level.

Disadvantages: Complication of passenger control since ticket offices are often on the ground floor while waiting lobbies are on the upper level. (Examples: Idlewild, TWA Building.)

E

The air terminal completely on two levels:

Access ramp vehicles on two levels: Enplaning and deplaning passengers are separated. All services are on the first floor from where the finger concourses are directly accessible. Baggage expedition is on the first level. The terminal Kloten-Zurich represents a combination of D and E. Access is on the upper level, as are ticket offices, baggage registration and customs formalities.

On the lower level are waiting lobbies and access to the field, baggage expedition, transit lobby and waiting lobby for persons accompanying passengers. From the lower level transport can be obtained for the City.

The Pan-American air terminal at New York is an example of Solution E. On the upper level arriving vehicles are accommodated. Here also is the only waiting lobby with airline control, baggage registration and direct access to the field. Passengers arrive in the main lobby where there are also a restaurant, baggage expedition and City transport.

Questions facing the future of aviation:

Has air traffic already attained perfection?

Will supersonic aircraft occasion new problems?

Is the system of air traffic based on private companies the most efficacious, the most acceptable?

Will the system of individual ticketing be retained or will there be a movement towards a system similar to rail travel?

At the present moment we have no answer to these questions. It is nevertheless obvious, however, that the rhythm of developments in aviation will continue to be revised and improved.

C. F. Murphy Associates, Chicago

Chicago-O'Hare International Airport

(pages 281–292)

Site: wartime airplane factory which became redundant in 1948.

Initial project: a tangential runway system around a compact terminal nucleus.

Chicago, in contrast to New York and Los Angeles, is the principal interconnection terminal in the USA, 50 per cent of the passengers being inter-connecting.

The concept of a central terminal building and simultaneous landing and take-off on the six tangential runways was designed to reduce ground-time and delays to a minimum. The project was partially carried out before the death of its instigator, engineer Ralph A. Burke. (1 tangential runway, control-tower, part of the terminus, apron and parking area.)

The second stage of the project was a revision of the following points by C. F. Murphy Associates:

a) Simultaneous landings proved to be impossible.
b) Jet aircraft would require greater lengths for landing than the original 18,000 feet planned.
c) Jet aircraft would require 85 ft. to 200 ft. spacing at departure gates rather than 150 ft. as originally planned.
d) A municipal decision that further airport costs must be borne by the using airlines.
e) A fourfold increase in automobile traffic since 1948.

The initial project was consequently modified as follows:

1 open parallel runways,
2 enlargement of the terminus to accommodate all the airlines which had become important revenue producing concerns,
3 enlargement of the parking area.

A circular plan with three terminals and split "Y" concourses arranged around a multi-decked parking lot was discarded because it proved to be a closed scheme, incapable of further expansion.

A second plan designed to link the terminals by moving sidewalks in tunnels under the parking lot was rejected at the insistence of one airline, although it proved capable of expansion.

The final solution was a modification of the former 1948 lay-out. The three original split "Y"s were retained but the complex was given more parking facilities and terminal space by inserting a straight concourse between the "Y"s. This terminal also is capable of expansion.

The final project separates the enplaning and deplaning passengers on two levels. Arriving passengers come to the terminal at the upper level where most of the concessions are and from here they move along escalators to claim their baggage at ground level and obtain transportation for the City.

Finger concourses connect the two levels and allow passengers access to the aircraft from the upper level.

As this project was financed by the airline companies it was necessary to accede to a great number of individual wishes (passenger loading devices, baggage handling methods etc.).

Construction programme:

The two domestic terminals.

Conversion of existing terminal into international facility, with a new building in front of the old terminal to house US Government inspection agencies.

Circular restaurant between the two domestic terminals with main restaurant, coffee bar, self-service, pancake bar, employee cafeteria, etc.

A centrally located heating and refrigeration plant supplies the entire terminal complex with hot water and chilled water which runs in pipes which in turn are in contact with metal ceiling panels.

Charles Eames, Los Angeles

"Tandem" seating facilities at Chicago Airport

(pages 293–295)

Chicago Airport, with 33,000 passengers per day is probably the most important in the world.

The architects of the airport commissioned Hermann Miller (Charles Eames project) to develop a new type of seating accommodation to render waiting periods more agreeable.

Publicity slogan: "A seat for meeting, relaxing, waiting, resting and looking."

Technical details:

Feet:

polished aluminium, protected by nylon rests; T-iron varnished black; frame: polished aluminium; height: 84 cm.; depth 71 cm.; breadth 59 cm.

Backrest: strengthened by steel, varnished black.

Cushions: seat and backrest upholstered in black artificial leather, strengthened by nylon fibre and strips of welded vulcanised fibre.

Headrest: black royalite.

Murray–Jones–Murray, Tulsa, USA

Terminal Building at Tulsa Municipal Airport

(pages 296–299)

A modern airport of major importance. One level for visitors and airport restaurant facilities, the second for ticket offices, passenger checks, registering and expedition of baggage. Passengers are conveyed to the aircraft by escalators at the upper level. Baggage is conveyed at ground level. Acoustic problems:

Double glass and insulating cladding are employed to lessen the noise from jet aircraft. The outer walls of reinforced concrete are clad with green granite.

Cost of terminal building, excluding furnishing and external facilities: $ 4,400,000.

Cost of control tower and airport operations: $ 380,000.

The steel frame is left exposed both inside and outside.

Otto Apel and Hannsgeorg Beckert, Frankfurt, Associates: Hansjörg Kny and Rudolf Jäger

The Lufthansa Base at Francfort-on-Main Air Terminal

(pages 300–305)

1 Service hangar
Statistics: Georg Petry
Covering project: Philipp Holzmann AG
2 Heating
3 School building
4 Flight service

Service hangar

Principal hangar (East/West orientation): length – 171m.; height – 10 m. (on three levels).

To the north and south of this hangar are others housing jet aircraft: length – 156 m.; depth – 55 m.; height of doorways – 10 m. at centre, 15.6 m. at sides. All technical installations are found in the technical gallery which runs the whole length of the building. For construction details compare issue 11/1961.

Heating

Serves all Lufthansa buildings.

Heating: by unrefined petrol.

Volume: length – 25 m.; depth – 17 m.; height – 6,7 m.; distance between the arches: 5 m.

Supports: two welded LP 14 reinforced by longitudinal beams. The light cladding is carried by sections of various steels. The outer walls: above glass, below silico-chalk bricks. Above the glass sections: constant ventilation by system of sheet metal valves.

The school building

This building is built on one level: the technical tract is 6 m. high, the school and office tract 3 m. high. It serves as training unit for pilots and technical crews. The simulator unit is a reconstruction of an aircraft cockpit where the crews are trained in simulated flight conditions.

An adjoining room has sketches of runways and a mobile television camera which projects shots on the screen before the simulator. Visitors can observe flight training from a gallery in the centre of the building.

Flight service building

This building serves the majority of Lufthansa lines with food, drink and cabin requisites, to the extent of 10,000 hot, cold and refrigerated dishes per day.

To avoid congestion a split-level system connected at focal points by conveyor belts has been introduced.

On the lower level food is prepared. Distribution is facilitated by a radial system:

1 Composition of menus. (Last-minute changes possible.)
The head chef's office, supervision and directions by loudspeaker system.

2 Fruit-kitchen (300,000 kg. per month).

3 Hot-plate; coldrooms for refrigerated dishes, prepared in large quantities; finally defrosting unit and cooking area proper.

5/6 Preparation of snacks: wrapped sandwiches and jellied pastries.

9 Distribution to the aircraft. Each flight is numbered and all articles sold on board, all reading material and publicity brochures are added.

10 Automatic washing unit: 60,000 plates, 50,000 couverts and 20,000 glasses per day.

At the end of the building on the upper level: canteens, guest rooms, showers and baths. In the basement: laundry and linen cupboard, refrigeration installations, air-conditioning, sales control, office, slaughterhouse, customs store with sealed articles (600,000 cigarettes, 25,000 bottles of alcohol, 420 kg. coffee per month; 5,700 illlstrated magazines etc. are sold every month aboard Lufthansa machines.

Sergio Bernardes

Intercontinental Airport at Brasilia

(pages 312–314)

Highly compact programme: three levels.

A. Upper level:

Runways, access to the aircraft, hangars, technical services, fuelling equipment, hangars for state-owned helicopters.

Centre: 17-stage tower with hotel (192 suites), reservoir (2 million litres), cinema, night club, restaurant, administration and administration offices, roof garden, and planetarium.

Circular building with uniform exterior, sectored interior, the same principal of annexes at other airports, with landing and starting runways.

B. Lower level 1:

Waiting rooms for transit passengers, immigration control, customs shed, baggage expedition. Passengers arrive at this level and obtain here also transport for the City.

C. Lower level 2:

Arrival of enplaning passengers, airline ticket offices, control, central waiting lobby from which the passengers ascend to the upper level by means of escalators.

Klaus E. Müller, Tokyo, New York

The Japanese Hotel

(pages 315–316)

Our modern construction seeks to emulate the discreet harmony of the japanese hotel.

Although hotel facilities are widespread there are a great number of local variations.

In Japan sleeping, living, working and playing are often confined to a single room adapted to the needs of the moment. It is for this reason that the Japanese hotel does not offer many public rooms but is devoted for the most part to guest rooms and suites.

Hotel plan:

At the flagstone entrance shoes are removed and sandals donned (1); the proprietor is greeted and then one is led by one's servant to one's room.

On the way one observes the plan whereby each room has a private garden. For this reason the majority of Japanese hotels are built on one level. If they do have several storeys (normally up to three) each room has a beautiful view from a private terrace.

Public rooms are normally a banquet hall and, in every case, the communal baths which are an important aspect of the Japanese way of life.

Room plan:

Entrance hall, main room and terrace. The room becomes apparent little by little after one has crossed the threshold (where the sandals are left). The floors are covered with woven "tatami" mats and the furnishings are restrained in order to emphasize the natural (4 and 5).

The room is divided into three sections by the sliding doors which also serve to hide the wall closets. These are either made of thin paper (shoji) to allow a diffuse light to permeate the room or of massive wood (fusuma) often covered with paper in an asymmetrical design (6). The walls are partly plastered in a typical japanese brown as are the bamboo grills at the entrance. A special niche (tokonama) has a painting (kakemono) and a floral arrangement (0) as in the ordinary Japanese apartment (7). The painting, a calligraph or a design in Indian ink, is varied with the seasons, replaced, that is to say, four times a year. non-constructive, traditional embellishment in rough wood. The only piece of furniture is a low table surrounded by cushions (zubuton) (8). At night a mattres is spread on the floor (9). The other articles of furniture form part of the wooden terrace. The ceiling is a wooden one, or else made of a yellowish-brown bamboo which emphasises the monochrome room. Light fixtures are generally concealed and soft. The garden gives the impression of being an open space, although it is often quite small.

The traditional wooden construction is preferred because of its flexibility in case of earth tremors. The 3×6 foot module corresponds to structural requirements and the panel dimensions. The wood is easily marked outside by weather and time, a fact which corresponds to the Japanese ideal of beauty (shibui). For this reason, however, temples and historic palaces must be rebuilt about every twenty years.

The use of few materials–wood, paper and bamboo–produces a feeling of intimacy and repose.

The principal characteristic of this architecture is the desire to open all interior spaces to the exterior without losing the idea of intimacy in every room. The Japanese penchant for nature which is rooted in their religion (shintoism) and the specific climatic conditions may well account for this tradition.

The principal value of this architecture lies in the composition of the plan. Great importance is not attached to the facade which is generally surrounded by high walls to separate the buildings from each other. This is necessary in view of the density of Japan's population (10 and 11).

The architecture we have described here is therefore that of the traditional Japanese dwelling which has retained its conception through centuries. This has been rendered possible by long periods of isolation from the rest of the world. Japanese architecture was not divulged until the onset of the modern period and since then it has profoundly influenced occidental architecture.

This repetition of constructional techniques rooted in tradition (which can at times be dryly academic, one feels) is not of prime importance. We learn rather from the ability to establish a balance which allows the public hotel to be in some measure private. And this is, after all, the task of a hotel and not the constant stream of distractions to which we are submitted in the West, distractions which unfortunately do not distract us from our daily preoccupations. The Japanese hotel does not seek to astonish; instead it offers repose for the body and the spirit.

Kenzo Tange

Interior design: Isamu Kenmochi

The Atami Garden Hotel

(pages 317–324)

Atami, two hours by road or rail from Tokyo is essentially a pleasure resort (bars, casinos, cabarets, public houses) and a thermal resort.

Atami's architecture is far from distinguished.

With a considerable amount of skill Kenzo Tange has constructed in concrete the extension to a traditional hotel. The transition between the old and new is effected by a corridor which changes from a semi-traditional veranda with a view over the landscaped garden to an area with modern murals.

The ground floor and the first level are given over to general facilities: lobbies with easy chairs, restaurant, a Japanese banquet hall, a games room and connecting corridors.

The upper floor levels have an identical floor plan. Rooms are divided into groups of three detached suites round the stairwell and lift. The two outer groups comprise japanese-style suites for 5 or 6 persons; the centre suite is western-style and there are two mixed apartments for four people. The surprisingly high number of beds per room is explained by the fact that the Japanese like to travel in family groups.

In Japanese cities western-style hotels function on European lines. Japanese-style hotels have a different system: the guest receives his suite, meals and kimono for a set price and this price is dictated by the quality of the food. The Atami Garden Hotel, in every respect a luxury hotel, strikes a compromise between the two systems: the price of the suite is fixed, irrespective of the number of persons using it. The quality of the hotel-supplied kimono indicates the financial status of the guest.

The suites are tastefully furnished, roomy, and designed by Isamu Kenmochi. Paintings from the owner's private collection adorn the walls.

Each apartment has sliding doors opening on to a balcony with a view of the sea.

The walls are finished in natural wood, black and white painted plaster; walls are papered grey and ceilings done in zonolite.

Long sofas along the walls are converted to beds at night, a part of the panelling becoming a bedside table with lamp. All light switches are near the bed. Toilets and eating niches are built in every room although food is generally placed on the low tables before the sofas.

All the Japanese rooms have a Tokonama niche floored with terazzo and hung with paintings.

Each suite has hot and cold water from the thermal springs and two toilets, one Japanese-style, the other Western-style.

The patio above the Japanese banquet room can also serve as an open-air restaurant.

The banquet room is luxuriously furnished. The windows form a sort of caisson to the outside and are covered in the inside by white panels to illuminate the room indirectly. The soft lighting is concealed, diffused by glass panels. The stage is used often for amateur performances which are particularly popular in Japan.