

Number of Fire Extinguishers Required

The number of fire extinguishers required is normally determined by your fire risk assessment.

The following information is provided for general guidance purposes for workplaces. Fire extinguishers are 'rated' on their ability to extinguish test fires. In the case of class A (which is paper, cardboard and carbonaceous material), a wooden crib of specific size and length is ignited, and the amount of burning crib that can be extinguished is measured.

Traditionally, the 'basic' extinguisher for general use is the red 9-litre water, which can extinguish 1.3m of the standard wooden crib fire, and is therefore rated 13A (the decimal point is dropped). Ratings are marked on extinguisher bodies, e.g. 13A for a 9 litre water, 144B for a 6 litre AFFF.

British Standard 5306 contains formulae for calculating the number of class A extinguishers. The calculation can be simplified by applying the rule of thumb that one 13A extinguisher covers 200 square metres of floor area.

To calculate how many 13A extinguishers are required, divide the floor area by 200, and round up. Example:

floor area 1300 square metres:

$$1300 \div 200 = 6.5$$

Round up to 7

7 x 13A water based extinguishers.

There should be a minimum of 2 extinguishers per floor, unless the upper floor area is very small, i.e. below 100m², and in single occupancy, in which case, only one extinguisher is required on the upper floor. This may be reduced by risk assessment in a sprinklered building or where automatic suppression has been fitted.

Where it is desirable to have smaller, lighter extinguishers, foam or water with additives can be used to reduce weight whilst maintaining fire fighting capability.

E.g. 6 Litre AFFF foam spray extinguishers are usually rated at 13A, but are approximately 30% lighter than 9 litre water.

Specialised extinguishers should also be provided to cover classes B (liquids), C (gases), D (metals) and F (cooking oils and fats), e.g. foam, carbon dioxide or powder.

Siting of Fire Extinguishers

Normally, extinguishers should be permanently mounted on brackets or stands in conspicuous positions where persons following an escape route can easily see them, e.g. close to exits, however this may be impractical public areas.

The intention is to encourage people to move towards the exit, rather than go further into danger. It is usual to locate extinguishers adjacent to fire alarm call points, so people can actuate the fire alarm before picking up an extinguisher.

Extinguishers should be sited so that it is not necessary to travel more than 30m to reach one. So therefore extinguishers can be 60 Metres apart.



Extinguishers provided for special fire risks should be sited near to the risk, but not so near as to be inaccessible or place the operator in undue danger from fire. e.g In a boiler room, next to the door rather than next to the boiler.

Mounting Fire Extinguishers

Small extinguishers weighing up to 4 kg should be mounted with the carrying handle about 1.5m from the floor, whilst larger, heavier extinguishers should be mounted with their handles at about 1m. Care should be taken to ensure that injury is not caused by extinguishers being dislodged and falling onto people.

Signs

The health & Safety (Safety Signs & Signals) regulations 1996 requires that where extinguishers are placed in positions hidden from direct view, their location should be indicated by signs and, where appropriate, directional arrows so that the extinguisher can be located quickly in the event of an emergency.

Excessive Temperatures

The contents and/or operation of extinguishers is affected by temperature, and extinguishers conforming to BS EN 3 are marked with their operating temperature range. Extinguishers should not be exposed to temperatures outside this range. AFFF is effective down to -16 degrees Celcius, however It is possible to obtain water and foam extinguishers containing anti-freeze for external areas.

Fire Extinguisher Servicing

Fire extinguishers require stringent maintenance to ensure they will work when needed, or are more importantly, safe.

There are 2 types of maintenance procedures:

Basic inspection by the user; and
Maintenance by competent person.

1. British Standard 5306-3:2000 covers the maintenance of portable fire extinguishers, and recommends that *“regular visual inspections of all portable fire extinguishers be carried out by the user or user’s representative. The frequency of inspections by the user should be not less than monthly and, when circumstances require, inspections should be carried out more frequently”*.

Inspections should include checks that each extinguisher:

- Is located in the designated place;
- Is unobstructed, visible and its operating instructions face outwards;
- Has operating instructions which are clean and legible;
- Is not obviously damaged;
- Has a reading in the operable range or position of any pressure gauge or indicator fitted;
- Has seals, pins and tamper indicators which are not broken or missing.

Maintenance should be carried out by a competent person (usually a specialist contractor) 12 months after installation of a new extinguisher, and at 12 monthly intervals thereafter.