WORK ENVIRONMENT AND ITS IMPACT ON WORKERS

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Abstract. The concept of «production environment» is characterized and the main factors of its influence on a person are characterized. Factors of the production environment, factors of labour difficulty, process factors and working conditions were analyzed.

Keywords: production environment, influencing factors, difficulty of work, working conditions.

Анотація. Надано характеристику поняття «виробниче середовище» та охарактеризовано основні чинники його впливу на людину. Проаналізовано фактори виробничого середовища, фактори важкості праці, фактори процесу і умов праці.

Ключові слова: виробниче середовище, фактори впливу, важкість праці, умови праці.

Introduction. The following factors depend on the working conditions: the result of work, the total life expectancy, the state of working capacity, physical health, the period of social activity and other factors. A large number of external factors affect the worker in the production environment, which can be divided into two groups based on their origin. The first includes factors that depend on the specifics of production, including geographical and climatic factors (geographical area and climatic zone of the location of the enterprise), and socio-economic factors (the socio-economic system of society, the position of the worker in society in general). They find their expression in labour legislation, in a set of social benefits and guarantees. The second group includes factors that depend on the specifics of production and its staff, which determine working conditions at a specific workplace. Working conditions at each workplace are a synthesis of at least five of their types: industrial, sanitary and hygienic, psychophysiological, aesthetic, social. All of them affect the human body and its performance. Higher wages are established in places with unfavorable working conditions; pension benefits are introduced; special food is issued; the duration of the working day is reduced.

Analysis of the state of the issue. Most of the time of a person's active life is occupied by purposeful professional work, carried out under the conditions of a specific production environment, which, in case of non-compliance with accepted regulatory requirements, can adversely affect his work capacity and health. The industrial environment is a part of the human environment, which includes natural and climatic factors and factors related to his professional activity (noise, vibration, toxic vapors, gases, dust, ionizing radiation, etc.), which are harmful and dangerous factors. Dangerous are those factors that can, under certain conditions, cause acute health impairment and death; Harmful – it is a factors that negatively affect work capacity or cause occupational diseases and other consequences. Working conditions also depend on the production environment or the nature of work. The nature and organization of work, mutual relations in labour teams can adversely affect a person's ability to work or health. They are called

«industrial (professional) damage», which means all factors that can cause a decrease in working capacity, the appearance of acute and chronic poisoning and diseases, an increase in morbidity with temporary loss of working capacity or other negative consequences. Dangerous and harmful factors are divided into:

- chemical arising from toxic substances capable of causing an adverse effect on the body;
- physical, the cause of which can be noise, vibration and other types of oscillatory effects, non-ionizing and ionizing radiation;
- climatic conditions (temperature, humidity and air mobility), atmospheric pressure, light level;
- biological, caused by pathogenic microorganisms, microbial preparations, biological pesticides, microorganisms that are producers of microbiological preparations.

Harmful (or unfavorable) factors also include:

- physical (static and dynamic) overloads (lifting and carrying weights, uncomfortable body position, long-term pressure on the skin, joints, muscles and bones);
- physiological (insufficient motor activity (hypokinesia));
- neuropsychological overloads (mental overstrain, emotional stress, overstrain of analyzers)

Human labour and the production environment are constantly changing in the process of intensive use of the products of scientific and technical progress and the implementation of broad socio-economic transformations. At the same time, work remains the first, basic and indispensable condition for human existence, economic, social and spiritual development of society, comprehensive improvement of personality [1].

The purpose of the work: to characterize the factors of labour difficulty, to determine process factors and factors of working conditions in the modern world, in Ukraine.

Methods, materials and research results. Production factors – features of equipment and technology, the level of mechanization and automation of labour, the degree of equipment of workplaces, the mode of work and rest. Under the influence of these factors, the physical severity of work is formed, characterized by the amount of physical work and static load per shift, and neuropsychological tension, which is determined by the amount of information processed, the intensity of attention, and the degree of monotony of work, the pace of work.

Sanitary and hygienic factors are: temperature, humidity, speed of air movement in the working room; levels of noise, vibration, dustiness, gassiness, radiation; lighting, contact of parts of the worker's body with water, oil, toxic substances, general condition of production premises.

Psychophysiological factors:

- socio-demographic structure of the team – a set of interests, value orientations of employees, management style in units and the enterprise as a whole, scale and nature of activities of public organizations (form the moral and psychological climate in the team);

- comfort at workplaces – perfection of design and planning of equipment, control bodies and means of control over the progress of the technological process, ease of maintenance of machines and mechanisms.

Aesthetic factors are architectural and planning decisions of the interior and exterior, aesthetically expressive form and colour of work equipment, work clothes, appropriate design of recreation areas, etc. [2].

A person's ability to work is influenced by: qualification, work motivation, production equipment and organization and other natural and socio-economic factors, production environment.

The production environment is understood as a set of factors that affect the working capacity of people in the course of their work. There are nine main factors of the production environment that affect human performance in the production process and cause fatigue (it is believed that 1 to 3 factors operate at 1 workplace):

- physical effort (moving loads of a certain weight in the working area, efforts associated with weight support, pressing on the object of work or mechanism control handles for a certain time). There are four types of physical effort: slight, medium, heavy and very heavy;
- nervous tension (complexity of calculations, special requirements for product quality, complexity of controlling the mechanism, device, device, danger to life and health of people during the performance of work, special accuracy of execution). There are three types of nervous tension: slight, medium, high;
- pace of work (number of labour movements per unit of time). There are three levels: moderate, medium, high;
- working position (position of the human body and its organs in relation to the means of production). There are four types of working position: limited, uncomfortable, uncomfortable-compressed and very uncomfortable;
- monotony of work (multiple repetitions of monotonous, short-term operations, actions, cycles). Three levels are distinguished: insignificant, medium, elevated;
- temperature, humidity, thermal radiation in the working area (degrees Celsius, percentage of humidity, calories per 1 cubic cm per minute).
- production noise (frequency of noise in hertz, power of noise in decibels). Distinguish between moderate, high and strong noise;
- vibration, rotation, shocks (amplitude per minute, degrees and number of rotations, number of shocks per minute). There are three levels of values of these factors: elevated, strong and very strong;
- lighting in the work area. There are two levels of values of this factor: insufficient and bad or blinding.

Each of the nine factors that determine working conditions acts separately. All the mentioned factors of the production environment have psychological and physiological limits. The psychological boundary is determined by the standard beyond which employees feel uncomfortable at work. For example, normal production noise is 7 dB. The psychological limit of this factor allows 85 dB. The physiological limit is determined by the standard, exceeding which requires the cessation of work. Thus, the physiological limit for industrial noise is set at 120 dB. Personal factors (mood, attitude to work,

health) also affect a person's ability to work. There are no direct measures of the impact of these factors on labour productivity. An indirect measure can be the increase in output per unit of time under constant conditions of the production environment and the quality of the workforce. However, the main thing in improving working conditions is to increase compensatory wage payments and create comfortable working conditions at workplaces [3].

Directions for improving working conditions:

- the technical direction is related to the creation of new equipment that ensures the preservation of life and health of people and the minimization of labour costs for the production of products;
- the technological direction is related to the introduction of new technological modes that allow people to be removed from work areas (for example, painting products in special chambers). Changes in technology allow the use of new types of raw materials, more productive tools and devices;
- organizational, psychophysiological, sanitary-hygienic and social directions consist in improving the industrial environment, increasing interest in work and its results [4].

Conclusions. One of the most important factors in the production environment is workplace lighting. A lot of attention is paid to its study and control by representatives of various specialties. Lighting technicians with great accuracy measure the existing brightness of light sources and illumination of various areas of the sensory field, setting the required brightness. Physiologists and ophthalmologists determine temporary or chronic changes in individual functions of the organ of vision of those working under the conditions of this lighting and give its assessment in comparison with other types of lighting. The task of occupational psychology regarding workplace lighting is to show what exactly changes in the human activity performed under this lighting, for example, how the speed and accuracy of reading instrument indicators change under different lighting conditions. The workplace with its sensory and motor fields is the most important production environment that interacts with a person in the work process. At the same time, if the above-described factors of the physical environment accompany work, helping or hindering it, then the sensory and motor field largely determine the psychological content of work, being means of achieving its goals. In recent years, the concept of the production environment has increasingly been considered in an aesthetic sense.

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