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### **Air traffic control tower: changings of initial options**

*Annotation: There are given there are given the results of research of world practice of airports reconstruction, in particular, the air traffic control. Over the time researched objects had lost their option of high-rise dominant building airports, but they had gotten new options in public buildings.*

The increasing importance of the air transport in World economy rises up the requirements to the airports, particularly to the quality and services which are provided. The demand for new buildings, modern airport buildings, the infrastructure objects and additional service, which meet current standards, are constantly growing.

Airport development is not only building the new airport and reconstruction the existing ones buildings and constructions, this is also decommissioning and dismantling of individual objects. These can be the landing strips, terminal buildings (Khabarovsk, Russia), command-dispatching posts (Hartsfield-Jackson Atlanta International Airport, USA), etc.

Social, political and economy changes in society are cause of non existing the big number of the airports (for example Donetsk, Ukraine; Tempelhof, Germany; Stapleton International Airport, USA). Some of them are being rebuilt and some of them are replaced with residential arrays, sport and trade centers, industrial enterprises; military airports are acquiring new functions, etc.

Individual buildings are getting new options [2]. We will explore this on examples by several buildings of air traffic control tower (referred as - ATC) - high-rise dominant building airports.

**A. Stapleton International Airport, Denver, Colorado, USA.**  
During 1929 – 1995 this airport was the main airport in Denver, Colorado [3]. The area of the airport was 19 sq.km, also there were six runways which provided air transportation; at Denver airport passengers were served by five terminals (rice.1, a). The control over ground handling of aircraft was carried out by the controllers of the ATC, located in a 12-storey building (fig.2, a).



a



b

Fig.1. Airport area:

a – Stapleton International Airport, 1993 [4],

b – Denver International Airport



a



b

Fig.2. KDPs buildings:

a – Stapleton International Airport, 1995 [4],

b – Denver International Airport [5]

A great number of reasons, in particular, urban development restriction, unpleasant weather conditions and the impact of noise on residential areas (9 km from the city center) had led to termination of operation in 1995 [6].

In 1995 the new International Airport, 40 km from the center of Denver was constructed and operated; this event solved the problem of increasing the airport's capacity, reducing the impact of weather conditions on its activities and created 35 thousand working places, etc.

The area of the airport is 136 sq. km, there are six runways, four passenger terminals and annual passenger traffic - 64.6 million (2018). The height of the CDP is 99.7 m (fig. 2, b).

During 1997-2011, most of the buildings and structures of the former International Airport, Stapleton, were dismantled, besides the CDP building (fig. 3), and the territory with developed transport infrastructure was used for the construction of Central Park housing.

The height of the placement of former dispatching rooms, as feature of architectural and planning decisions, allow to place in the building of the ATC restaurant network Punch Bowl Social and save as much as possible "the air spirit 1920-30-ies" in the interior design [7].



Fig.3. The process of dismantling of the airport, 2003 [6]

### **B. Kazan International Airport, Tatarstan Republic, Russian Federation.**

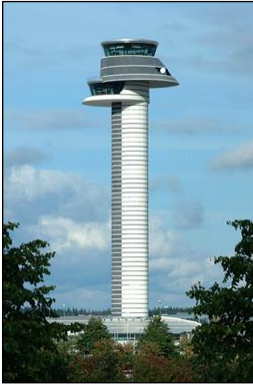
Airport is located at a distance in 26 km. of Kazan, it has two runways, three terminals for passengers, annual passenger traffic – 3,2 million (2018).

The heights of the new building is 42 meters (11 floors). It is planned to place restaurant or observation deck in former ATC buildings so it opens beautiful landscapes in airport area [8].

### **C. StockholmArlandaAirport, Stockholm, Sweden.**

Airport located at a distance 42 km of Stockholm, it has three runways and five terminals for passengers, annual passenger traffic – 26,6 million (2017).

The heights of the new ATC building is 80 meters (rice. 4, a). Former ATC places were rebuilt in VIP hotel. Big picture windows in a hotel room open wonderful views at the runways (rice. 4, b).



a



b

Fig.4. Stockholm Arlanda Airport:  
a – active ATC, general view [9];  
b – hotel in former ATCs building, interior [10]

So, Loosing initial functional and technological functions former ATC buildings are getting new options, particularly in advertising sphere, which makes them attractive for tourists and other city guests.

### Conclusions

1. Development of local airports in Ukraine is led by the decommissioning of individual buildings so part of them could be used with changing initial options in further.
2. The practice of finding creative solutions and attracting architects to the transformation of airport buildings indicates that the airport can get new features objects which are attractive to visitors
3. Saving “old shapes” of objects allow do not interfere in constant standards in architecture environment of airports, which had been formed for decades.

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