Dry Powder Extinguishers – not recommended for Indoor Use

The 2012 edition of BS 5306:Part 8 – Selection and Positioning of Portable Fire Extinguishers contains the following clause:

5.4.3 Use of powder extinguishers

> The discharge of a powder extinguisher within buildings can cause a sudden reduction of visibility and can also impair breathing, which could temporarily jeopardize escape, rescue or other emergency action. For this reason, powder extinguishers should generally not be specified for use indoors, unless mitigated by a health and safety risk assessment.

There are other factors which need to be considered before specifying Dry Powder extinguishers for use indoors, particularly in heritage environments, besides the ones quoted in the extract above.

The powder is extremely fine and will get into every small nook and cranny, making clearing-up difficult. The powder must be cleaned up as:

1. it can trigger asthma attacks in some people if inhaled when disturbed;
2. it is slightly alkaline and tends to absorb moisture; if left in situ it can adversely affect almost every material it is in contact with, including metals, stonework and fabrics;
3. if it gets inside machinery with moving parts, not only can it corrode metal but it may cause physical damage to bearing surfaces;
4. electrical equipment, particularly relays and other mechanical contacts, will be adversely affected;
5. if used in a kitchen environment, food will be contaminated and will have to be thrown away.

The cost of clearing-up can be substantial. A church a few years ago was vandalised by the wanton discharge of a single dry powder extinguisher. The insurers (Ecclesiastical Insurance Office - EIO) had to pay out some £250,000 to clean up the church, including dismantling and rebuilding the organ and erecting scaffolding to enable the cleaning of high-level windows and other stonework to avoid long-term damage. As a result the EIO has told the thousands of churches it insures not to have dry powder extinguishers on their premises; it also triggered the introduction of the above clause in the BS 5306-8 revision.

Background to Dry Powder Extinguishers

They were originally developed for the control of liquid fuel fires in industrial plants, fuel stores and aircraft crashes where very rapid knock-down of the flames was required either to mitigate damage or to enable the quick rescue of people, as from aircraft. They have a high extinguishing capacity for their weight, hence their popularity. But they have a particular limitation in that unlike foam extinguishers they do not form a protective coat over the liquid once the fire is extinguished, so that reignition can easily occur. For that reason there is still a need to apply foam as soon as possible after extinction.

Their move into general use came about as the result of research which provided new powders capable of extinguishing a wider range of fires, including the most common 'A' class (wood, paper, fabrics and other carbonaceous materials). But they have their limitations on these fires as well – they will not extinguish deep-seated or smouldering fires very well; a water-based extinguisher is much better for such fires.

Summary

Only if your Fire Risk Assessment shows that a particular risk within a building cannot be protected by any other extinguisher than a Dry Powder one, should you deploy such an extinguisher indoors.

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