

FIRE SAFETY

Antonov M.B., Tsigankova E.V.
Scientific supervisor – Associate professor Tsigankova E.V.

Siberian Federal University

Fire safety refers to precautions that are taken to prevent or reduce the likelihood of a fire that may result in death, injury, or property damage, alert those in a structure to the presence of a fire in the event one occurs, better enable those threatened by a fire to survive, or to reduce the damage caused by a fire. Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing, and those that are taught to occupants of the building.

Threats to fire safety are referred to as fire hazards. A fire hazard may include a situation that increases the likelihood a fire may start or may impede escape in the event a fire occurs.

Fire safety is often a component of building safety. Those who inspect buildings for violations of the Fire Code and go into schools to educate children on Fire Safety topics are fire department members known as fire prevention officers. The Chief Fire Prevention Officer or Chief of Fire Prevention will normally train newcomers to the Fire Prevention Division and may also conduct inspections or make presentations.

Fire Safety regulation set up fire safety requirements for companies, enterprises and production basis. They are mandatory to follow by every company official, leaseholder as well by foreign citizens.

Regulation requires that every employee and temporary personnel are authorized to start work only after having been instructed on fire safety in accordance with the company regulation and requirements of the “Russian Federation Safety Regulation” with a respective record in the training register.

All company employees and temporary personnel should observe and maintain fire safety routines, take necessary precautions while handling electrical appliances, household, chemical goods, flammable and combustion liquids and substances. Before the start of work and after the close of business the persons responsible for fire safety in the operational buildings, office rooms and equipment as well as all company employees and temporary personnel have to thoroughly examine rooms, electrical plants, workplaces and make completely sure there is no fire hazard.

For internal water supply a company must have fire cocks equipped with hoses, fire hose barrels and connecting semi-nuts. Cocks should be placed in special closets. Fire hose should be connected with cock and fire hose barrel. It is forbidden to use fire cocks and fire equipment not on purpose. On the territory there should be a fire pool. It must have an approach for stationing of fire engines and taking water any season.

Buildings, construction and open storehouses must have fire breaks in between which are prohibited to be used for storage of materials, equipment or containers, parking and construction of new buildings. Roads, passages and accesses to them and to outside fire escapes and water supply sources should be always kept free for fire engines drive, be in good condition, and free of ice and snow in winter. If road is closed signs for by-pass direction should be mounted at respective places or bridging over repaired parts should be constructed as well as accesses to water supply sources.

The territory must have serviceable outer night illumination to facilitate fast finding of fire pools, outside fire escapes, firefighting equipment locations, building and construction entrances.

It is prohibited to make fire, burn containers, waste and garbage within the territory.

Routine repair and preventive inspection of the equipment should be carried out in scheduled periods and meet fire safety requirements envisaged by design and technological documentation. Hot works on temporary sites can be carried out only according to the work permit in accordance with requirements of the Welding and Hot work Fire Safety Regulation at company facilities. Next to the equipment being of higher fire risk standard safety signs (labels) should be mounted. It is prohibited to work on malfunctioning equipment what can result in fire as well as with switched off process instrumentation and technological automatic devices providing for control over assigned temperature, pressure and other safety parameters.

To avoid the risks every employee of the company and temporary personnel must follow fire safety regulation and requirements. They must remember that it is forbidden to:

- Smoke in all rooms not equipped with fire fighting means and having no safety labels;
- Park automobiles, trailers, labs in quantities exceeding norms;
- Break automobiles location pattern;
- Reduce the distance between cars;
- Carry out fire dangerous works out of assigned places or without proper arrangement (work permit);
- Park for technical maintenance the vehicles with open fuel tanks and tanks with oil and fuel leaks;
- Fill and drain fuel from transport means;
- Keep oil in quantities exceeding the shift necessity;
- Keep vessels from flammable liquids (barrels, plastic vessels, etc);
- Fuel tanker cannot enter production building for vehicle filling;
- Leave untidy oiled rags;
- Heap the passages, doors of evacuation exits, approaches to fire cocks, equipment, electric boards with equipment, barrels or boxes;
- Use flammable substance (gasoline, kerosene, solvents, etc) in equipment degreasing and in technological processes;
- Heat equipment, pipelines with open fire;
- Charge batteries directly on transport means.



Figure 1. Fire extinguisher



Figure 2. Fireman

These rules will help to avoid dangerous situation. But in case fire breaks out or there are any indications of it like smoke, smell of burning, temperature increasing, fire alarm system working off every employee should inform the fire brigade of the case giving the address of the object, his name and telephone number. He make takes measures if possible to evacuate people from the building, begin fire fighting with the help of fire extinguishers, primary means and fire cocks, evacuate (withdraw) valuable materials, equipment, document from the building. If the employee is not busy in evacuation he should leave the building through the nearest escape according to Evacuation Plan. Department and group managers

should check withdrawal of their employees and inform senior manager or supervisor present on the territory at the moment.

The person who is responsible for fire safety must organize people evacuation from the building through all escapes and remove people who are not engaged in evacuation measures beyond dangerous zone limits. If necessary, he must switch off electricity supply systems except emergency illumination (this is done by electrician on duty) and organize fire fighting with available fire fighting means including extinguishers and water supply the fire site from fire cocks. He is to send the security representative to meet fire brigades. On arrival, the fire fighting chief must be informed on the exact fire site location, building structures, people in rooms, operation systems, measures taken for fire fighting, prevention of its development and people evacuation.