



# Why schools need sprinkler systems

Fire outbreaks in schools can leave school managers, pupils and their families counting huge personal and monetary costs.

That's why, at Zurich, we believe it makes perfect sense for anyone designing, building or refurbishing a school to place sprinkler systems at the heart of all their school design plans.

## Saving lives, saving money

The argument for installing sprinklers in schools is compelling. In fact in the UK, there have been no reported deaths from fire in buildings with maintained sprinkler systems. Benefits of sprinklers include the following:

- Life safety – fire-fighters' lives are put at risk in a burning school, especially those with structures of lightweight, consortia building materials, where fire spread in hidden voids has a high potential for flashover and building collapse.
- Life safety – an increase in daytime fires increases the risk of life safety, should children or staff become trapped in burning buildings.
- Contamination – school fires often involve release of asbestos and other contaminants in water run-off, which is considerably reduced with sprinklers.
- Water – a sprinkler uses just 10 per cent of the water of a single fire service hose. (A fire fighter's hose gives roughly 600 litres a minute, whereas one sprinkler head is designed for 60 litres a minute.)
- Fire brigade time – it takes two to five tenders with fire crew, six to twelve hours to put out an average fire where sprinklers are not fitted.
- Rebuild time – a school with sprinklers could be back in action the same day; a year or more later if unsprinklered. It may be the case that the school can still operate as normal with only one room out of action.
- Build cost – a sprinkler system can reduce building costs on new-build or extensions, as a trade-off can be made against items such as partition walls and protection on escape routes.

- Design – sprinkler protection offers the potential to explore much greater flexibility and innovation in design for new build and rebuild. (The Zurich Municipal School and Academy Design Guide offers specific advice on sprinklers and design.)
- Cost – we offer a substantial reduction in fire insurance premiums for the lifetime of the sprinkler system.
- Cost – we remove the mandatory deductible (average £100,000).
- Cost – schools can be more difficult to insure because of their historic loss record. A school with sprinklers is far more attractive to a wider insurance market.

## Counting the full cost of fire

Fire's devastating effects spread much further than the school's budget. It disrupts the lives of pupils and school staff, forcing them to retreat to temporary accommodation for up to three years, while the school management team must divert resources to deal with the aftermath.

Communities also suffer, lacking accommodation for night classes, local events, weddings and more.

The problem compounds for school pupils undergoing examinations, while schoolwork, coursework, submissions, and a lifetime of teaching notes and aids can be lost forever.

# Why schools need sprinkler systems – continued

## Sprinkler myths debunked

### **In a fire, all sprinklers come on and if fire doesn't damage property, lots of water will.**

- Contrary to what is shown in the movies, modern sprinkler heads work individually and only operate if directly over a fire.
- A single fire source does not activate all sprinkler heads in a building. Inside the sprinkler head is a bulb containing a liquid chemical that expands with heat; At a set temperature the liquid will expand sufficiently to cause the bulb to burst, allowing water to fall through directly onto the fire.
- Fire hoses are more random. They are applied when the building is well alight and are often used from outside.

As a result fire brigade intervention will result in much more water in a building than sprinkler control.

### **Sprinklers aren't effective in high risk areas.**

- Sprinklers are designed in line with the potential fire risk that could occur in higher risk areas in schools like laboratories, libraries or theatres. In high risk areas, the system is designed to deliver more water to control what could be a larger fire.

### **Sprinklers cramp modern building design.**

- Sprinklers actually allow freedom in design as other fire management features may not be necessary if a sprinkler system is installed.
- If the brief includes sprinklers the design can include larger open spaces and more flexibility in terms of compartmentation and fire detection.

### **Sprinklers are expensive.**

- Not if they are considered from the beginning of a project. For example, if a void above a ceiling is more than 800mm, the rooms below and the space above require sprinklers. But if sprinklers are designed into new buildings or major refurbishment programmes from the start then the use of an open cell ceiling could alleviate the need for sprinkler protection in both areas.
- Insurers are so confident about sprinkler systems that they will give a significant reduction in premiums, Indeed we give a guaranteed discount for sprinklers.

## Designing for sprinklers

All too often, safety constraints conflict with architects' visions for new schools. Facing so many safety considerations, designers frequently compromise their ideals for a secure alternative.

However, when included early in a school's plans, sprinkler systems provide a wealth of design freedoms and cost savings while allowing schools to meet and exceed their safety requirements.

For example, sprinkler systems offer architects the opportunity to:

- adapt compartmentation requirements
- increase travel distances
- decrease fire-resistance periods to structure elements
- change the standards, number, location and position of fire-resisting screens and doorsets
- adapt layouts to meet the school's exact needs
- improve escape provision, for example by introducing phased evacuations
- enhance provision for people with disabilities
- consider different surface finishes and displays, etc.
- propose different sizes for stairs
- choose internal and external fire brigade access
- provide for community use or partial occupancy.

In recent years, improved security and new technology have meant that school arson attacks in the evenings and holidays are reducing. But school fires do happen and are increasingly happening during school time, putting people as well as buildings at risk. An increase in daytime arson combined with an increase in electrical fires makes sprinkler systems even more valuable in a school.

We have been campaigning on school fire safety and sprinkler use for over 20 years.

Luckily, there have been no school fire fatalities in the UK and, importantly, there have been no fire deaths in the UK in a building fitted with a fully maintained sprinkler system.

Sprinklers don't only save lives, buildings and water, they save money too. We don't want it to take a tragedy to change perception on the real value of sprinklers.

For more information visit: [www.RiskCurriculum.co.uk](http://www.RiskCurriculum.co.uk)

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