Fire Safety in Schools

An exploration of the issues and prevailing wisdom

Solutions Fire Safety

Table of Contents

1.0 Introduction

Fire Safety is a topic that is generally only regarded perhaps once a year during annual training or less regularly as and when essential maintenance is needed. However, what is considered essential by the layman as opposed to those employed in the Fire Safety industry is subject to wide variance. Whilst we can all relate to pictures of roaring flames and the resulting devastation, those not directly involved with fire safety can view its management as another unnecessary burden imposed by Health & Safety Tsars. This is a dangerous viewpoint and a little knowledge of what's at stake and also the relative ease with which Fire Safety can be managed with the appropriate training can render a flashpoint a clarion call, leading to safer working conditions and proactive attitudes towards housekeeping, personal and group safety. The positive implications of this latter situation are perhaps no more resonant than in the arena of schools and colleges.

> ''A large school fire devastates, its aftermath lingers for years and approximately 90,000 pupils a year have their learning disrupted due to fire damage to classrooms and school property. The long term disruption that follows puts staff and pupils under stress and imposes large financial, educational and administrative costs. It is a price that no school can afford to pay. However, while no school is immune from the risk of fire, the chances of it happening can be reduced or, if the worst does occur, losses kept to a minimum.''

2.0 Statistics

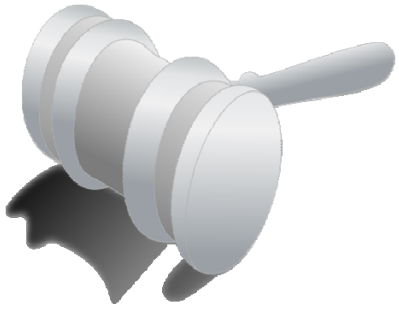
- The statistics relating to fire in school premises make a convincing argument for raising fire safety awareness in schools:
- There are 32,000 schools in the UK and between 2004 & 2007 4,000 fires were attended by local fire and rescue services
- The DCLG state that the cost of fires to schools was £58 million per year from 2000 to 2004
- The cost of arson to schools was £70 million in 2008 – suggesting fire and arson is a growing problem
- The NUT estimated the cost of school fires to be in the region of £100 million
- Only 400 of 32,000 schools are fitted with sprinklers
- 2,700 school fires are started deliberately every year – the perpetrators are often past or present pupils
- In 2006, six fires resulted in damage of £1 million each
- 40 to 50 fires are termed serious each year, involving insured building losses in excess of £50K. Around 20 of these involve losses over £250K

3.0 The Law

As part of a commitment to reduce death, injury and damage caused by fire, the Government decided to radically reform fire safety legislation with the aim of simplifying the many scattered pieces of law surrounding this area.

The Regulatory Reform (Fire Safety) order 2005 (RRO) was implemented in October 2006, replacing the previous legislation, The Fire Precautions (Workplace) Regulation 1997. It represented the biggest reform of fire safety legislation in many years. It brought all non-domestic premises with in the scope of fire safety law, including schools. The RRO applies to both new and existing school buildings. It is the base line and guidance of minimum fire safety standards and should be the back bone to your fire risk assessment and management of the school.

The main emphasis brought by the RRO is a move towards fire prevention through a risk based, preventative approach to fire safety. It places the responsibility for fire safety on the Responsible Person.



4.0 The Fire Safety Manager (Responsible Person)

Under the Regulatory Reform (Fire Safety) Order 2005 (RRO) the Local Authority usually look after structural issues such as fire alarm systems and the structural integrity of buildings, whilst the governing body and the head teacher through the Fire Safety Manager are responsible for the day to day management of the school and its fire safety procedures. The LA however has the responsibility to monitor the performance of the Fire Safety Manager to ensure adequate standards of fire safety are maintained.

The Fire Safety Manager must have the necessary authority and powers of sanction to ensure that standards of fire safety are maintained and should therefore be a senior appointment at Head or Deputy-Head level. The main duties of the Fire Safety Manager include:

- Managing the school to minimise the incidence of fire (fire prevention); e.g. good housekeeping and security
- Producing an Emergency Fire Plan
- Checking the adequacy of fire fighting equipment and ensuring its regular maintenance
- Ensuring fire escape routes and fire exit doors/passageways are kept unobstructed and doors operate correctly
- Ensuring that fire detection and protection systems are maintained and tested and proper records are kept
- Ensuring any close down procedures are followed

The Fire safety manager must manage the fire safety arrangements and overall strategy in accordance with those policies agreed by the governing body (the LA). An initial consultation with fire safety professionals and subsequent training should mean that this task is both manageable for the individual and effective in terms of fire prevention and safety. The main duties regarding fire safety management are to:

- Make hazard and risk assessments
- Ensure appropriate Fire Safety Training takes place regularly
- Produce an emergency plan and put up fire notices
- Conduct Fire Drills
- Check the adequacy of fire fighting apparatus and its maintenance
- Consult with and implement recommendations of the local Fire Brigade
- Conduct Fire Safety inspections; preferably every term
- Make more frequent informal checks to confirm that the fire safety rules are being followed

- Ensure Fire escape routes and fire exit doors / passageways are unobstructed and doors operate correctly
- Check Fire detection and protection systems are maintained and tested and records kept
- Ensure close-down procedures are followed
- Include Fire Safety in the regular health and Safety reports to the governing body

Training for the Fire Safety Manager is essential, certainly when the recent amendment to the RRO specifying the 'Employees Capabilities' is taken into consideration. The Responsible Person Training course is suggested to be suitable and sufficient according to the RRO and partnership with a reputable consultancy should smooth the way to effective, in-house Fire Safety Management.

It is useful to keep a ***Fire Log-Book*** in which to record essential information such as evacuation procedures, tests on fire fighting equipment, details of training sessions and results of fire drills.

In addition to the RRO Local Authority maintained schools must comply with Regulation 17 of The Education (School Premises) Regulations 1999. This requires that every part of a school building, and of the land provided for a school, shall be such that the safe escape of the occupants in case of fire is reasonably assured. Particular regard is given to:

- The likely rate at which flames will spread across exposed surfaces
- Resistance to fire of the structure and of the materials of which the structures are made and their properties
- The means of escape in the case of fire

The requirements of the RRO are not new. They were present under the Fire Precautions (Workplace) Regulations 1997 and previous Health and Safety legislation. The responsibility for supervision and control of compliance with the RRO lies with the local Fire Authorities who have the legal powers to enforce the RRO where necessary. Fire Authorities are not legally required to inspect schools but, if asked will give goodwill advice under section 1(1) (f) of the Fire Services Act 1947.

5.0 The Fire Risk Assessment

Key to Fire Safety and the starting point for the management of Fire Safety is the Fire Risk Assessment. A Fire Risk Assessment is an organised and methodical look at your premises, the activities carried on there and the likelihood that a fire could start and cause harm to those in and around the premises.

The FRA can be described as having 5 steps:

1. Identify fire hazards
    - Sources of ignition
    - Sources of fuel
    - Sources of oxygen
2. Identify people at risk
    - People in and around the premises
    - People especially at risk
3. Evaluate, remove, reduce and protect from risk
    - Evaluate the risk of a fire occurring
    - Evaluate the risk to people from fire
    - Remove or reduce fire hazards
    - Remove or reduce the risks to people
        - Detection and Warning
        - Fire Fighting
        - Escape routes
        - Lighting
        - Signs and notices
        - Maintenance
4. Record, plan, inform, instruct and train
    - Record significant findings and action taken
    - Prepare an emergency plan
    - Inform and instruct relevant people; co-operate and co-ordinate with others
    - Provide training
5. Review
    - Keep assessment under review
    - Revise where necessary

The term ‘where necessary’ is used throughout the RRO in relation to the provision and maintenance of fire fighting equipment, fire detection and warning and emergency routes.

This means that the fire precautions that must be provided are those which are needed to reasonably protect relevant persons from risks to them in case of fire. This will be determined by the findings of the risk assessment, including the preventative measures you have or will have taken. It is very unlikely that a properly conducted fire risk assessment which takes into account all matters relevant for the safety of persons in case of fire will conclude that no fire precautions (including maintenance) are necessary.

6.0 Additional Considerations

The Order also sets out other fire safety duties that must be complied with:

- You must ***appoint one or more competent persons***, depending on the size and use of your premises, to carry out any of the preventative and protective measures required by the order. A competent person is someone with enough training and experience or knowledge and other qualities to be able to implement these measures properly.
- You must ***provide your employees with clear and relevant information*** on the risks to them identified by the risk assessment, about the measures you have taken to prevent fires and how these measures will protect them if a fire breaks out.
- You must ***consult your employees (or their elected representatives) about nominating people to carry out particular roles*** in connection with fire safety and about proposals for improving the fire precautions.
- You must, ***before you employ a child, provide a parent with clear and relevant information on the risks*** to that child identified by the risk assessment, the measures you have put in place to prevent/protect them from fire and inform any other responsible person of any risks to that child arising from their undertaking.
- You must ***inform non-employees, such as students and temporary or contract workers, of the relevant risks*** to them and provide them with information about who are the nominated competent persons and about the fire safety procedures for the premises.
- You must ***co-operate and co-ordinate with other responsible persons*** who also have premises in the building, inform them of any significant risks you find and how you will seek to reduce/control those risks which might affect the safety of their employees.
- You must ***consider the presence of any dangerous substances*** and the risk this presents to relevant persons from fire.
- You must ***establish a suitable means of contacting the emergency services*** and provide them with any relevant information about dangerous substances.
- You must provide appropriate information, instruction and training to your employees during their normal working hours about the fire precautions in your organisation.

- You must ***provide the employer of any person from an outside organisation who is working in your premises (e.g. agency providing temporary staff) with clear and relevant information*** on the risks to those employees and the preventative and protective measures taken. You must also provide those employees with appropriate instructions and relevant information about the risks to them.
- If ***you are not the employer but have any control of premises which contain more than one workplace, you are also responsible*** for ensuring that the requirements of the Order are complied with in those parts over which you have control.
- You must ***consider the presence of any dangerous substances*** and the risk this presents to relevant persons from fire.
- You must ***establish a suitable means of contacting the emergency services*** and provide them with any relevant information about dangerous substances.
- You must ***provide appropriate information, instruction and training to your employees*** during their normal working hours about the fire precautions in your workplace, when they start working for you and from time to time throughout the period they work for you.
- You must ***ensure that the premises and any equipment provided in connection with fire fighting, fire detection and warning or emergency roués and exits are***
- ***Covered by a suitable system of maintenance*** and are maintained by a competent person in an efficient state, in efficient working order and in good repair.
- Your employees ***must co-operate with you*** to ensure the workplace is safe from fire and its effects and must not do anything that will place themselves or other people at risk

7.0 Sprinkler Systems in Schools

In March 2010 Jim Cunningham MP presented a Bill that all new-build nursery, primary and secondary schools, academies and technology colleges should be fitted with sprinkler systems in order to reduce the damage caused by fire and to save lives. In 2007 the Department for Education and Skills published guidance saying that all new-build schools should have sprinkler systems fitted as standard unless it could be demonstrated that a school was low risk enough and that the system would not be good enough value for money.

The published government guidance for fire safety in schools, "Building Bulletin 100: Design for Fire Safety in Schools" states that "all new schools should have fire sprinklers installed except for a few very low risk schools", subject to a risk assessment and cost-benefit analysis.

Partnerships for Schools as the body responsible for delivering the Building Schools for the Future programme recorded which schools built or refurbished under the programme installed sprinkler systems for the 2009/10 financial year. Of the first seven schools built under the programme only one (The Bristol Brunel Academy) was fitted with a sprinkler system – five of the remaining six were refurbishment projects.

7.1 Cost

The chief expenditure arising from sprinkler systems is the installation cost. From an analysis of 26 schools with such systems costs ranged from 1.4% - 4.48% of total construction costs in primary schools and from 1.6% - 2.96% in secondary schools resulting in averages of 2.7% and 2.31% respectively.

For a typical new primary school with construction costs of £3.5m this gives a range of £47,900 and £157000 and an average of £95,000. The cost of installation in a refurbished school is 'significantly more expensive than a new build'.

The principal benefit from sprinkler systems is reduced insurance cost. Zurich Municipal Insurance suggested sprinkler installation in schools could reduce their insurance premiums by around 75% per year and lower the excess close to zero.

Net of running costs, the annual benefit from sprinklers in the 26 schools analysed was found to lie between £6,000 and £10,000 per year this gives a payback period of between 23 and 38 years for primary schools and between 13 and 21 years for secondary schools.

The decision as to whether to install a sprinkler system in a new school or major refurbishment will depend on factors including the:

- Probability of different fire scenarios;
- Consequences of the fire scenarios;
- Location of the buildings;
- How accessible are they;
- Vulnerability to intruders through the perimeter of the site;
- Whether there is public access to the site;
- Vulnerability of the construction to fire involvement;
- Capabilities of the security system;
- Whether facilities for waste disposal and storage are well away from the buildings to prevent an external hazard coming into contact with the fabric of the building;
- Whether there is previous history of vandalism and arson existing schools only);
- How long it takes the Fire and Rescue Service to reach the buildings and fight the fire
- Availability of water supply.

8.0 Arson

- An average of 20 schools are damaged or destroyed each year
- 90,000 children are affected by arson each year
- 12 is the average age of fire vandals
- The cost of arson to schools was 70 million in 2008 – suggesting fire and arson is a growing problem
- 2700 school fires are started deliberately each year – the perpetrators are often past or present pupils
- The Arson Prevention Bureau states that almost a third of school fires occur during the day

According the Health & Safety Executive, 46% of UK arson attacks occur in schools which in 2002 was the equivalent of 3 school fires every day. Zurich Municipal the principal insurer considers the cost of school fires is far too high and 75% is attributed to arson. Whilst the NUT suggest the annual cost in 2002 was close to £100 million, financial concerns are only part of the overall cost. Gill O'Donnell at teachingexpertise.com suggests that there are issues such as; re-housing students, loss of resources, loss of coursework, loss of personal property and the devastating impact on the morale of staff and students. Imagine seeing years of work, memories and achievements destroyed overnight. The National Foundation for Educational Research estimates that the education of approximately 90,000 children is disrupted each year by school fires and those from disadvantaged backgrounds are most likely to be affected.

8.1 Example

Firesafe.org describes arson at a school in the North West resulting in financial losses of £1.2 million.

> "The fire was discovered at 00.39hrs. The block, which was almost completely destroyed, housed 16 teaching rooms, the library, main office, pastoral offices, the head and deputy offices and the staff room. The history and geography departments were completely wiped out whilst the modern languages, mathematics, English, special education needs and RE departments lost many resources. The trauma and devastation was summed up by the head teacher".
>
> "The first reaction is shock and numbness, followed by total disbelief and then realisation that 25 years of resources had gone. All the carefully collected photographs, booklets and artefacts from all over Europe had gone, all the paperwork for the administration of public examinations had gone and all the school text books and personal belongings had gone".

The timing of the fire was particularly unfortunate since Year 9 SATS were to be held later in the week and GCSE examinations were due to begin within a month.

The burnt out classrooms were replaced by mobile rooms and the school had a derelict building at its centre for a year; this became a demolition site and then a building site. The marketing of the school was adversely affected and pupil recruitment and the sixth form suffered with a massive effect on the school budget resulting in a large deficit.

8.2 Case Study – Lytchett Minster Upper School

Lytchett Minster Upper School was devastated by an arson attack in 2000. The new maths, science and humanities centre was opened 9 years later with a total rebuilding cost of £12.5 million.

35 portakabins were required to house a generation of children who passed through the school in those 9 years. Many items of coursework were destroyed in the fire and no re-build plan post fire was in place, resulting in unforeseen difficulties and delays. It is perhaps also worthy of note that the insurance money granted in 2000 was nowhere near the amount needed.

Whilst Lytchett Minster maintained its standards it is perhaps generally accepted that standards will suffer when children are taught in temporary accommodation.

This is not an acceptable situation for young people to have their education managed. The statistics may offer cold comfort to the cynic but a radical change in the legislation governing fire safety in the UK in 2005 suggest that it is a cynicism which is not shared by those in power. The legislation identifies particular individuals as responsible for fire safety at an organisation and within the education sector this person is generally accepted to be the head teacher. Whilst ultimate responsibility lies with the Local Authority those in control on a day to day basis must assume responsibility for ensuring that suitable and sufficient actions have been taken (i.e. the Fire Risk Assessment) and that training and fire safety arrangements are in place and are again suitable and sufficient.

9.0 Who are the arsonists?

90% of school arsonists escape detection and it is therefore extremely difficult to establish any accuracy as to who they are and their motives. However most arsonists are suggested to be over 18 whilst 34% are aged between 10 and 17, 5% are under 10. Other sources suggest that of the 4,600 individuals prosecuted, cautioned or found guilty each year for arson offences, almost half are aged from 10 to 16 and girls as well as boys may be involved. The majority of arsonists will have some connection with the premises.

The Arson Prevention Bureau suggest that the great majority of malicious fires take place outside of school hours with a peak at around 11pm. Many fires are started outside school buildings often with material found easily to hand (such as bins in rubbish skips). The use of an accelerant such as petrol is suggested to be rare. The time of school fires means that casualties are rare however in 1990 3 Essex schoolboys were killed in a school shed fire.

9.1 Why does arson occur?

Reasons for arson are constantly evolving and whilst new considerations arise some causes remain ever present.

- To cover up another crime
- To settle a dispute (personal or professional)
- Terrorism or civil unrest/disobedience
- Insurance fraud
- A deliberate action by a person with a psychological problem
- A prank that gets out of control
- An act of vandalism

9.2 Risks

National statistics show that the building most likely to be targeted by an arsonist is a garden shed in an unlit area at night, Gill O'Donnell highlights two key issues:

1. The building is set apart from its neighbours, 2. It is likely to be unmanned.

Factors which make a building more vulnerable to arsonists include:

- Next to an open space where large numbers of people might congregate.
- Close to a neighbouring business which might be vulnerable to attack.

- Buildings have outbuildings, courtyard areas or hidden places where people can hide easily.
- Poorly-defined perimeter, allowing ease of access at all times of day and night.
- Unmanned or little used entrances to the building where access can be gained without being easily observed.
- Easy access to rooftops, e.g. through overhanging trees, drainpipes, flat roofs etc.
- Poor external lighting.
- The outside of the building is not always lefty secured (this will often apply to schools where after school/evening activities take place and the doors are then left for a caretaker to lock at the end of a session)
- There is access for vehicles outside of normal working hours
- Any further security deficiencies of any sort.

These risks succinctly describe characteristics that are common to schools. When the fact that schools house expensive and attractive equipment is taken into consideration, the occurrence of 3 fires per day in UK schools becomes more understandable.

It might be surmised then that security is a key factor in deterring arsonists. Firesafe.org suggest that the prevention of arson attacks fall into a logical process:

- Deter unauthorised entry onto the site
- Prevent unauthorised entry into the building
- Create a culture that does not tolerate arson
- Reduce the opportunity for an offender to start a fire
- Reduce the scope for potential fire damage
- Reduce subsequent losses and disruption from a fire by preparing a disaster resulting recovery plan

10.0 The Prevention of Arson

1. Deterring unauthorised entry onto the site

This might be done by the use of signs and a delineation of the premises boundary with a robust fence or hedge. This makes it clear to would be intruders and trespassers that they are on private property and for neighbours to see clearly that people are within the site boundaries. The fence or hedge should not obscure the vision of passers-by and neighbours. Berberis, Hawthorne or similar shrubs might be considered as they in themselves are a deterrent. If intrusion is a major problem then palisade security fencing might be an option.

As most trespassing and vandalism occurs outside of school hours and under the cover of darkness good lighting is recommended. On elevations overlooked, Sodium lighting might be used which is inexpensive to run. Tungsten halogen lighting operated via infra-red motion detection is useful for elevations not overlooked but can provide intruders with working light. When CCTV surveillance is in use colour rendering of light sources needs to be considered.

Where presence of school staff living on the site is not available as a deterrent, then patrols by commercial or local authority security teams in random design can be effective.

2. Prevent unauthorised entry into the building

- Deep recesses and alcoves should be avoided and if building alterations to combat this vulner ability cannot be undertaken then lighting should be used.
- The number of doors and windows should be kept to minimum without compromising the means of escape and if possible those out of view from the public should be avoided all together.
- Thief resistant locks BS 3621: 2007 or BS EN 1303 2005 should be fitted to all external doors and windows and secured shut immediately the building is evacuated.
- Door frame construction should be of good quality with solid core doors without lower panels that might be easily forced. The hinges and frames should be reinforced to deter removal. Where letterboxes are fitted they should be fitted with metal enclosures on the inside to prevent dam age arising from the introduction of burning materials.
- Grills or bars should be fitted inside roof lights so as to prevent break-ins
- Low level glazing should be avoided. If this is not possible then it should be laminated, toughened and secure in the frame.
- Intruder alarms should be fitted and connected to a monitoring centre. Specific regard should be paid to areas of high value as well as corridors where movement between rooms might be detected.

- Good community relations can lead to community vigilance as a way of combating ar son and other vandalism. The school should become involved in local Neighbourhood Watch schemes, foster relationships with neighbours and parents or develop their own School Watch scheme in conjunction with the local police.
- Whilst CCTV has a high deterrent effect systems which are not monitored have limited value due to the poor picture quality being inadmissible as evidence. Joint schemes with local Councils operating a CCTV system have proved valuable in spreading the costs and the subsequent reduction in vandalism has rendered such schemes cost effective despite an initial high capital outlay.
- When buildings are used outside normal school hours ensure that access to all other areas of the school are limited and that a nominated person checks all external doors and windows have been locked once the school has been vacated. It is important that the means of escape is not affected.

3. Create a culture that does not tolerate arson

The student body represent perhaps the largest threat of arson to the school. The creation of a culture where arson is not tolerated is often promoted in schools by bringing in outside speakers such as members of the fire brigade or police who might warn against the risk to life and property and how a small fire can quickly become something far more serious.

The streetwise safety centre in Dorset is illustrative of this approach. Almost 115,000 people have visited this centre in its ten year history and children can act out scenarios, identify dangers such as fire risks and say what should be done. Dorset also has a Firesetters programme which seeks to educate young people referred to it by concerned parents and youth offending teams.

4. Reduce the opportunity for an offender to start a fire

Aside from not providing fuel for the fire there are some general precautions that can be fol lowed.

- Place refuse containers and recycling bins in a secure compound or secure with padlock and chain to a post sited no less than 8 metres from the main building, not beneath combustible roofs and empty as part of the close down routine.
- Sheds and other storage facilities should also be sited at least 8 metres from the main building.

- Heating Oil, natural gas and liquid petroleum gas installations plus the pipe work, meters and other vulnerable parts of these systems should be secured, protected and provisions made for accidental spillages.
- Mobile classrooms should have skirts fitted at their base so as to avoid the placing and ignition of combustible material beneath.

5. Reduce the scope for potential fire damage

Compartmentalisation by using fire stops in the roof/ceiling voids, fire resisting screens, partition walls and doors is essential to preventing the potential spread of fire. These should also be inspected regularly and gaps between pipe and cable work should be made good with fire retardant sealant. Issues relating to compartmentalisation should also be considered during building, maintenance and alterations.

Sprinkler systems whilst rare in existing schools have a proven track record for controlling fires in commercial buildings. According to BB 100 the government does have an expectation that all new build schools will incorporate sprinkler systems as part of the fire detection and extinguishing strategy.

All high value equipment should be located in a separate, secure room and out of sight with partition walls regularly inspected.

Early warning of the outbreak of fire can significantly reduce losses if early fire fighting can be initiated. This ranges from a wastepaper bin being extinguisher by a member of staff to alerting fire services when the premises are unoccupied. An automatic fire alarm system possibly using the same system as the intruder alarm should give warning offsite. This can result in the preservation of the whole building that might otherwise have been lost, by containing the fire to the compartment of origin.

6. Reduce subsequent losses and disruption resulting from fire

Simple extinguisher strategies should be implemented so that in areas at risk of a specific fire type the correct extinguisher is in place. A private hydrant might also be considered for schools located away from residential areas and thus suffering from poor water supplies. A private water supply such as a swimming pool might also be considered. Members of staff should also be trained in the use of extinguishers as well as evacuation, summoning the fire rescue service and general fire safety procedures such as the knowledge of salvage plans for school records and high value equipment. School inventories and records should also be considered within a disaster recovery plan as well as emergency contacts and media relations.

11.0 BB100

Eurobond describes BB100 as a landmark publication in improving fire safety in schools. They suggest that it is both a design tool and a management aid showing how the requirements for life safety can be met in the design of a new school or extension. In contrast to the Building Regulations BB100 stresses the importance of protecting the structure and building of the school.

In their response to the BB100 DfES consultation IOSH agree that risk assessment should be the basis for designers to make their choices rather than a prescriptive approach. In contrast they are in opposition to the central tenet of BB100 that both life safety and property protection need to be considered equally during the design process. This is suggested to be due to society's belief that it is not acceptable for people to die in a fire but it is alright if a building is destroyed. It is however stated that the value of life is far greater than the value of a building, thus dictating that life safety needs to be considered more than property protection in the design process. It might be suggested then that this statement does not denigrate the concept of building preservation but does place the importance of life preservation as paramount.

Jim Cunningham MP and Annette Brooke MP cite BB100 in terms of the government's expectation that new build schools will fit sprinklers and the effectiveness of sprinklers in fighting fire and reducing risk to life. However IOSH are unsure of agreement with the proposal that sprinkler systems should be installed if indicated by the risk assessment.

"Until detailed costings, including capital and ongoing revenue costs, for the different control measures are identified, it is difficult to identify if sprinkler systems should be installed".

Overall IOSH are critical of BB100 suggesting a too simplistic section on risk assessment with inadequate worked examples to help designers understand the concept of what suitable and sufficient assessment of risk is. IOSH also allude to a fragmented nature of the document.

12.0 To Conclude…

There are perhaps many challenges facing the head teacher and their school in not just meeting the requirements of the Regulatory Reform (Fire Safety) Order 2005 but effectively managing a fire safety strategy that protects those affected by fire and their environment. The consequences of a fire are such that to ignore the arrangements required of the responsible person in its prevention is not acceptable.

The education system in the UK is a haven of culture, knowledge and learning. Institutions that administer these virtues deserve to be protected and preserved with conscience and integrity and those students passing through our system at a time when the demonstration of such qualities is perhaps most vital deserve to have the uninterrupted continuation of their education.

That stressed, and as education professionals know only too well, there are always considerations for the impulse amongst the student and staff population for chaos and disharmony and as an expression and illustration of chaos nothing is as devastating as a fire.

The benefits of effective fire safety management go beyond merely prevention and as has hopefully been illustrated in the body of this document, can represent an effective part of campus life. The engendering of a fire safe culture can do much for bonding and shared responsibility between staff and student.

The management of fire safety needn’t be a complicated process placing greater burden on the shoulders of staff who feel that their workload is laden enough. Simple procedure and regularity in checks, training and record keeping can be enough to provide a fire safety strategy that meets legislative requirements and is perhaps the envy of those organisations whose arrangements are less well managed.

As a professional Fire Safety Consultancy Solutions are committed to empowering those with limited experience or knowledge of what is required by fire safety legislation and to the wider promulgation of a fire safety message. Should you require any further information or advice on anything that is contained within this document then please do contact us.

Glossary

Access Room	A room through which the only escape route from an inner room passes
Accommodation Stairway	A stairway, additional to that required for means of escape purposes provided for the convenience of occupants.
Alterations notice	If your premises are considered by the enforcing authority to be high risk, they may issue an alterations notice that requires you to inform them before making any material alterations to your premises.
Alternative Escape Route	Escape routes sufficiently separated by either direction, space, or by fire-resisting construction to ensure that one is still available irrespective of the location of a fire.
Approved Document B (ADB)	Guidance issued by Government in support of the fire safety aspects of the building regulations
As low as reasonable practicable	Is a concept where risks should continue to be reduced until you reach a point where the cost and effort to reduce the risk further would be grossly disproportionate to the benefit achieved.
Audit & Review	An examination and review of the significant findings of a previous risk assessment (usually 1 year earlier and provided that there have been no significant changes within the environment).
Automatic fire detection system	A means of automatically detecting the products of a fire and sending a signal to a fire warning system.
Automatic release mechanism	A device which will allow a door held open by it to close automatically in the event of each or anyone of the following: detection of smoke by automatic apparatus suitable in nature, quality and location operation of a hand operated switch fitted in a suitable position failure of electricity supply to the device apparatus or switch operation of the fire alarm system if any

Automatic release mechanism	A device which will allow a door held open by it to close automatically in the event of each or anyone of the following: detection of smoke by automatic apparatus suitable in nature, quality and location operation of a hand operated switch fitted in a suitable position failure of electricity supply to the device apparatus or switch operation of the fire alarm system if any
Automatic self-closing device	A device which is capable of closing the door from any angle and against any latch fitted to the door. Note: Rising butt hinges which do not meet the above criteria are acceptable where the door is: to (or within) a dwelling between a dwelling house and its garage in a cavity barrier
Basement	A storey with a floor which at some point is more than 1,200mm below the highest level of ground adjacent to the outside walls unless, and for escape purposes only, such area has adequate, independent and separate means of escape.
Building Regulations	Building regulations are statutory instruments that seek to ensure that the policies set out in the relevant legislation are carried out. Building regulations approval is required for most building work in the UK
Building Survey	A holistic overview of the passive aspects of the fire safety of a building including structural fire protection, fire resisting walls, fire stops and compartmentalisation etc
Cavity Barrier	A construction, other than a smoke curtain, provided to close a concealed space against penetration of smoke or flame, or provided to restrict the movement of smoke or flame within such a space.
Common Balcony	A walkway, open to the air on one or more sides, forming part of the escape route from more than one flat or maisonette.

Common Stair	An escape stair serving more than one flat or maisonette
Compartment (fire)	A building or part of a building, comprising one or more rooms, spaces or storeys, constructed to prevent the spread of fire to or from another part of the same building. (A roof space above the top storey of a compartment is included in that compartment).
Compartment wall or floor	A fire-resisting wall/floor used in the separation of one fire compartment from another.
Competent Person	A person with enough training and experience or knowledge and other qualities to enable them to properly assist in undertaking the preventative and protective measures
Dangerous substance	1. A substance which because of its physico-chemical or chemical properties and the way it is used or is present at the workplace creates a risk 2. A substance subject to the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR)
Dead End	Area from which escape is possible in one direction only
Direct Distance	The shortest distance from any point within the floor area to the nearest storey exit, or fire-resisting route, ignoring walls, partitions and fixings.
Emergency escape lighting	Lighting provided to illuminate escape routes that will function if the normal lighting fails.
Enforcing Authority	The fire and rescue authority or any other authority specified in Article 25 of the Regulatory Reform (Fire Safety) Order 2005.
Escape route	Route forming part of the means of escape from any point in the premises to a final exit
Evacuation lift	A lift that may be used for the evacuation of people with disabilities, or others, in a fire.

External escape stair	Stair providing an escape route, external to the building
Fail-safe	Locking an output device with the application of power and having the device unlock when the power is removed. Also known as fail unlock, reverse action or power locked.
False alarm	A fire signal, usually from a fire warning systems, resulting from a cause other than fire.
Final exit	An exit from a building where people can continue to disperse in safety and where they are no longer at danger from fire and/or smoke
Fire Compartment	A building, or part of a building, constructed to prevent the spread of fire to or from another part of the same building or an adjoining building
Fire Door	A door or shutter, together with its frame and furniture, provided for the passage of people, air or goods which, when closed is intended to restrict the passage of fire and/or smoke to a predictable level of performance
Fire Engineers	Fire Engineering is the application of scientific and engineering principles, rules [Codes] and expert judgement, based on an understanding of the phenomenon and effects of fire and of the reaction and behaviour of people to fire, to protect people, property and the environment from the destructive effects of fire.
Fire Extinguisher Training	A hands on approach using various extinguishers experiencing their different weights, sounds and power.
Fire fighting Lift	A lift, designed to have additional protection, with controls that enable it to be used under the direct control of the fire and rescue service when fighting a fire.
Fire fighting shaft	A fire-resisting enclosure containing a fire fighting stair, fire mains, fire fighting lobbies and if provided, a fire fighting lift.
Fire Protection	Fire Protection is the study and practice of mitigating the negative effects of fire. It involves the study of the behaviour, compartmentalisation, suppression and investigation of fire and its related emergencies, as well as the research and development, production, testing and application of mitigating systems.

Fire Resistance	The ability of a component or construction of a building to satisfy, for a stated period of time, some or all of the appropriate criteria of relevant standards. (Generally described as 30 minutes fire resisting or 60 minutes fire resisting.) See BS EN 1363-1, BS 476-7 and associated standards for further information
Fire Risk Assessment	An assessment of a building or designated areas within a building including checks on certification, means of escape policy, fire protection equipment, emergency lighting, fire detection, alarm and sprinkler systems, contractor management, signage and arson.
Fire Safety Advice	Advice on all aspects of fire prevention, escape and fire safety in the workplace and home
Fire Safety Awareness Training	Practical advice and basic fire safety training designed to cater for all employees.
Fire Safety Consultant	A trained and educated fire safety professional who can provide advice and guidance on fire safety strategy, policy and procedure as well services including fire risk assessments, auditing and training.
Fire Safety Log Book	A volume designed to hold your 'File of Evidence' that demonstrates how fire safety is managed within your workplace. Common contents will include training certificates, risk assessments and fire drill and evacuation records.
Fire Safety Manager	A nominated person with responsibility for carrying out day-to-day management of fire safety. (This may or may not be the same as the 'responsible person').

Fire Safety Signs	Signs designed to communicate, educate, inform and locate fire alarm points, means of escape routes and fire fighting equipment and other hazards and safety messages
Fire Stopping	A seal provided to close an imperfection of fit or design tolerance between elements and components, to restrict the passage of fire and smoke
Fire Warden	A designated 'competent person' and usually charged with general housekeeping and co-ordination in the event of an evacuation
Fire warning system	A means of alerting people to the existence of a fire
Flammable material	Easily ignited and capable of burning rapidly
Hazardous substance	1. See Dangerous substance 2. A substance subject to the Control of Substances Hazardous to Health Regulations 2002 (COSHH).
Health & Safety Advice	Advice on more general Health & Safety topics and issues
Highly Flammable	Generally liquids with a flashpoint of below 21ºC
High Visibility Jackets	Clothing designed to make those key personnel in an emergency conspicuous and readily identified
Inner Room	A room from which escape is possible only by passing through another room (the access room).
Material change	An alteration to the premises, process or service which significantly affects the level of risk to people from fire in those premises.
Means of Escape	Route(s) provided to ensure safe egress from the premises or other locations to a place of total safety.
Phased evacuation	A system of evacuation in which different parts of the premises are evacuated in a controlled sequence of phases, those parts of the premises expected to be at greatest risk being evacuated first.
Place of reasonable safety	A place within a building or structure where, for a limited period of time, people will have some protection from the effects of fire and smoke. This place, usually a corridor or stairway, will normally have a minimum of 30 minutes fir resistance and allow people to continue their escape to a place of total safety

Place of total safety	A place, away from the premises, in which people are at no immediate danger from the effects of a fire
Premises	Any place, such as a building and the immediate land bounded by any enclosure of it, any tent, moveable or temporary structure or any installation or workplace.
Premises Information Box (PIB)	An external container designed to ensure that all relevant information is retrieved immediately by the fire brigade in the event of a fire, whilst being kept secure from unauthorised occupants. It ensures that fire fighters are able to adopt the best tactics to deal with an incident in the minimal amount of time that they have.
Protected lobby	A fire resisting enclosure providing access to an escape stairway via two sets of fire doors and into which no room opens other than toilets and lifts
Protected stairway	A stairway which is adequately protected from the rest of the building by fire resisting construction
Protected route	An escape route by which is adequately protected from the rest of the building by fire resisting construction
Purpose Group	A classification of a building according to the purpose to which it is intended to be put
Refuge	A place of reasonable safety in which a disabled person and others who may need assistance may rest or wait for assistance before reaching a place of total safety. It should lead directly to a fire resisting escape route.
Responsible Person	The person ultimately responsible for fire safety as defined in the Regulatory Reform (Fire Safety) Order 2005.
Relevant Persons	Any person lawfully on the premises and any person in the immediate vicinity, but does not include fire fighters carrying out fire fighting duties.
Safety Clothing	Also called Personal Protective Equipment (PPE) this refers to protective clothing, helmets, goggles or other garment designed to protect the wearers body from injury by blunt impacts, electrical hazards, heat, chemicals and infection for job related occupational safety and health purposes.

Self-closing device	A device that is capable of closing the door from any angle and against any latch fitted to the door.
Significant finding	A feature of the premises from which the fire hazards and persons at risk are identified. The actions you have taken or will take to remove or reduce the chance of a fire occurring or the spread of fire and smoke The actions people need to take in case of fire The necessary information, instruction and training needed and how it will be given
Smoke alarm	Device containing within one housing all the components, except possibly the energy source for detecting smoke and giving an audible alarm
Staged fire alarms	A fire warning which can be given in two or more stages for different purposes within a given area (i.e. notifying staff, stand by to evacuate, full evacuation).
Storey exit	A final exit or a doorway giving access into a protected stairway, fire fighting lobby or external escape route
Travel distance	The actual distance to be travelled by a person from any point within the floor area to the nearest storey exit or final exit, having regard to the layout of walls, partitions and fixings
Vision panel	A transparent in a wall or door of an inner room enabling the occupant to become aware of a fire in the access area during the early stages
Way guidance	Low mounted luminous tracks positioned on escape routes in combination with exit indicators, exit marking and intermediate direction indicators along the route, provided for use when the supply to the normal lighting fails, which do not rely on an electrical supply for their luminous output
Where necessary	The Order requires that fire precautions (such as fire fighting equipment, fire detection and warning and emergency routes and exits) should be provided (and maintained) 'where necessary'. What this means is that the fire precautions you must provide (and maintain) are those which are needed to reasonably protect relevant persons from risks to them in case of fire. This will be determined by the findings of your risk assessment including the preventative measures you have or will have taken. In practice, it is very unlikely that a properly conducted risk assessment which takes into account all the matters relevant for the safety of persons in case of fire will conclude that no fire precautions (including maintenance) are necessary.

W: www.solutionsfire.co.uk
E: service@solutionsfire.co.uk
T: 0845 601 2632

SOLUTIONS
Fire Safety