

CONCEPTUAL ELEMENTS OF MODERN AIRPORT TERMINAL

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The text contains brief instructions for the content of my master's thesis. My work covers all the main elements of modern airport terminal. Provides a summary of factors that affect the design and the conceptual solutions for developing the airport terminal..

K e y w o r d s: Modern Terminal, Functional elements, Non-aeronautic services.

1 INTRODUCTION

Airports, which were created in the early years of aviation, were designed with a minimal number of buildings which were simple without structural problems. The subsequent growth of air transport leads to more and more complex optimal design solution for an airport terminal. The airport terminal meets each who chooses to travel by air. Therefore, it sometimes is not easy to design the terminal in order to suit passengers and operation wishes. Each airport only uses specific conceptual elements of the terminal depending on its needs and possibilities. There are factors that are essential in the design of the terminal and those that are set to increase the attractiveness of the airport, for example offering greater comfort for passengers. In my master's thesis I want to closely identify the factors and the makers that affect the design features of the airport terminal. Factors affecting the final solution for the terminal, and what they mean for airports are described closer in my work.

2 MAIN FACTORS AFFECTING THE DESIGN OF THE TERMINAL

Airport infrastructure is part of the territory, which is needed for the construction of buildings and facilities necessary for air operations. Includes all buildings for passengers check in, cargo, mail, baggage, maintenance of equipment and aircrafts and other transport equipment used at the airport like meteorological services and administrative management of the airport.

The location of all airport buildings is intended by the runway system and the organization of operations at airports. Buildings are placed in building infrastructure, which lies in a neutral zone, in the space outside runways.

The type, number and range of airport construction is set according to the purpose of the aerodrome services and as expected, the density of air traffic. The size and shape of the area necessary for the construction of airport infrastructure construction is the filling and dimensions of individual buildings and paved areas of the airport.

Functionally viewed we divide the airport into the following five main areas:

- Airside
- Terminal building for passengers
- Terminal building for cargo
- Landside
- Service and technical operation:

An airport terminal is a building at an airport where passengers transfer between ground transportation and the facilities that allow them to board and disembark from aircraft. Within the terminal, passengers purchase tickets, transfer their luggage, and go through security. The buildings that provide access to the airplanes (via gates) are typically called concourses. However, the terms "terminal" and "concourse" are sometimes used interchangeably, depending on the configuration of the airport.

We know the six basic criteria that must be met airport terminal:

- Easy orientation for the travelling public
- Shortest possible distance
- Minimum level changes for passengers within the terminal building
- Exclusion of cases of crossing passenger flows
- Flexible enough for future development
- Separating arriving and departing passengers.

Commonly used terminal configuration are :

- Simple
- Concourses
- Linear
- Pier
- Satellite

Due to the rapid rise in popularity of passenger flight, many early terminals were built in the 1930s–1940s and reflected the popular art deco style architecture of the time. One such surviving example from 1940 is the Houston Municipal Airport Terminal. Early airport terminals opened directly onto the tarmac: passengers would walk or take a bus to their aircraft. This design is still common among smaller airports, and even many larger airports have "bus gates" to accommodate aircraft beyond the main terminal.

A pier design uses a small, narrow building with aircraft parked on both sides. One end connects to a ticketing and baggage claim area. Piers offer high aircraft capacity and simplicity of design, but often result in a long distance from the check-in counter to the gate. Most large international airports have piers, including Chicago's O'Hare International Airport.

A satellite terminal is a building detached from other airport buildings, so that aircraft can park around its entire circumference. The first airport to use a satellite terminal was London Gatwick Airport. It used an underground pedestrian tunnel to connect the satellite to

the main terminal. This was also the first setup at Los Angeles International Airport, but it has since been converted to a pier layout. The first airport to use an automatic people mover to connect the main terminal with a satellite was Tampa International Airport, which is the standard today.

Some airports use a semicircular terminal, with aircraft parked on one side and cars on the other. This design results in long walks for connecting passengers, but greatly reduces travel times between check-in and the aircraft.

3 SERVICES FOR PASSAGERS

The main reason most people's arrival at the airport is to get into another country. Passengers tend to be stressed even if already traveled by plane. Therefore, it is appropriate to them, to create an environment in which they feel comfortable and where they may relax before boarding. This services includes mainly restaurants, snack bars and food. After the security control are set up duty-free shops, gift shops, newsagents, hairdressers, banks, exchange offices, clothing shops, jewelry stores, electronics and many more. It is also necessary to ensure room for mothers with children, toilets and emergency services. Deployment of this services should be placed in a way to leave enough free space travelers and give them clear information about the departures of flights.

Nowadays, many airports achieve higher revenues from non-aeronautical services. This is due to several factors . One major factor is the need to increase revenue . Possibility of an increase in revenues from landing and handling fees, but in many countries, but strictly limited . At the same time advantage is that the airport is a high concentration of wealthier members of society and, therefore, during the period prior to departure may take advantage of shops and services and thus increasing revenue at the airport . However, these services should never undermine the smooth running and the basic functions of the airport. Customers may choose from diverse range of goods, brands and fashion products . The airport also provides additional services : fitness centers, cinemas, casinos, car rental fee, etc. Security checks and delays cause that people are staying longer at airports, causing problems especially for children and so many airports have installed even playgrounds.

VIP passengers in some way different from the commonly passengers and they therefore receive special attention. For VIP passengers are considered to ambassadors , politicians , scientists, artists , athletes , business partners, airlines and others. About such passengers takes care the Passenger service. The staff of this service must have language skills at a very good level , operational experience and must cope with different situations .

With the increase in holiday and seasonal travelers , the airport authorities have introduced quick check-in for business travelers and for first class passengers . Airports were added parking space as close

as possible to the terminal , priority check-in, fast security and passport control . Passengers with a ticket first class or business class is just appear to check in 30 minutes before scheduled departure . For such passengers at the airport are also VIP lounges , which provides them with the airline that flies.

Such a lounge consists of a luxury suite with its own bar , luxury leather armchairs , TV , Internet access and various services . Per passenger there would fall 3-4 m² . Nowadays, these connections are already available on the internet and bet for passengers.

4 RESEARCH RESULT

In the research part of my thesis is tasked to find out which services the airport, passengers would most like. Findings of fact will help us to design better solutions airport terminal itself.

The main reason why I decided to do make a research part is to get a collection of reviews from the passengers themselves for providing avionics services airport. Information obtained discourage current state passenger satisfaction with the airport services, which meet at the airport. Based on the information it is possible to design best solution that would enhance the quality of services, passenger comfort and ensure the passenger a pleasant impression of transportation before departure and upon arrival.

I received necessary information that will help me easily identify quality solutions dispatch process related to non-avionics service, from a structured questionnaire via the Web. The questionnaire included a total of 30 questions and was divided into two parts. The first part concerns the transport to the airport, the other for non-aeronautical services and the tasks associated with them. Of all the 25 questions was mandatory. Respondents had the opportunity to choose three questions from several options. Open questions were only 3. Due to the fact I did not expect a large attendance at these types of questions and other questions they allow only one answer. On the web survey respondents had opportunity to respond from 02/26/2014 to 04/01/2014. From start to finish answered of total 85 respondents. Of the total respondents , 48% where women and 52 % men . Age from 19-25 years was 21% and 70 % were in the range of 26-40 years, more than 41 years has had only 9 % . Purely private trips 28 % , 31 % business travels 41 % mixed.

Answers to questions about transport to the airport for help us to identify priorities of passengers. Questions where focused on speed, convenience, type and optionally offered services already during transport to the airport. The airport should first solve its connection with the environment to ensure passengers easy connections with them. Even modes of transport to airport ultimately affect the end concept of a terminal.

Next part of the questionnaire was focused on the actual services at the airport. In this section

were included not only non-flight services but few questions about handling passengers process as such. The reason is simple. Passenger handling, safety control and avionics services all affect the terminal building and its layout engine and concept.

5 TERMINAL OF THE FUTURE

In this part of my master thesis I would like to design the terminal of the future from received result from my research. This design of the terminal depends also on environmental sensitivity.

Modern terminal also depends on the transport possibilities. Modern airports are becoming large and complex transportation interchanges, where you can move freely between car, bus, rail, metro and aircraft. It is the integration, often within a single building, of transportation modes that distinguishes twenty-first-century airports from those of the twentieth century. In fact, such are the level and variety of transport systems at some modern airports that many passengers pass through them or change at them without the intention of using the airport at all. The transport network could be directly connected to the terminals for those who are transported to the airport by some means of transport, while the vehicle immediately leaves the arriving place. Ideally the transport vehicle goes next direct to the place where just arrived passengers. Near the airport could be parking places for cases that need more time. From these parking stations, passengers would be transported to the downstream terminal connection directly to the terminal. According to the responses to the questionnaire should an airport have quick transport to the airport. Most preferred type of transport was taxi and individual transportation. Mentioned above, this proposal would therefore result in total replied. The passenger long range would be the optimal solution by fast train connection that would be handled similarly. Should the airport can ensure a separate transport services for passengers welcomed in transport would be assisting with baggage, snacks and internet.

Next parameter for terminal of the future will be environmental sensitivity. balances struck between nature and technology. The terminal of the twenty-first century will work with ecology not against it environmental systems and building systems operating largely in tune. This means, for instance, that the terminal will not be entirely sealed against the forces of climate, but will flex and respond to wind, rain and sun. The laws of nature and physics will determine in direct fashion the shape and operation of the building. The undulating roofs and angled walls of many recent airport terminals are a reflection of heightened ecological awareness, not a mere fashion. The folded wavy roof allows the natural air currents to ventilate the building without the use of climate-destroying air-conditioning; it facilitates smoke venting in the event of a fire; and it allows the terminal building to slip through the turbulent air currents of a typhoon. Interior planting too provides important air

purification and humidity control. Both interior and exterior tree planting help to filter out sunlight, and provide the necessary tranquillity to overcome stress. The terminal of the future will live, move and breathe like a giant living organism, stretching out tentacles of life and recycled impacts into the wider environment.

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