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**LABOUR PROTECTION. GENERAL INFORMATION ABOUT FIRES.  
FIRE SAFETY AT ENTERPRISES**

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Labour protection is a system of preservation of life and health during labour activity. Labour protection must not be identified with safety engineering, industrial hygiene, occupational health, because they are elements of labour protection, its constituent parts.

The tasks of labour protection are:

- 1) Establishing of a system of laws and normative legal acts in the field of labour protection;
- 2) Control over law compliance and normative legal acts;
- 3) Evaluation and analysis of conditions and safety of labour;
- 4) Analysis of injuries and illnesses, investigation and registration of accidents at work;
- 5) Training and instructing employees in rules and safety requirements;
- 6) Creation of measures for improving working conditions and performing of norms and rules of labour safety.

An important question in the field of labour protection is to provide safe work at enterprises, and in particular to ensure fire safety.

Fire is the uncontrolled process of burning, which is accompanied by the destruction of material values and it poses a danger to people's lives. The causes of fires at industrial facilities can be divided into two groups. The first is a violation of fire safety conditions or careless handling of fire, the second one is a violation of fire safety in the design and in the construction of buildings.

Fire is a chemical reaction between combustible substances and oxygen (or other kind of oxidizing environment). There are three components necessary for the occurring of fire. They are combustible material, oxygen, and the initial heat source with sufficient energy to start the combustion reaction.

Fire may cause several different hazards. The first one is increased temperature in the combustion zone. It can cause thermal burns of humans' skin and internal organs as well as loss of bearing capacity of buildings and

structures. The second factor is emission of significant amounts of harmful combustion products into the air in working areas. In most cases it leads to poisoning of people.

So, fires cause huge material damage and often entail death. Therefore, protection against fire is the most important duty of every member of society and it is held on the state scale.

Fire protection aims to find the most efficient, cost-effective and technically based ways and measures of preventing fires and their liquidation with minimal damage using the most rational forces and means of extinguishing.

Fire safety is certain conditions that prevent a possibility of fire, and if it occurs, the necessary measures must be taken to eliminate the negative influence of fire hazards on people, buildings and material values.

Fire safety can be ensured by measures of fire prevention and active fire protection. Fire prevention includes a set of measures to prevent fire or to decrease its effects. Active fire protection is measures to ensure the successful fire fighting or a dangerously explosive situation.

A set of forces and means, as well as legal organizational, economic, social, scientific and technical measures form a system of fire safety.

The basic elements of fire safety system are public authorities, local governments, businesses and citizens involved in fire safety.

Causes of fires at industrial sites are:

- casual handling of fire (40%);
- violation of rules of electrical equipment operation (18%);
- violation of rules of devices application and operation of the heating furnace (7%);
- violation of rules of operation of heat-generating devices and units (19%);
- arsons (10%);
- other (6%).

#### **Responsibilities of enterprises**

Managers and other officials at the sites in accordance with their responsibilities perform the following functions:

- providing fire safety and fire-fighting mode;
- providing fire protection training in a proper time according to the instructions;
- creation of freelance fire formations and organizing their work;
- keeping fire equipment in working order;
- providing a plan of actions and practical training for workers in case of fire;
- adopting measures against violators of fire safety requirements, and others.

#### **Fire prevention**

Fire barriers include walls, partitions, floors, doors, gates, hatches and windows. Fire walls must be made of non-combustible materials, have a fire-resistance rating of not less than 2.5 hours, and must be built on the foundation. Fire walls must be designed sustainable, taking into account the risk of unilateral collapse of floors and other structures during fire.

Fire doors, windows and doors in fire walls must have fire-resistance rating of not less than 1.2 hours, and for fire overlaps at least 1 hour. Such overlaps must not have openings and holes through which combustion products can enter during fire.

#### **Evacuation routes**

When designing buildings it is necessary to provide safe evacuation of people in case of fire. People must leave the building within the shortest possible period of time, which is determined by the shortest distance from their location to the exit to the outside.

The number of emergency exits in buildings, premises and each floor is determined by planning, but there must be at least two. Emergency exits must be placed dispersedly. In this case, elevators and other mechanical means of transportation of people are excluded from the planning. The width of the sections of evacuation routes must be at least 1 m, and the doors on escape routes at least 0.8m. The width of the outer doors of staircases must at least be equal to the width of the flight of stairs, the height of the passage on escape routes must be not less than 2 m. Buildings with a height difference should be provided with fire ladders.

Following these requirements will ensure fire safety, save lives and health of workers, as well as a quiet labour activity of management and employees at enterprises.

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