

## **THE LINK BETWEEN INDUSTRIAL DESIGN AND ADMINISTRATIVE FACILITIES**

**prof. d-r Vaska Sandeva**

Faculty of Natural and Technical Sciences,  
University "Goce Delcev", Stip, North Macedonia  
vaska.sandeva@ugd.edu.mk

**prof. d-r Katerina Despot**

Faculty of Natural and Technical Sciences,  
University "Goce Delcev", Stip, North Macedonia katerina.despot@ugd.edu.mk

**Vladica Nikolovska**

1Faculty of Natural and Technical Sciences,  
University "Goce Delcev", Stip, North Macedoni

### **ABSTRACT**

Industrial design serves to satisfy the need for beauty and utility. In its substance and form, in which it is presented to the public, it is halfway between invention and pure artistry. Industrial design is a design process applied to products to be produced through mass production techniques. Its key characteristic is that the design is separated from the production. The design for office buildings, just like their interior arrangement, changes over time through various influential trends in society. It depends on the social occasions, culture, but also on the willingness and talent of the architects to find the most efficient office layout in accordance with the current trend regarding the interior style and the organizational culture that prevails in a certain company.

The functional nature of the industrially produced objects, that is, the industrial design, is the key link between the space and the users of the administrative facilities. Industrial design has a functional and aesthetic impact, thus in the administrative facilities a whole is achieved that affects the psychology and efficiency of use.

**KEYWORDS:** man, space and industrial design

The design of administrative buildings has been receiving a professional approach since the middle of the twentieth century, measures are applied to improve the functionality, color, comfort, and attractiveness of the form of the furniture. Elements of the formation of an administrative space relate to a certain methodology of satisfying the functional, spatial, and aesthetic elements, so that the work process can be realized. It is necessary to apply all previous experiences in the development of the administrative space to achieve optimal conditions for residence and appropriate treatment in the use of the internal space. The functional organization of the administrative space needs to contain the grouping of certain working rooms, which form one spatial unit, so called the office space. The largest part of the surface of the buildings covers the office space, grouped according to the needs, and adjusted to a certain model of the existing system and concept for organizing the space. As a result of the centuries-old development of the administrative space, several basic systems of organization of the working space, a traditional or classic

system and several systems of a modern system of organization, were formed. These basic models were adapted based on the existing technical and spatial possibilities in the given historical period of the development of administrative facilities. The modern approach in the organization creates opportunities for a combination of open and closed administrative spaces, their combination and constant renewal of new models that are associated with certain manufacturers in the global market of specialized furniture production.

### **Office buildings**

When shaping the office space, the person is more and more the center of attention. The establishment of break and rest departments and the individual shaping of the workplace increase productivity. The greater the flexibility of the premises in a public facility, the easier public facilities adapt to changing requirements.

The detailed plan of the work and organizational structure, and thus the specific functions and relationships of the work process, lead to the search for a specific solution for the business space itself. In the case of administrative buildings, special attention should be paid to the flexible spatial organization, which allows different sizes of office units.

Office space. The forms of the offices, and thus the spatial plan of the administrative building, arise from the activities and the current organization. The method of use can be performed with an appropriate influence on the structure of the object and its spatial design. Efficiency can be achieved by reducing the area per workplace. Emotional components, such as the concepts of colors and materials in the interior, affect motivation and productivity in the building.

### **Forms of office organization**

1. Large offices – they are suitable for large groups of employees. A large room has the character of coercion, which causes repulsion among employees. The enclosed forms of offices are suitable for independent and concentrated work, as individual rooms, or as rooms for small groups that need to exchange information.

2. Reversible office – is an attempt to improve working conditions in a large room. With the possibility, as needed, to divide the room into enclosed devices that are better suited for concentrated work and flexibility, the technical conditions for adaptability have also increased.

3. Group rooms - or it is also called a small, big room, are suitable for groups of collaborators who constantly exchange information. With them, an attempt is made, through the size of the work field, to create spatial conditions for increased individuality of the work environment and thus to improve the work environment, which in the large room no longer met the growing demands for office work (light, air, individuality).

The design also affects the productivity of the employees' work, to feel comfortable in a functional environment, equipped with furniture that is adapted to the level and character of the company's work. At the same time, the basic characteristic of the administrative space is to determine the zones of the working space and communicative spaces, which should be in a common relationship with each other, so that the work process is not hindered.

Modern way of organizing the administrative space Based on the experience in the past development of the furnishing of the administrative space, the term modern, modern way, it is necessary to satisfy certain criteria based on the experience. In

doing so, it is necessary to respect the provision of the individuality of each employee, regardless of the concept of grouping in the space itself. It is necessary to provide easy communication for all employees, even in the case of different professions or different groups that are related to different work processes.



Figure 1. 21st Century Contemporary Design, Tendency to Get Rid of Box Office



Figure 2. Modern partitions, 21st century design

At the same time, certain pieces of furniture are placed that determine the dynamics of filling the space, work desks, various armchairs, shelves, and closed spaces with closets. Depending on the need, the space can be organized, while it is not necessary to observe a certain system that was practiced in the past.

Through solutions that make it difficult to access other workplaces, more time is needed for the exchange of documents between employees, that is, it takes time, which creates inefficiency in the work process.

According to the placement of the work groups in the administrative facility, the

designer should assess the definition of the space according to the complex structure of the workplaces. At the same time, the execution of the work activity within the established structure, consisting of different profiles, activities, and hierarchical arrangement of the work unit, must not be disturbed.

#### **Office cubicles organized with modules.**

With the development of the form and concept of the working space, standards related to the way of practicing the openness of the space were practiced. The development of the spatial conception of the interior during the twentieth century was transformed in relation to the needs and possibilities of furniture manufacturers for furnishing the administrative space.

In the beginning of the twentieth century Eng. Fredrick Taylor creates a spatial solution, respecting the principle of satisfying the efficiency of the work process, that is, satisfying the basic elements for shaping the administrative space. He placed the work desks in an open space, while he connected the realization of the offices for the managers with closed office rooms. In that way, a different system was precisely applied to the type of office space for a different category of clients according to their needs.

Later in the second half of the twentieth century (1960), an open model or landscape office was practiced. In doing so, a space was formed, characteristic of offices in Germany, where the workplaces were grouped according to their function, while the management positions were placed in the same space. Designer Herman Miller created a modular design with flexible workspace. This design was adapted to the needs of companies in Europe that followed a certain philosophy when organizing the workspace.

In the eighties of the twentieth century (1980), the model of office boxes, which enabled precise division of the workspace and with an emphasis on saving space, was most often current. In that way, the economy of the cost of the administrative space was put in the foreground, as well as the design of the furniture. Based on the experience of the mentioned systems in the modern design of the administrative space. Certain elements of the existing systems are used which, with the experience of their application, retained certain positive aspects of their application. The networking of the elements of the working units became a priority from where modern design began. The system of movable panels, which allows a certain degree of privacy, has been retained. Where large work areas are divided into individual work areas, their mobility in space enables communication between employees.

Today, in the modern design of the administrative space, elements of furniture and a modular concept, based on previous experiences, can be applied. In this way, a design is formed where the primary concept is the satisfaction of the needs of each employee. In the dynamic pace of execution of the activities of the work process, it is necessary to satisfy the specific characteristics of the large number of different jobs. The directions for shaping a modern space move towards the creation of more functional spaces, which can occasionally transform their shape and concept of the space according to needs, which in a certain period change and adapt to the transformation of the structure of the companies.

Certain experiences have led to sophisticated solutions of office cabins, which meet the standards for efficient performance of work duties. In doing so, fixed partition panels or sliding doors are used, which allow the spatial system to be changed from time to time, according to needs.



Figure 3. Office cabins

Industrial design is the part that is inextricably linked with the administrative space, that is, the so-called industrial design for modern needs in administrative spaces, where if the part of industrial design of products and semi-products did not exist, the space would have no function. The basic elements of industrial design of products that are used in administrative facilities are: work chairs, worktable, and manual furniture.

**Application of furniture** the process of application of furniture in the administrative space represents a multivalent problem where it is necessary to consider the functional, aesthetic, psychological and economic elements. Knowing the needs of users in the administration through several decades of experience has led to the formation of standardization of sizing and the type of specialized furniture for this purpose. The knowledge of the needs and the psychological component of the users, together with the functional needs, were expressed through the definition of the aesthetic component in the design process.

According to the defined work process, the layout of the furniture is formed, while the visual aesthetic element should be added to the basic functional conception of the spatial solution. With the new modern way of treating the functioning of the space, there was a need for new functional elements of furniture, which satisfy the new needs of the users.

According to modern standards, due to the change in the modern design of the space with furniture, and the reduction of the working area, there is no limit to the dimensioning of the working space. Furnishing with furniture imposes functionality on the space, where care is taken for satisfied communication areas, in addition to working areas with furniture. In doing so, several separate needs are formed, apart from the workplace area, document storage area (shelves), necessary functional area for the furniture (doors), free area for movement around the workplace, as well as provision of communication areas, which often overlap with another function. At the same time, according to the nature of the work tasks, the space is modeled according to the needs, to increase the efficiency from all aspects of the execution of the work tasks.

Although it is about modernly conceived furniture, intended for a specific purpose, with the increase in the scope and variety of the work, the need for additional pieces of furniture for a different purpose increase. It requires storage of a larger number of documents, a larger area for a workspace, where the comfort and functionality of the workspace at each workplace should be optimally used. Modern

needs can only be met with a professional approach of companies that produce office furniture.

**Desk.** In the design of the administrative space, the desk or surface represents a basic cell, surface, or shape from which the design of the space begins. The design of the table always represents an accented element to which the additional elements of the furniture are adjusted or complemented. Most of the working time is spent at the workplace, i.e., using the desk, so special attention should be paid to its design. During the evolution of the desk according to the various needs, which were in large numbers, it was necessary to dimension a certain size, with standardized dimensions, which would fit and satisfy the needs of the largest number of users. Depending on the shape of the work surface, the worktables can be provided as independent, in conjunction with certain modular systems or free modular multi-functional systems.

**Work chair.** According to the large selection of desks, suitable design and creative solutions for administrative desks are provided. In this area, appropriate technology is applied in the production of models that must meet high modern standards, in terms of the application of modern materials, colors, dimensions according to the latest scientific and technological findings in the production of furniture in this area.

First, it is necessary that the work chairs meet the ergonomic standards for the correct position of the body in the working position, in which employees spend most of their working time, that is, they must be adapted for long hours of sitting. For harmonious functioning and satisfaction of all parts of the modern design chair, it is necessary to constantly monitor modern technological solutions, through which higher standards are achieved in the design and production of this complex element of a work chair.

**Specialized office furniture.** In the classic, traditional way of shaping the administrative space, the world's major furniture manufacturers adhere to certain standards and typology adapted to the administrative work process. This applies to shelves, closed closets, shelves with drawers, open shelves, archive shelves, movable types of shelves, vertical types of cabins, etc. In all types, the principle of matching the form of the administrative stationery is respected, which also has certain standards and develops throughout the twentieth century.

**Hand-made furniture.** This category includes pieces of furniture that can fit into the administrative interior and are designer products that are used to shape other types of interiors (living space). This applies to different types of upholstery, stylish designer pieces on armchairs, side tables, lighting, floor coverings, etc.

## **CONCLUSION**

The administrative facilities contain various rooms aimed at satisfying the work process, holding meetings, other auxiliary rooms for rest, etc. The organization of all the different rooms requires knowledge of certain characteristics related to the typology of the work process, the choice of furniture, colors, materials, and the connection with all other rooms in one spatial-functional whole.

Industrial design is the part that is inextricably linked with the administrative space, that is, the so-called industrial design for modern needs in administrative spaces, where if the part of industrial design of products and semi-products did not exist, the space would have no function.

The application of a dynamic lifestyle also reflects the needs and design of the modern workspace. Designers are faced with satisfying multiple requirements regarding the attractiveness, individuality, and performance of a contemporary

administrative space. The quality of industrially produced objects affects the image, compactness and the image that is created in space. For these reasons, it is significant to determine guidelines for adapting to modern models of industrial products in the administrative space.

The interior design of the administrative space should primarily satisfy the functional and practical aspect of arranging the space and choosing furniture.

Modern interior design needs to constantly produce new models of space design, while combining different functional units, different activities, where the innovation of the idea makes the space attractive, acceptable, and interesting, both for employees and customers.

## **REFERENCES**

1. Ajzinberg A.(2009).„ Stilovi Arhitektura, Enterijer, Namestaj “;
2. Asensio P, Clichowski J., Gualti R, (2008). „Officinas de nuevageneracion“, Barcelona;
3. Bailey Stephen,(1990). „Office, Butterworth architecture“, London;
4. Duffy Francis,(1992). „The Changing Workplace“;
5. Lopez Frank, (1953). „Commercial Buildings“, New York, Dodge corporation;
6. Piaotrowski M.Ch. & Rodgers A.E. „Desining Comercial Interiors“, second edition;
7. Propst Robert, (1968). „The Office: A Facility based on change“, Херман Милер inc.;
8. Sandeva, Vaska and Despot, Katerina (2017) „Graphic line as composer of forms in interior and exterior design“.Applied Researches in Technics, Technologies and Education, 5 (2). ISSN 1314-8788 (print), 1314-8796 (online);
9. Sandeva, Vaska and Despot, Katerina (2023) BIOPHILIC DESIGN IN LANDSCAPE ARCHITECTURE AND INTERIOR ARCHITECTURE. KNOWLEDGE – International Journal Vol.61.3. ISSN 2545-4439
10. Mazel Laura, (2009).„Offices, Architecture and design“, masterpieces, Braun;