

It takes only 4 minutes for a small flame to become a raging fire. Combustible fuel, an oxidizing agent, and activating energy must be combined for a fire to occur. The nature of one of these 3 elements determines the class of fire: ordinary combustibles - flammable greases - flammable gases - flammable metals. Knowing the origin of a fire allows it to be quickly and properly extinguished. Frequent causes for fire: defective or overloaded electrical equipment

“Anyone discovering that a fire has broken out must give the alarm and perform basic rescue operations without waiting for official help to arrive”.

Buildings

Buildings must be designed to comply with regulations for fire evacuation, rescue operations, and fire propagation. Special attention should be given to :

Exit routes

- 1,2 or more in number depending on the maximum number of persons at the worksite ;
- minimum width: 0.90m and “no obstructions or encumbrances are to restrict the regulatory width of exit routes” ;
- elevators are not considered a means of evacuation ;
- doors that open out and locked doors: to be operable from the inside and without a key. Free from all obstruction.

Smoke evacuation

Natural or mechanical smoke evacuators, easily managed within the building (over a surface area exceeding 300 m²), and in all stairwells.

Rooms designated for the storage and handling of dangerous substances :

“Areas where flammable substances are handled or stored must not contain any heat source such as a hearth, a flame, or a device that can emit sparks”.

Once hazardous substances have been identified, the storage of flammable, unstable, highly toxic materials and toxic gas receptacles must be monitored. Adequate ventilation must be provided for on a continuous basis.

Certain specifications apply to high-rise buildings and buildings “open to the public”.

Equipments

Fire notices

- fire safety instructions are to be posted ;
- fire evacuation routes for employees are to be marked ;
- location of fire exits and fire extinguishers are to be clearly indicated.



Alarms

“Establishments that can normally gather more than 50 persons, as well as structures of any size where flammable substances are handled and processed must be equipped with a high-sounding alarm system”. The alarm system must be adjustable, audible from any location, and autonomous for a minimal duration of 5 minutes.

Fire extinguishers

The number and type of extinguishers depend on the surface area to be covered, the type of activities being conducted, and the origin of the fire.

All fire extinguishers are labelled with the type of fire they treat, and with instructions for use .

Class	Type of fire	Extinguisher, method of extinguishing
A	Fire caused by ordinary combustibles Wood, coal, rubber, plants, paper, cardboard, cloth	- water - air-pressurized water with additives - multipurpose dry chemical powder - foam
B	Fires caused by liquids or liquefiable solids Hydrocarbons, alcohols, gasoline, fuel oil, tar, grease, paint, varnish...	- air-pressurized water with additives - multipurpose dry chemical powder BC/ABC - CO ₂ (carbon dioxide) - foam
C	Fire caused by flammable gases Butane, propane, methane, acetylene...	- multipurpose dry chemical powder BC/ABC - CO ₂
D	Fire caused by flammable metals Aluminium, magnesium, sodium, potassium, lithium, calcium...	- special extinguishers - dry sand, graphite powder, heavy oils

Extinguishers must be checked yearly for preventive and corrective maintenance.

Fire instructions

A **fire register** is to contain general and specific fire instructions, rules for fire drills, technical checklists for equipment, maintenance reports as required by regulations, and reports of malfunctions that may have occurred.

Notification given regarding: general fire instructions: routes used to put out the fire and evacuate personnel (equipment marked, emergency escape routes and fire exits clearly indicated).

Basic fire safety instructions in the laboratory :

- avoid unnecessary obstructions in the laboratory ;
- hallways to be kept free ;
- do not tamper with electrical equipment or overload sockets ;
- do not place volatile liquids in direct sunlight ;
- make minimal use of flames ;
- store volatile substances in specially adapted cabinets ;
- follow specific handling instructions for flammable and/or incompatible substances ;
- ensure that no high power halogen lamp is placed in close proximity to flammable objects...

Training

“Personnel should learn to recognize the sound of the general fire alarm, how to perform basic rescue operations that are required”.

Fire drills are to be conducted every 6 months and are registered in a logbook that is left at the disposal of the Inspector of Labor.

Fire drills

Fire drills are mandatory and are under the responsibility of the director of the establishment.

Fire drills may be impractical for laboratories situated inside of hospitals.

Fire exit routes are to be posted :

- evacuation is coordinated by the manager, and routes can be indicated with wired safety lines and panels that lead to the emergency exit and the gathering point ;
- do not use the elevators.

Fire extinguisher training

Learn to distinguish different types of extinguishers and conditions for the use of each. How to use and operate fire extinguishers.