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FIRE SAFETY SYSTEM OF PROTECTION FACILITIES OF THE VYBORG DISTRICT OF THE CITY OF SAINT-PETERSBURG

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Annotation. The fire safety system is considered, as well as its main aspects aimed at protecting various objects, taking into account the characteristics of the Vyborgsky district of Saint-Petersburg. This system is an active fire protection, including elements such as fire alarms, fire extinguishers, etc.; passive (space-planning, design solutions), as well as organizational measures to ensure compliance with established norms and rules of conduct, fire safety, etc., which is necessary to ensure fire protection, protection of property, health and life of citizens. At the present stage of development, more and more importance is given to the improvement of infrastructure and its development, as well as the construction of objects for various purposes, which has a special impact on the relevance of the issue of providing buildings and structures with reliable fire protection systems and appropriate control.

Keywords: fire safety requirements, special technical conditions, fire safety elements, state fire supervision, fire safety system, object of protection

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In the conditions of modern social and economic development, the issue of infrastructure development in the field of construction of structures and buildings of various functional purposes is of particular relevance, improving and ensuring the living conditions and economic activity of society. Each building and structure for various purposes requires ensuring its safe operation and functioning, which is achieved through compliance with and implementation of norms and requirements, including fire safety.

The Vyborgsky district of Saint-Petersburg is one of the largest and most significant: its area is 11 550 hectares, and the population is more than 528 thousand. Information about the main buildings of the Vyborgsky district is presented in the table [1].

In addition to these facilities, the Vyborgsky District has enterprises for the production of building materials, the pulp and paper industry, auto parts suppliers, automobile plants, shopping centers, etc. In terms of social, trade and transport conditions, the district is one of the most favorable and rich in infrastructure [1].

The presence of many objects of various functional purposes, including institutions executing defense orders, requires mandatory equipment with reliable fire safety systems. The regulations, which include Federal laws FZ-123, FZ-69, etc., sets of rules, and also, in certain design cases, when there is a fact of non-compliance of the object with the established requirements, special technical conditions (STU) can be developed that reduce certain fire risks and danger of the object [2, 3].

Buildings of the Vyborgsky district of Saint-Petersburg

Buildings for specific purposes	Quantity
Scientific institutions, including those fulfilling defense orders	>50
Kindergartens	71
Schools	59
Health care institutions	19
Institutions of social protection of the population	3
Youth institutions	2
Cultural institutions	5
Institutions of physical culture and sports	8
Apartment buildings, including in the management of housing cooperatives and housing associations	1469 462

Within the framework of a typical model of fire safety activities (a typical fire safety system), the only way to create an original project and reconcile the ideas of architects and engineers with the law, bypassing long-outdated, overly stringent, redundant, standard standards, is the development of STU.

In this connection, a very rare non-standard project today can do without STU. In rare cases, STUs contribute to expanding opportunities and increasing the variety of design solutions, since in the bulk the meaning of STUs is to replace some inefficient standard solutions with others that are inefficient, justified by the subjective opinion of specialists. As a result, STUs are a very costly measure for the owner of the facility, including due to the presence in the STU of additional measures to ensure fire safety, the need and effectiveness of which is often not confirmed by calculation justifications [4].

The fire-fighting duties assigned to the organization-designer of the object of protection are presented in fig. 1.

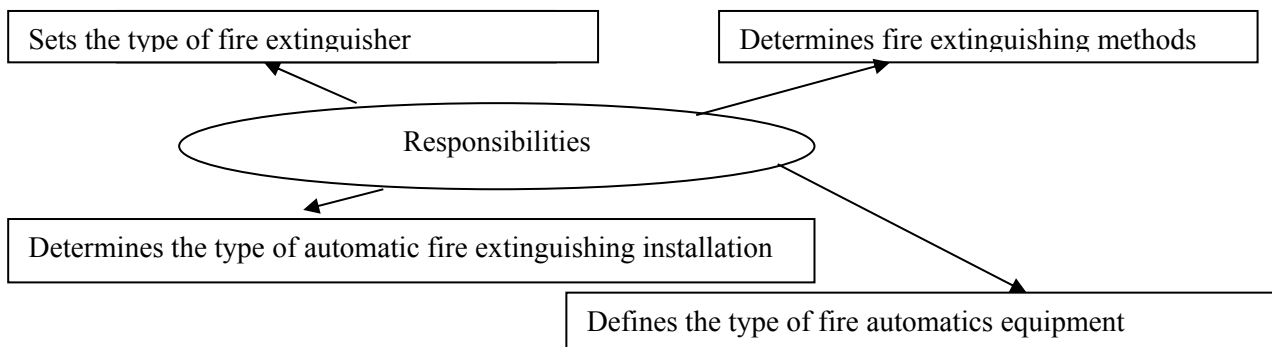


Fig. 1. Obligations of the designer's organization to provide the infrastructure facility with fire safety systems

The presented duties are performed in accordance with the design, space-planning, and technological features of the facility within the framework of the current regulations.

On the basis of the aforementioned regulation, all objects of protection must be provided with appropriate fire safety equipment (alarm systems, smoke, fire extinguishing, etc.). Their operation should be continuous, uninterrupted and controlled by the appropriate internal and external services. To ensure the specified conditions at the facilities, maintenance logs (TO) must be kept [2, 3, 5–7].

The fire brigade or the person responsible for fire safety at the enterprise or at any other facility is required to record in the maintenance log any changes and all data in the operation of security systems. Also, in accordance with the law, the objects of protection should not have violations of building codes, use fire hazardous and combustible materials should be endowed with free evacuation routes with appropriate identification marks, etc. [2, 3].

Within each facility, it is necessary to create, develop and periodically update fire safety rules and briefings focused on for employees in various positions. Familiarization with these documents should be carried out on an individual basis, at the beginning of the labor path, as well as in accordance with the established schedule and the position held at the facility. In addition, as noted earlier, at any facility, there must be a responsible person on fire safety, which is responsible for the strict observance of all instructions, rules and requirements entrusted to it on this issue. Such a person may well be the head of the facility or his authorized representative.

Each facility undergoes inspections, which are carried out by the Inspector of State Fire Supervision, for which the facility must have the following documentation:

- an order with the appointment of a person responsible for fire safety at the facility entrusted to him;
- a schedule where the dates of the fire safety briefing are fixed with a plan for the next ones;
- memos and instructions for using the equipment, for example, how to use a fire extinguisher or turn on an alarm;
- memo on actions in case of fire;
- evacuation plan;
- documents with a detailed program of briefings conducted with the facility's employees;
- logs for checking fire safety equipment and systems.
- acts of inspections and others [8].

The main functions and tasks of the fire inspectorate of the Vyborgsky district are the registration of objects of supervision, the conduct of relevant inspections, license control, fire propaganda, explanatory work, etc. [8].

Inside the object of protection, it is also necessary to carry out a number of measures aimed at to improve its level of fire safety in accordance with the characteristics and characteristics of the object. So, for example, one of the main activities is the development of an Instruction on fire safety measures, which should contain information about the features of the objects (its functional characteristics, the specifics of fire danger, emergency exits, design features, etc.), information about the person responsible for the fire safety and his duties, as well as the procedure for dealing with a fire, the procedure for placing and using fire extinguishers, etc. Compliance with the instructions is one of the main criteria that ensure compliance with the fire safety of the facility [3].

Outside objects, for coordination and liquidation of emergency situations (ES) the Commission for the Prevention and Elimination of Emergencies and Ensuring Fire Safety was established on the territory of the Vyborgsky District. Its main function is to coordinate the activities of the governing bodies and forces of the Saint-Petersburg subsystem of the RSChS (Fig. 2) [9, 10].

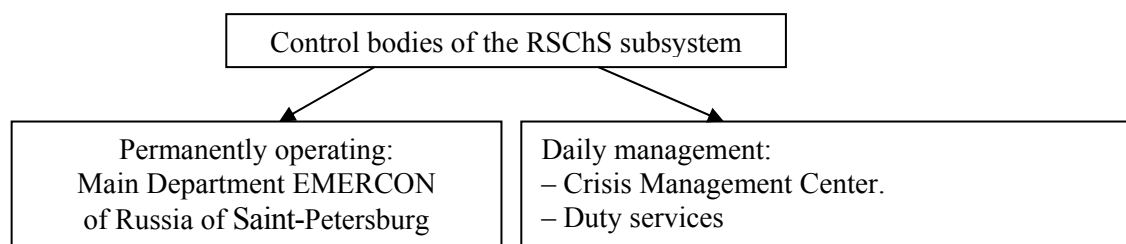


Fig. 2. Management bodies of the Saint-Petersburg system of the RSChS

The daily tasks of the administration of the Vyborgsky district are the development and implementation of measures and programs to ensure fire safety, preparation and promotion of knowledge, supervision and control in this direction, collection and analysis of statistical information within the region, and more [9, 10].

In order to develop fire activities in Saint-Petersburg, competitions focused on fire and rescue sports are periodically held. So, on November 10, 2022, the 80th Championship was held with the participation of teams of young firefighters of educational institutions, including the Vyborgsky district, which contributes to the development of skills, professional training and providing «young firefighters» with the necessary qualities and knowledge [11].

At the state level, according to the Constitution of the Russian Federation, the state is obliged to ensure the fire safety of the population. Such functionality is performed through an effectively formed and operational fire safety system, the structure of which includes various departments [12].

Thus, in general, the system for providing fire protection for objects of various functional purposes, in general terms, includes active fire protection, which is a fire alarm, fire extinguishing equipment, etc., passive – space-planning, design solutions; and organizational measures to ensure compliance with the established rules of conduct, etc., in order to ensure fire protection, protection of property, life and health of people. To improve the system for ensuring the fire safety of protected objects, the following series of recommendations have been developed:

- control over the completeness and relevance of the development of the Instruction on fire safety measures, its information availability, control over the conduct of fire safety briefings, etc.;
- full control over the availability and serviceability of the active part of the fire protection system: fire alarms, fire extinguishing equipment, etc., as well as other operating objects, such as instruments and equipment;
- continuous improvement of fire protection means, implementation of the necessary and timely financing of its active part;
- organization of control over compliance with the rules of operation inside the object of protection, ensuring the work of the relevant fire service;
- implementation of ongoing inspections aimed at determining the level of fire safety and the condition of facilities, as well as their compliance with established standards and requirements, both at the current moment and in the case of reconstruction, re-equipment, etc.

All components of the fire protection system serve as the basis for achieving the necessary and appropriate level of fire safety for various facilities, and recommendations for improvement help to ensure the achievement and maintenance of this indicator.

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