

Portable Fire Extinguishers

This guideline provides a summary of the requirements for deploying portable fire extinguishers on a construction project. All the requirements are taken from the BC Building Code 2012, BC Fire Code 2012, NFPA 10-2013, NFPA 241-2013, and the OHS Regulation. Where best practices are recommended alternatives are acceptable provided the requirements are met.

Types of Fires

The three classes of fire that can be reasonably expected on a construction project are A, B, and C. The other two classes, D and K, are not reasonably expected and therefore not considered by this document.

Class A Fires are fires in ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.

Class B Fires are fires in flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and flammable gases.

Class C Fires are fires that involve energized electrical equipment.

All construction projects shall be considered Extra Hazard Occupancies as these are locations where the quantity and combustibility of Class A materials are high and Class B flammables are present. A fire on a construction project can be reasonably expected to develop rapidly with a high rate of heat release.

Minimum Required Rating

The BC Fire Code 2012 requires that portable extinguishers on a construction or demolition site will have a minimum rating of **2-A:10-B:C** on moveable equipment and **4-A:40-B:C** in all other locations. As a best practice a 10 pound unit exceeds the minimum standard and is suitable for Polygon Construction sites.

Installation

Regardless of the specific location, PFEs must always be conspicuously located, readily accessible, and immediately available. PFEs must be located along normal paths of travel, including exits from areas, and on every level of a building under construction.

PFEs must always be installed at least 10 cm (4 in) above the ground with the instruction label facing outward. There is also a maximum height for installation, so the height of a PFE above the ground may not exceed 1.5 m (5 ft). This is to ensure that a PFE can be securely picked up with two hands, one hand supporting the bottom and the second supporting the upper part. The best practice is to install the PFE on a hanger attached to a brightly coloured self-supporting stand.

The maximum travel distance to a PFE within a building may not exceed 23 m (75 ft). When positioning a PFE for a flammable storage area, the travel distance may not exceed 9 m (30 ft). PFEs must also be provided and maintained for any toolhouse or storeroom adjacent to a building under construction; and in any room within the building under construction used for storage, a dressing room, or a workshop.

The following chart provides a suggested number of PFEs for a Class A fire in an Extra Hazard Occupancy based on the square footage of an area or floor in a building.

Class A rating of PFE	4-A	6-A	10-A
Area (ft ²)	# required	# required	# required
4,000	1	1	1
6,000	2	1	1
10,000	3	2	1
20,000	5	4	2
30,000	8	5	3
40,000	10	7	4
50,000	13	9	5
60,000	15	10	6
70,000	18	12	7
80,000	20	14	8
90,000	23	15	9
100,000	25	17	10

Inspections

PFEs must be manually inspected when initially placed in use and at least once per month following that. However, given that PFEs on a construction site can be subject to mechanical injury or physical damage inspections must be more frequent. The best practice is to conduct an inspection of all extinguishers once per week.

A basic inspection involves checking and documenting the following items for each PFE:

1. Location in the designated place
2. No obstruction to access or visibility
3. Pressure gauge indicator in the operable range
4. Fullness determined by weighing or hefting (*does it still weigh the same?*)
5. Verifying that the operating instructions on nameplates are legible and face outward
6. Check for broken or missing safety seals and tamper indicators (*is the pin still in?*)
7. Examine for obvious physical damage, corrosion, leakage, or clogged nozzle

Records of these inspections can be kept on a tag or label attached to the fire extinguisher, on an inspection checklist maintained on file, or by an electronic method. However, due to the environmental conditions PFEs on a construction or demolition site are exposed to an inspection checklist maintained on file is considered the best practice.

Regardless of the method, the records must be kept for at least 12 months.

Maintenance

Once per year all PFEs must have maintenance performed by a certified Fire Extinguisher Technician. After this maintenance is completed each PFE must have a tab or label securely attached that indicates the maintenance was performed. This tag or label must identify the month and year of the maintenance, the name of the person who performed it, and the name of the agency.

For the dry powder/chemical stored pressure PFEs with mild steel shells commonly deployed on our projects an internal examination must be conducted every 6 years and a hydrostatic test every 12. PFEs undergoing an internal examination or hydrostatic test will have a verification-of-service collar installed around the neck of the container.