

# Fire Sprinklers in School buildings

## School Fire Losses Soar:

The annual cost of arson attacks on schools has more than doubled in the last 10 years and has now reached a record figure of £100,000,000. On average, there will be 3 school fires each day in the United Kingdom. 75% of these fires are started deliberately; and more than 33% are lit during the daytime, by pupils in areas such as toilets and cloakrooms.

**This heightens concerns for the safety of all staff and pupils in the school.** Figures show that the number of large fires causing significant damage to schools has increased by more than half (55%) over the last year. The related costs incurred as a result of school fires have increased by more than 170% over the last 10 years.

It is the belief of Zurich Municipal, the largest insurer of schools, that these large fires would not have developed to such devastating proportions if schools were fitted with sprinkler systems. Despite campaigns by Zurich Municipal, the Local Government Association and the Fire Service, only 150 out of 28,000 schools in the UK are fitted with sprinklers. Zurich Municipal is now renewing its call for automatic fire sprinklers to be included at the earliest opportunity of the design stage for all new or refurbished schools in light of the fact that the problem still needs to be addressed.

A large school fire devastates. In 2003 there were 42 large fires in school premises, each of which accounted for over £100,000 worth of damage. This is compared to the figure for 2002 when there were 27 large fires in schools. The aftermath of a school fire lingers for years. The associated long-term disruption that follows puts staff and pupils under stress and imposes large financial, educational and administrative costs. It is a price that your school cannot afford to pay.

The ultimate arson reduction tool is an automatic fire sprinkler system. Sprinklers can be considered to be a combined detection / suppression system. A suitably installed sprinkler system will prevent the fire from spreading, and also will control, if not extinguish, the fire in the earliest stage of development. Any damage is limited to the room of origin and the school is capable of quickly returning to normality after the fire. Fire sprinklers should be installed in ALL new schools, schools assessed as being high risk and those undergoing major refurbishment to provide the optimum level of protection in the event of a fire occurring. Sprinklers are extremely cost effective when incorporated in the initial planning of new and refurbished schools, and once installed the maintenance costs are negligible. Schools that are fitted with sprinklers will also attract substantial reductions in insurance premiums.

## Dispelling the Myths:

### **Sprinklers are expensive to install.**

**NOT SO** - sprinkler systems are surprisingly economical to install, accounting for approximately 3% of the cost of a new school building. An initial investment can minimise disruption and actually save schools money in the long term. Maintenance costs are minimal and insurance discounts will be granted.

### **When there is a fire all the sprinkler heads go off at once.**

**NOT SO** - the fire triggers sprinkler heads individually, therefore only the head(s) adjacent to the fire operate.

**Water damage can be as great as fire damage.**

**NOT SO** - typically a sprinkler discharges 60 litres per minute. A fire fighter's hose discharges in excess of 600 litres per minute. In general, a sprinkler system will use less than 5% of the water used by the fire service.

**Sprinkler systems are susceptible to vandalism.**

**NOT SO** - sprinkler heads can be fitted above open grid ceilings making them inaccessible, or behind protective plates that fit flush to the ceiling. Experience to date in some 50 plus schools within 14 Local Education Authorities has not produced one case of vandalism and importantly, not one significant fire loss despite many of them being in schools within challenging areas

**Sprinklers can go off accidentally.**

**NOT SO** – records show that the chances of a defective head are approximately 16,000,000 to 1; slightly longer odds than the chances of winning the Lottery. This includes all type of defects including cosmetic defects, therefore the actual chance of an accidental discharge is considerably less.



The effectiveness of automatic fire sprinklers has now been acknowledged by the Local Government Association ([www.lga.gov.uk](http://www.lga.gov.uk)) via the production of a series of toolkits for Local Authorities on this matter. The relevant toolkits are:

☐ **Automatic Fire Sprinklers – A Guide for Local Authorities**

☐ **Automatic Fire Sprinklers – A Guide for Schools**

Also, the British Automatic Sprinkler Association in partnership with Zurich Municipal Insurance, Royal & Sun Alliance and the National Fire Sprinkler Network has produced a document called:

☐ **Joint Code of Practice – For the Installation of Automatic Fire Sprinkler Systems in Schools**

There is a clear business case to be made for the installation of sprinklers in all schools, particularly “new build” and “refurbishment” projects. Sprinklers will mitigate the damage, usually to the room of origin, which is particularly relevant as the majority of school fires occur “out of hours”. Many Local Education Authorities are now installing sprinklers in their premises having been convinced of the business case for such installations. Sprinklers may allow design freedoms, creating efficiencies elsewhere in the school. Sprinklered schools will experience substantially cheaper insurance rates.

**The only completely reliable fire prevention and protection measure that is available to combat school fires is the installation of a sprinkler system.**

**What can Sprinklers Achieve:**

☐ Sprinklers will detect a fire in its earliest stage of development.

- Sprinklers will provide a rapid response to any fire situation
- Sprinklers will control, if not extinguish, the fire
- Sprinklers will limit the amount of fire damage, usually to the room of origin
- Sprinklers will keep to a minimum, the disruption to the school-learning programme
- Sprinklers will maintain a survivable atmosphere in the event of a fire
- Sprinklers will sound an alarm in the event of a fire
- Sprinklers will limit the amount of water damage
- Sprinklers will protect the environment by reducing the amount of airborne and water run-off pollution
- Sprinklers will allow design freedoms at the planning stage i.e. increased compartment sizes and travel distances
- Sprinklers, when installed, will attract substantial reductions of up to 75% of the insurance premiums, with the potential for any excess to be completely removed.
- New PFI schools may be uninsurable in future unless a sprinkler system is installed
- Sprinklers will increase fire fighter safety

- There are 76 schools fitted with sprinklers in 27 local authorities at present, with another 111 schools currently under construction in 31 authorities.
- In 2003, Blackpool lost a primary school due to fire. The cost of replacement was £7.5m. They have now changed their policy with regards to sprinklers. This states;

**“The installation of sprinklers, whilst essential for new schools, will be seriously considered for substantial extensions to existing schools, and shall be based on an individual site specific risk assessment involving the insurer and interested parties”**

(This was signed by Blackpool Borough Council, Lancashire Constabulary, Royal & Sun, & Lancashire Fire & Rescue Service on 4th March 2004.)

- On the 24<sup>th</sup> November 2004 the Internal Overview and Scrutiny Committee of Lancashire County Council recommended that ;

**“As from April 2005, all new build schools will be fitted with Sprinklers. “**

- Last November there was a fire at Ansdell College, St Annes during the day, which destroyed the top floor of the building. The rapid spread of fire surprised the occupants **and** experienced fire fighters! The compartmentation of the building was compromised, and this is, unfortunately, typical of school fires. The college building is out of use for the foreseeable future and may never be used again.

- There have been two sprinkler successes in the Northwest recently. On October 1<sup>st</sup> 2002, youths broke into Horton Mills School in Oldham and set fire to a cardboard box containing toys. Within 5 minutes, the fire service was alerted by activation of a sprinkler head. One sprinkler activated and fire and smoke damage was limited to 1m<sup>2</sup> of **one** room. The school was opened the next morning as usual.

St Mary's Primary School in Moss Side, Manchester was attacked on 17<sup>th</sup> April 2002, when a fire was deliberately set in a storeroom. The school, which had been rebuilt in 1993 following an earlier arson fire, had been fitted with sprinklers. A sprinkler head activated and extinguished the fire. Damage was limited to a few hundred pounds and the next day, school went ahead as normal, unaffected.

- An holistic approach to quantifying costs for a major school fire would include-
  1. The long term effect on pupils from studying in temporary teaching accommodation.
  2. The loss (completely) of pupil's course work, exam work, and essential statistics.
  3. The increased stress caused to staff from re-creating teaching aids and working in temporary teaching accommodation.

4. Loss to the community of an asset used for adult education, social gatherings and /or recreational amenities etc.
  5. Reduction in the opportunity for increased community engagement through future initiatives e.g. pre and after school clubs.
  6. The environmental impact of the fire from smoke and hazardous materials.
  7. Site Clearance
  8. Temporary teaching accommodation.
  9. The risk of injury to fire fighters
- The list shows that the real cost of fire damage from a school fire is way in excess of the monetary cost of replacing the building and contents. Although some of the above costs are difficult to evaluate this does not mean they should be ignored in any cost benefit risk analysis in the course of making decisions relating to the safety of people and the protection of public buildings.
  - The decision to install sprinklers cannot be made on cost alone. It is clear that fitting sprinklers **will** add cost to a new school. Whether the extra expenditure is justified, in terms of potential financial losses, reassurance, maintenance of public confidence, ensuring against the disruption of our children's education, the sense of loss, psychological damage and personal distress of a fire – is a matter of judgement. Lancashire has made, and continues to make, choices which result in improvements to our community. (as can be seen in the policy statements detailed above)
  - According to the document 'Fire Statistics UK – 2003' (published by the Office of Deputy Prime Minister), of the 40 'shire' counties, Lancashire has the second highest incidence of school fires which caused damage to property with 29 fires. This is also the ninth highest count of all the brigades in the UK.

**Useful contacts:**

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The Local Government Association ([www.lga.gov.uk](http://www.lga.gov.uk))