

## FEATURES OF COMMUNICATIONS ORGANIZATION IN THE EDUCATIONAL BUILDING №8-a NAU

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**Introduction.** The academic building №8 holds a special place in the campus of the National Aviation University (NAU). The sixteen-storied building was constructed in the years of 1973-1976 [1], and now it is a dominant building block and a kind of urban business card of the institution.

**Formulation of the problem.** Organization of communications in public buildings is an integral part of the three-dimensional planning structure design. Comfort of the stay and moving, operational safety, building management, and ensuring a rapid and efficient evacuation in emergencies depend on the communications amount, location, capacity, and design decisions [2, 3]. The object of study is the three-dimensional structure of the academic building №8-a, NAU. The subject of the study is the organization of horizontal and vertical communications. The research was performed in December 2019 during a typological analysis of the building under the guidance of the faculty of the Department of Urban Planning of the Faculty of Architecture, Civil Engineering and Design [4].

**Main part.** The academic building №8-a is an extension of the academic building №8 and the building of the Scientific and Technical Library (STL). It has four floors and a basement. Together with the buildings of the cafeteria, the administrative-academic building 1, the STL, and the academic building №8, it forms a complex of linear type, located along the avenue of Lubomir Husar. The building is connected with building №8 by horizontal communications in the level of the basement, first and second floors; and at the level of the first and second floors from STL. At the level of the basement there is a reception room, a number of offices, economic and technical premises, and sanitary facilities. The classrooms along the North-East, South-East facades have natural lighting. On the ground floor there are large lecture halls (101-106), a number of classrooms, economic and technical premises, a buffet, and lavatories. Large lecture halls 104-106 have natural lighting. On the second floor there is a lecture hall (203), the classrooms (201, 202), economic and technical premises, a buffet, and lavatories. There are two large lecture halls (204, 205) on the third floor, with window openings on both sides and oriented to the South-East and North-West.

The main horizontal communications at the level of all floors are hallways that connect the premises of each of them and have exits to the vertical communications, i.e. stairwells (Fig. 1), elevator halls of building №8 (at the level of the first floor); as well as the transition to the Center for Culture and Arts (at the level of the second floor) and exits from the building (at the level of the basement floor and the level of the first floor of academic building №8). Two staircases along the facades and a staircase attached to building №8 have exits.

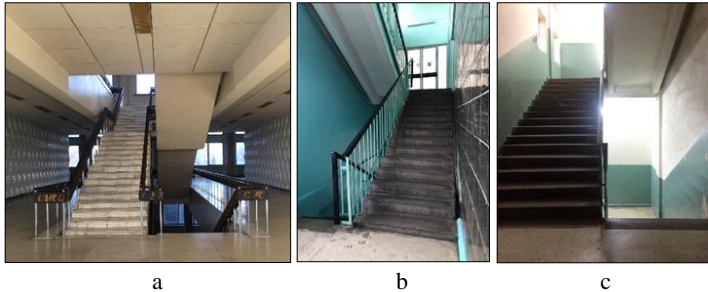


Figure 1. Stairs: a - main, b - transition to administrative-educational building №8 and STL, c - between buildings №8-a and №8-1

Two stairwells in the area of the elevator lobby and buffets of building №8 do not have natural lighting at the level of the first and second floors. The hallway layout of building №8-a with a one-sided arrangement of lecture rooms allows to provide natural lighting of horizontal communications of the first and second floors. For the third floor, there is a hallway layout with two-sided lecture halls and two-sided natural lighting by the South-East and North-West facades. The main stairs are designed for major student flows and are located in the lobby between large lecture halls 104, 105, 204, 205 (Fig. 1a). This is paired two-entry stairwells with an intermediate platform for the distribution of human flows (linear analog of the paired two-entry spiral stairwell of Leonardo da Vinci, Chateau de Chambord, France, 1520). There are also two-marches with a 180° turn with stairs with an intermediate platform (Fig. 1b and 1c), three marches with two intermediate platforms. All marches have a width of 1.5 m that complies with the standards. Secondary spiral staircases are used to lift from the level of the third floor to the technical floor.

**Conclusions.** 1. Horizontal and vertical communications of academic building №8-a ensure the movement of different human purpose and capacity. They have sufficient size and level of natural lighting (except for two stairs located in the area of the elevator lounge and buffets of building №8, which do not have natural lighting in the level of the first and second floors). 2. At the same time, the existing system of vertical communications is not suitable for use by representatives of low-mobility segments of the population. It requires conversion and arrangement of barrier-free elements [5].

### References

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