

A fire sprinkler head is shown spraying a fine mist of water against a dark, textured background. The water droplets are visible in the foreground.

bafsa

British Automatic Fire Sprinkler Association

Sprinkler Yearbook 2013/14

*Protecting
people, property
and the environment*



Sprinkler Yearbook 2013/14

Edited by Stewart Kidd



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Foreword

Peter Armstrong, Chairman, BAFSA

As the chair of BAFSA's Council it is my distinct privilege to welcome you to this, the fifth edition of the Sprinkler Yearbook. The BAFSA Blue Book (although we have to admit that the 2011/12 cover was a little more lilac than blue) has earned its place on reference shelves all over the UK - and indeed in 18 other countries. Since its first appearance, more than 10,000 copies have been circulated and despite its availability on line and on CD we believe that the hard copy version is a worthy ambassador for BAFSA and the UK sprinkler industry.



In the last introduction to the Blue Book I mentioned some of the things which were going to challenge the industry and one of these, the recession, is still with us and sadly has claimed a number of our member companies as victims to problems of the credit crunch and cash flow impairment. Unfortunately, although some would say things are looking up, others suggest that things still might get worse before they get better.

On a much happier note, since the last edition we have embarked upon and completed the Callow Mount retrofit. Perhaps the most ambitious (and expensive) project ever undertaken by BAFSA (full details are in chapter 2), the project proves once and for all that it is possible to retrofit sprinklers cost-effectively in high-rise social housing with little disturbance for the occupants. The project was funded by BAFSA members and undertaken under the auspices of the Sprinkler Coordination Group (SCG). It is a particular joy to see so many organisations coming together as the SCG to ensure that the essential sprinkler message is consistently promulgated with maximum efficiency without duplicated effort or confusing mixed messages.

Other landmarks over the past two years have been:

- collaboration with the Chief Fire Officers' Association, with BAFSA providing the majority funding for an updated study of the cost-benefits

- of domestic and residential systems;
- the imminent implementation of regulations in Wales which will require sprinklers in all new dwellings (chapter 3);
 - new building standards in Scotland which require sprinklers in new and refurbished schools and residential care homes;
 - the publication of the UK's first watermist standards (section 7.8);
 - work with the Business Sprinkler Alliance on environmental benefits of sprinklers in warehouses and on-going work on the cost benefits of sprinklers in large single-storey buildings (chapter 6).

BAFSA has pressed on with its mission to educate and inform and has produced a number of new publications (see chapter 17) and in particular has laboured mightily to expand the number of its Technical Guidance Notes to three, including a major revision of TGN No 1 (which appears to have had the gestation period of an elephant - and the accompanying trumpetings) and, a concrete demonstration of our commitment to collaborating with other groups where possible, by producing a TGN on watermist jointly with the Fire Industry Association (see chapter 4).

Other collaboration with the FIA has involved us in highly successful joint seminars across the country for end-users and property managers. We've also supported sprinkler events run by Fire and Rescue Services in England, Wales and Scotland and are delighted that, to date, more than 2500 people have attended an event where the Callow Mount project was presented.

We look forward to our biennial conference and exhibition, Fire Sprinkler 2012, which runs alongside our annual general meeting and dinner. Looking even further ahead, we have begun to plan for BAFSA's 40th birthday celebrations, our Ruby anniversary, in 2014. The highlights of the year will be a two-day international conference and exhibition in London on 20/21 May. We will be sharing this event with our friends at the European Fire Sprinkler Network. The Jubilee Year will end with a Gala Dinner in Bristol on 13 November 2014.

I must conclude by thanking all those who have contributed to this invaluable publication and take this opportunity to thank all those who have supported BAFSA in 2011/12 and especially those who have taken part in its committee meetings, technical working groups and seminars.

Trade associations should measure their influence and effectiveness not only by their output and lobbying but also in the extent to which their members participate - by this yardstick, we are confident that BAFSA punches well above its weight!

Part 1: The sprinkler scene

1 The cost of sprinkler systems in new-build homes

There has been debate in the UK for more than 15 years about how much a domestic sprinkler system should cost. The discussions which have taken place have included, it has to be admitted, attempts to mislead and even try to conceal true costs. There are also those who seek to confuse an already complex issue for partisan purposes - on both sides of the debate.

Government has said that more sprinkler systems would be installed if they were less costly and our friends in the fire and rescue service also want to see cheaper sprinkler protection. The industry does not, in reality, contest that desire, providing the 'low cost' systems do not derive their price from a reduction in the levels of protection or reliability which we know that sprinklers afford.

The reality is that there can be no definitive cost data which applies in all situations - as much as one would like there to be. However, by breaking down the elements which make up a system, one can at least make an attempt at reaching some kind of clarification of the main issues.

Domestic sprinkler systems, like all sprinkler systems of whatever size, are made up of four elements:

- a water supply;
- pipework;
- control and alarm equipment;
- sprinkler heads.

To the costs of these components have to be added the costs incurred by the installer: labour, design, overheads and profit.

The cost of the pipework, control equipment and the heads is entirely predictable and relates to the size of the premises to be protected and the extent of protection. There is little discretion in what is provided if the British Standard is followed.¹

¹ In reality, protection can be omitted from roof spaces, cupboards and small bathrooms with the consent of the authority having jurisdiction.

The significant variable will always be the cost of the water supply - for this can be virtually zero (if the premises to be protected are already - or will be - provided with a water supply of adequate flow and pressure), or amount to thousands of pounds if a water supply has to be specially provided, or can be anywhere from £250 to £1500 if a booster pump or tank and pump have to be provided.

Labour costs are based essentially on time and so are predictable in a perfect world where a team of fitters arrive on site, unload components and install them in a continuous process. However on new-build dwellings this will rarely be the case, for a builder may require the sprinkler installer to perhaps make two or three visits to the site before completing the work. This will, of course, extend the time taken for the work and incur additional travelling costs - also including time which has to be paid for. So as a first tentative conclusion, where builders complain about the cost of sprinkler installations being too high, might it be that in some cases this additional cost is due to the inefficient way some building projects are managed?

The next examination must relate to the fact that single-building sprinkler systems will have to bear their share of overheads as well as the cost of design and mobilisation. It is surely incontestable that the cost of installing sprinklers in ten identical new dwellings is not ten times the cost of one dwelling? Economies of scale will always triumph! Design costs for ten similar or identical properties can be shared, as can costs of setting up projects, and transport costs may also be lower. Installation work will also usually go more quickly after the first property (something that was clear during the Callow Mount retrofit project) so labour costs per system will also be lower.

But it's ultimately going to be about water costs. Many water suppliers (but not all - there are honourable exceptions like Yorkshire Water) have decided they are suspicious of domestic sprinkler systems. It's not entirely clear why this should be a problem for some companies but not for others; some suggest their concerns relate to the potential liability implications if the water supply to a system fails²; others are worried about contamination of their supply network and a few simply think that sprinklers should not be allowed to be connected to their networks. Those who have not been involved will be horrified to learn that the industry and its friends have been engaged in regular meetings with the water companies for more than ten years and, despite the

publication of a jointly-agreed protocol³ by the FPA in 2004, there is still no consistency.

The solution to the water problem is actually the simplest. A small change in secondary legislation, confirmation that water for fire fighting applied through sprinklers does not need to be metered, the drafting of a standard contract which confirms that water companies are not responsible for the consequences of loss of supply for situations outside their control and a simplified permit system, would allow direct connection of domestic systems at minimal cost.

This would allow more predictable consistent pricing of systems and deny the anti-sprinkler lobby the ability to suggest that 'domestic sprinklers will add £5000 to the price of a home'.

Something for us to aim for in 2013?

² The water companies which require a tank and a pump rather than a mains connection ignore the reality that interruptions to the electricity supply are much more common than a failure in the water network.

³ *Guidelines for the Supply of Water to Fire Sprinkler Systems*, FPA, London, 2004, <http://www.bafsa.org.uk/pdfs/publications/00000033.pdf>

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2 The Callow Mount project

Retrofitting sprinklers in high-rise social housing

2.1 The background

The trigger for the project was a very sad event. On 3 July 2009 six people died and 20 were injured in a fire at Lakanal House, a 12-storey block of flats belonging to the London Borough of Southwark. The fire started in a defective television set in a flat on the ninth floor and spread up and down the flats in the block. The report of the Government's Chief Fire and Rescue Service Adviser very adequately reviewed the circumstances and the fire safety issues. But one comment in the report,

'It is not considered as practical or economically viable to make a requirement for the retrospective fitting of fire suppression systems to all current high-rise residential buildings',

gave pause for thought by those who know the value of sprinkler systems in residential buildings.

2.2 The plan

In particular, the UK Sprinkler Coordination Group (of which BAFSA is a founder member) took the opposite view. Members of the SCG had long been convinced that retrofitting fire sprinkler systems in existing residential high-rise buildings could indeed be cost effective. To put that belief to the test, SCG approached the Department of Communities and Local Government early in



2010 with a proposal for practical study of the options. While that approach was initially welcomed, with discussion of research work and possibly a pilot retrofit, the 2010 election brought a change and the CLG withdrew its interest, citing reduced resources for its withdrawal from discussions.

Nevertheless, the SCG decided to proceed with the project and at the end of 2010 had identified a suitable housing block in Sheffield. The plan was to organise the design, installation and funding of a sprinkler retrofit in a 1960s residential block, 13 storeys high with 47 flats, the property of Sheffield City Council and managed by Sheffield Homes for the council. The SCG delegated the management of the project to BAFSA. The broad aims were to determine the real costs, both financial and societal, of retrofitting an automatic fire sprinkler system into an unprotected, older, high-rise social housing block of earlier design, while also determining the problems of doing so and developing guidance which could be used elsewhere.

To oversee and monitor the project a Steering Group was created with representatives from:

- British Automatic Fire Sprinkler Association (BAFSA);
- Chief Fire Officers' Association (CFOA);
- Kier Homes (Sheffield Homes' maintenance contractor);
- Marpal Ltd (construction, design and management coordinators);
- National Fire Sprinkler Network (NFSN);
- Roy Young Consultancy;
- South Yorkshire Fire and Rescue Service;
- Sheffield Homes;
- Warrington Certification;
- Zurich Insurance.

Following appropriate agreements among all parties, BAFSA were granted a licence by Sheffield City Council to proceed with the installation. BAFSA appointed Domestic Sprinklers Limited, an experienced, third-party-certified member-company, to design and install a BS 9251 residential sprinkler system. In order to ensure full transparency of all aspects of the design and installation, Warrington Certification Limited, the principal third-party certification body for residential and domestic sprinkler installation companies, was invited to oversee the design and installation process, assisted by the Roy Young Consultancy and the chairman of BAFSA.

2.3 Project development



It was vital that residents were happy with the proposals to install sprinklers in their homes. Many meetings were held with residents, before and during the project, to ensure that they were kept fully informed and that their concerns were properly considered. Their support was essential.

High-rise social housing blocks present a number of fire safety and firefighting challenges that are specific to that type of premises and may not exist in other properties. Most of such blocks were built between 1950 and 1970 when the design and fire protection standards were lower than currently exist in building regulations. After about 1968 the numbers of such blocks being constructed declined as they fell out of favour with both their intended occupants and local authorities. The Callow Mount tower block identified for the project was one of an estate of six built during 1962. It complied fully with current fire safety standards, had recently undergone major refurbishment – which included fitting with a fire detection and alarm system – but the refurbishment had not included consideration of sprinkler protection.

It had been agreed that the residents of the 47 flats in the block would remain in occupation during the installation work. Although this added to the challenges, it was considered by the SCG that if a system could be retrofitted in an occupied block this would demonstrate once and for all that concerns about the practicability of sprinkler retrofit were unjustified.

Thus it was recognised, during the early planning, that the project would require the full support and cooperation of the residents. They needed to be informed, at all stages of the work that could affect them, of what was going to happen, when and how. Following the decision to proceed, residents were invited to meetings with the Project Manager and representatives from Sheffield Homes and South

Yorkshire F&RS. At the first meeting the principles of sprinkler installations and their benefits were explained and residents were informed how such a system might be retrofitted in their block. Those present gave their unanimous support for the installation. Then, during the development stage, regular progress briefings were held, since it was crucial to maintain effective links with tenants.

2.4 And so to work

In the week before the planned start date of 30 August 2011, a further residents' meeting was held to outline the scheduled work programme and to inform them of the proposed dates of work in each flat. Formal letters of notification containing those dates were circulated at the end of the meeting and other meetings were held, as required, with groups of residents and individuals during the work in progress.

Installation began on Tuesday, 30 August 2011 in a vacant flat that was kept reserved for respite use. This allowed the installation team to test and refine their approach without impacting on any of the permanent residents. Systems were installed in three additional flats during the first week. The work programme was adjusted in the light of experience gained during the first week. The entire scheme covering 48 flats (two of the one-bedroom flats were converted into a two-bedroom flat) was completed on Wednesday, 28 September 2011. Table 2.1 shows how the installation work progressed.

Staffing levels: Domestic Sprinklers provided 8 operatives for the entire duration of the installation work and Kier Construction provided an average of 4 carpenters and 3 painters for 12 days.

Table 2.1. Sheffield retrofit programme – sprinklers installed in 47 flats from 30 August to 28 September 2011.

Week commencing	Installation undertaken
Tuesday, 30 August	Initial 4 flats, including one that was empty
Monday, 5 September	90% communal areas complete
Monday, 12 September	12 flats, communal areas complete, preparation in lobbies
Monday, 19 September	20 flats. Lobbies completed
Monday, 26 September to Wednesday, 28 September	11 flats, boiler room, bin stores. Commissioning and snagging

The work was completed to the satisfaction of all concerned. The project was fully documented and, in addition to demonstrating the practicality of a sprinkler retrofit, the documentation shows entirely satisfactory results for estimated and actual installation costs.

2.5 Counting the costs

At the outset it was agreed that the full and true costs of the Callow Mount project should be recorded and openly reported. The costs recorded in Table 2.2 show what the actual cost of a commercial contract between a housing authority or landlord and a sprinkler installation company would be (at August 2011 prices).

Table 2.2. Summary of total costs (covering 47 flats).

Item	Cost
Materials	£19,055.00
Labour	£26,890.00
Establishment	£ 9,189.47
Total	£55,134.47

- The labour costs are those of the installation team and subcontractors. All those involved in the project were trained and registered as competent in the installation of sprinkler systems and materials that were used in the project.
- Establishment costs include site survey work, meeting with residents, site supervision, design, administration, training, operation/maintenance manuals, indirect labour costs, overheads and profit.
- It can be seen that the actual final cost of the project resulted in an average of just under £1,150 per flat. This includes the cost of sprinkler installation in utility rooms, common areas and office.

Perhaps the key finding of the project is that the installation cost is less than £1,150 per flat. This is impressive since it is significantly less than had been estimated and illustrates how economically such a scheme can be retrofitted in occupied premises without undue disruption of a building's fabric or residents.

2.6 The outcomes

There are two principal bodies of evidence which demonstrate the success of the SCG's Callow Mount retrofit project. The first – obviously – is the 13-storey tower block with its protective sprinkler installation.

The second is the published report, *Safer High-rise Living*, published by BAFSA in 2012 on behalf of the Sprinkler Coordination Group. It does more than document the project and its progress. It also reviews:

- the identification of risks associated with high-rise social housing blocks;

- the direct and indirect consequences of fire in high-rise residential premises;
- the relevant recommendations in current fire safety legislation and guidance documents;
- research into the use of sprinklers in residential and domestic premises;
- the outcome of the pilot installation of a sprinkler system into a high-rise social housing block.

It acknowledges that:

- high-rise social housing blocks present unique challenges with regard to the protection of residents, and firefighters, from fire;
- where evacuation is required the process takes longer from upper floors, and sprinklers provide significant benefits in addressing this risk;
- where a fire occurs in a high-rise block it can take a significant time before the fire and rescue service can commence firefighting operations, with the potential of greater risk to firefighters. Sprinklers can assist in controlling fire growth while reducing the time between the outbreak of fire and the start of fire suppression activity, and the risk to firefighters.

The report summarises the key findings of the Callow Mount retrofit project to reveal that:

- the retrofit was completed with little or no disruption to the residents, who remained in their homes throughout the installation programme;
- the owners of the building and residents expressed a high degree of satisfaction with the workmanship and finished product and in not having to leave their homes or pack up their possessions;
- in recording the full and true costs of the project, authoritative data is provided for housing authorities, associations and landlords which will allow them to consider the cost/benefit/effectiveness of installing an automatic sprinkler system;
- the approach adopted provides a template for organisations considering the use of sprinklers when developing their fire protection strategy for such buildings as part of a redevelopment or refurbishment programme, or as a result of actions that may be required following a fire risk assessment;
- the sprinkler installation was carried out at a cost of £1,150 per flat. The cost of annual maintenance will be £250 per year if a contract for the whole block is entered into and if access can be guaranteed at the

same time (where this is required), at 2011 prices. The combined cost of installation and maintenance provides an annualised cost per flat of £40 over a 30-year time frame.

Following the completion of the project, and in addition to publishing the report, BAFSA issued a DVD which gave insights into the planning stage and depicted various stages of work in progress. Clips from the DVD featured in a BBC1 breakfast show in June 2012. A 5-minute item on the benefits of residential and domestic systems was repeated three times between 06:20 and 08:25hr and featured interviews with senior fire service officers from Staffordshire and Derbyshire as well as the chair of the Callow Mount tenants' association.

2.7 Promoting the message

With the significant results of the SCG project available in *Safer High-rise Living*, there is much activity on the promotional front to spread the word about the successful, cost-effective installation of sprinklers in high-rise buildings.

At their Spring 2012 Meeting in Oxford, BAFSA members were given an outline of follow-up initiatives. Project Manager Steve Seaber's initial programme of presentations was listed and regional seminars on the topic will continue. It is estimated that by the end of Autumn 2012 more than 2500 delegates will have attended the presentations. Most recently, an international audience of 220 in Paris were briefed on the project. An account of the Callow Mount project will be included in the programmes of a wide variety of industry conferences and seminars; it will be taken up by housing authorities interested in the outcome and its implications for their residential premises; it will be given to fire and rescue services across the UK; and, in addition, 140 CDM coordinators will be briefed on the project, its outcomes and practical benefits.

BAFSA members: single copies of the report or the DVD are available free to members, post free.

For non-members: in the UK, a single copy of the report, £25.00 post free; 5 copies or more, £10.00 each. Postage will be charged for orders over 1 copy.



Meanwhile, the project's results have been distributed widely to relevant media; so far more than 1000 copies of the published report and 1200 copies of the BAFSA DVD on the subject have been distributed. Word comes back that there is also interest from overseas.

2.8 Conclusion

So – it is practical and cost effective to retrofit a sprinkler system in a residential tower block. There could be no better example than the Callow Mount project of BAFSA tackling its prime objective to protect people, property and the environment. The results can have life-saving and property-protection benefits around the world.



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3 Sprinklers in Wales

Since the previous edition of this Yearbook there have been significant developments with regard to sprinklers in the Principality and, for a complete picture, it is necessary to go back in time.

In 2007 the North Wales Fire Service produced a report which showed that, in their area alone in a period of six years, and in dwellings which were fitted with smoke detectors, 50 people had died in fires. That rate was substantially more than the average across all UK F&RS areas and indicated that something more than smoke detectors was called for.

In June 2007 Welsh Assembly Member Ann Jones – who was once a fire control officer in Merseyside – won a ballot to bring forward a proposed Legislative Competence Order (an item of backbench legislation) relating to Domestic Fire Safety. An LCO would not change existing law but, if approved, would give the Welsh Assembly the power to do so using an Assembly Measure. The prime purpose of the proposed legislative Measure was to require the installation of automatic fire suppression systems in new residential premises in Wales.

Following scrutiny by the National Assembly for Wales and pre-legislative scrutiny by both Houses of Parliament, a revised Order (a form of Statutory Instrument), entitled The National Assembly for Wales (Legislative Competence) (Housing) (Fire Safety) Order 2010, received Royal Assent on 12 April 2010 and came into force the following day, permitting the progress of a new draft Assembly Measure. The draft went through a series of scrutiny meetings at which it was examined in detail by a very wide range of interested organisations.

Eventually, after four stages of amendments, and by a unanimous vote, the Welsh Assembly approved the Measure – The Domestic Fire Safety (Wales) Measure. It went before Privy Council on 7 April 2011, obtained the Royal Seal, and opened the way for the preparation of appropriate Regulations to give practical effect to the legislation. At the time of writing it is understood that the rather-delayed Regulations – which have had a degree of resistance from some elements of the construction and development lobbies which operate in Wales – will be introduced from September 2013. They will ensure that all new homes in Wales are fitted with an automatic fire suppression system.

In a written statement, the Welsh Environment Minister John Griffiths said it was estimated that, each year, 36 deaths and 800 injuries could be prevented

as a result of the Measure. Critics say that the extra costs of fitting sprinklers will deter developers from investing in Wales but John Griffiths observed that the costs are more than justified by the lives likely to be saved:

'We must seek to prevent avoidable death and injury from house fires and need to accept that there is a cost to introducing sprinklers into new properties. These proposals are significant and important in taking forward fire safety. Wales will be at the forefront of reducing fire risk and cutting the number of avoidable deaths and injuries caused by fires in residential premises.'

Thus the Welsh Government is commencing work on the production of regulations and technical requirements relating to sprinkler systems with the intention of introducing regulations in the second half of 2013. The proposals, which will be subject to public consultation, will reflect the scope of the Measure: they will be based on the introduction of automatic fire suppression systems in all new and converted residential accommodation, including: new housing; a dwelling; a flat; a care home; residential accommodation for pupils or students of a school, college, university or other educational establishment; a room or group of rooms within a building if that room or those rooms are intended to be used for living and sleeping by a person or persons other than as part of a single household which occupies the whole of the building; and where a building contains one or more residence. Since such development is inevitably linked to construction standards and an inter-relationship with Part B of Schedule 1 of the Building Regulations, development of proposals will be referred to the Statutory Building Regulations Advisory Committee for Wales for advice. It is intended that the committee be augmented by Fire and Rescue and industry experts for this work. The Group which is developing the Regulations has wide representation - including a BAFSA nominee.

The Welsh Government views these proposals as significant and important in taking forward fire safety, by reducing fire risk and cutting the number of avoidable deaths and injuries caused by fires in residential premises.

4 Watermist systems

BAFSA Technical Guidance Note No. 3

4.1 UK Watermist Coordination Group

The UK Watermist Coordination Group brings together representatives from BAFSA and the Fire Industry Association (FIA) as well as other organisations such as certification bodies. BAFSA and the FIA, two fire industry associations with a common interest in watermist systems, are working together in order to promote and provide information on the use of independent-test-proven, correctly designed and installed watermist systems in buildings. Together they have developed a document of detailed technical guidance on watermist, what it is, its benefits for fire protection in particular types of premises and the fires it may encounter therein. The intention has been to produce guidance which will be of great benefit to building owners, specifiers and regulators seeking independent guidance about the use of watermist in buildings.

4.2 Watermist principles

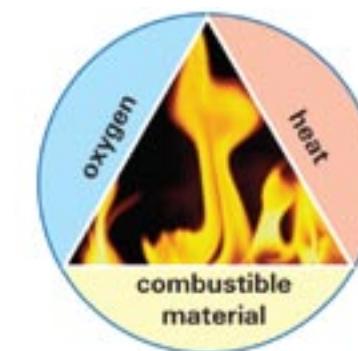


Fig. 1. The fire triangle.

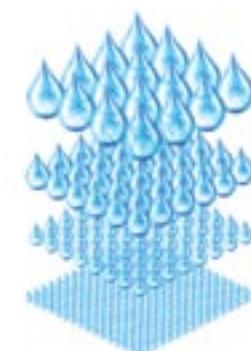


Fig. 2. Water droplet size affects aggregate area available for the cooling effect.

For a fire to develop it requires the continuing presence of the three elements of the fire triangle – oxygen, heat and combustible material. If any one of those is removed the fire will be suppressed or extinguished.

A conventional sprinkler system removes the heat element of a developing fire to achieve the desired effect. Watermist removes both the heat and oxygen elements of the fire triangle. It does so by dispersing water through specially designed nozzles at low, medium or high pressure. Generally, as system pressure increases, the water droplet size decreases. This will significantly

It takes 335kJ to heat 1 litre of water from 20°C to 100°C and 2257kJ to convert 1 litre of water to steam. Water expends 1700 times upon vaporisation so the high energy-absorption capability of small water droplets produces the rapid cooling and oxygen depletion characteristics that are unique to watermist.

increase the total area of the sprayed droplets and so leads to production of a greater volume of steam, removing from the fire the energy needed to generate the steam. So, the smaller the size of the droplets, the greater the available surface area and the more effective the system in lowering the temperature and reducing the oxygen available at the flame front of a fire.

4.3 BAFSA's TGN3: Watermist systems: compliance with current fire safety guidance

In March 2012 BAFSA/FIA issued their guidance document (BAFSA Technical Guidance Note No.3 in the TGN series) entitled *Watermist systems*. It was produced to inform BAFSA members involved in the design and installation of watermist systems used for fire suppression and extinguishment. It is intended that TGN3 should be read in conjunction with the contents of DD 8489-1: 2011, *Fixed fire protection systems. Industrial and commercial watermist systems. Code of Practice for design and installation* and the draft European standard prEN 14972, *Fixed fire-fighting systems – Watermist systems – Design and installation*, Standards documents which BAFSA members would benefit from consulting if watermist projects come their way. (See also chapter 7.)

The Technical Guidance Note is in seven main sections.

Introduction

This includes an account of the physical principles which underlie the effectiveness of watermist. It describes the suitability of watermist for suppressing oil-based cooking fires in the food industry, among the other fire classifications which it can suppress or extinguish:

- Class A – fires involving ordinary combustibles;

- Class B – fires involving flammable liquids such as oils, spirits, fats and certain plastics;
- Class C – fires involving flammable gases such as methane, propane, hydrogen and natural gas;
- Class F – fires involving the flammable cooking oils used within the food industry.

It also covers topics such as types and sizes of watermist systems, and the components thereof.

Compliant systems

Section 2 deals with compliant systems. Standards organisations around the world have worked hard to introduce watermist Standards applicable to the types and applications of watermist systems, and also the testing and approval of such systems. Commercial, industrial, residential and domestic watermist systems can be specified and installed to a number of Standards, including those produced by BSI, CEN, FM and NFPA. The British Standards Institution publishes two documents which are of current interest:

DD 8458-1: 2010. *Fixed fire protection systems. Residential and domestic watermist systems. Code of Practice for design and installation.*

DD 8489-1: 2011. *Fixed fire protection systems. Industrial and commercial watermist systems. Code of Practice for design and installation.*

What does DD mean?

When the BSI issues a document as a Design Draft (DD) it should not be regarded as a British Standard, since it is of a provisional nature. That may be because the subject matter involves the application of new technology. Publication as a DD enables BSI to gather experience and feedback on its practical application before a full BS is produced. According to the nature of feedback, the appropriate Working Group and BSI committee/s decide if a full BS can be issued or if other action is necessary.

In the UK, BSI's DD 8458-1 primarily covers watermist systems used for life safety purposes, but can also apply to property protection for the following:

- residential – apartments, residential homes, HMOs, boarding houses, care facilities and dormitories etc;
- domestic – individual houses, flats and maisonettes etc.

BSI's DD 8489-1 may be applied to hazards involving the following:

- local applications – involving flammable liquid fires, as detailed by DD 8489-4;
- combustion turbines and machinery spaces – with volumes up to and including 80m³ (see DD 8489-5);
- industrial oil cookers (DD 8489-6).

Section 2 also gives guidance on the application of Standards

Own equipment manufacturers

Section 3 deals with manufacturers who also undertake contracting projects themselves. Among other topics it deals with the certification of equipment and installers.

Validation of competence

The competence of an installer is dealt with in section 4, which emphasises the importance of installers' competence being third-party certificated, a process which brings with it regular and independent auditing, both internally and externally, to keep a check on performance and standards.

Warrington Certification Limited (WCL) are working members of the UK Watermist Coordination Group, principally made up of BAFSA and FIA representatives. WCL's FIRAS installer scheme extends to watermist installers and forms part of an industry commitment to provide confidence for those choosing to specify watermist for protection of their buildings and/or working operations, being a scheme for the certification of installer companies. The scheme relies on installer companies working in conjunction with watermist system manufacturers under written agreements so that they receive formal training in the correct design and installation of a manufacturer's systems. It is also an expectation of the FIRAS scheme that the manufacturer will produce a design manual which will be based on real, independent fire test evidence (undertaken to DD 8458, DD 8489 or equivalent internationally recognised test standards as applicable).

Installation, commissioning and maintenance

Section 5 summarises the performance criteria which system specifiers should expect when contracting a watermist installer. All companies involved in the design and installation of watermist systems are encouraged to seek accreditation under the FIRAS scheme (see above). TGN3 recommends that specifiers seek physical evidence of a contractor's ability to install, commission and maintain a watermist system to the requirements which Section 5 outlines.

Applications and limitations

Section 6 returns to basics, draws attention to the need for a fire risk assessment of a premises and its use as a precursor to settling on any form of fire protection, and outlines some of the considerations which apply to watermist before it becomes the system of choice. There are short subsections on:

- means of escape;
- smoke precipitation;
- visibility reduction;
- electrical conductivity of sprayed water droplets;
- water discharge times;
- ventilation;
- integrity of protection enclosure;
- nozzle positioning;
- nozzle heights and spacing.

Bespoke testing

Before the appearance of DDs 8458-1 and 8489-1 some watermist contractors might have been tempted to extrapolate beyond known fire test data limits to justify a proposed design for a watermist system. The final section of TGN3 reminds specifiers and contractors that stricter limits now apply and that, if any technical extravagances are now under consideration, special bespoke tests may be needed to provide evidence of the effective performance of off-limits systems.

How to obtain the TGN

TGN3 provides ready reference to a range of third-party information to illustrate the benefits of incorporating watermist fire suppression into a particular building design, always subject to the results of a fire risk assessment.

BAFSA members may download a free pdf from the Members' Resources area of the BAFSA website.

Non-members may purchase a single copy for £15.00 including UK post and packing. Discounts are available for bulk orders to a single address. Orders to: info@bafsa.org.uk.



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5 Installers and the assessment of competence

If a sprinkler system is to work it must be properly designed, must incorporate components fit for purpose and must be properly installed and maintained. There are, of course, various British Standards codes of practice for the design, installation and maintenance of different types of systems, as well as British Standards which specify requirements for the fitness for purpose of components such as pipework and pumps and valves. BS EN 12845, for example, incorporates provisions from other publications, normative references, and includes a list of 26 such documents. This chapter provides a brief introduction to the process of accreditation, with reference to sprinkler installers and installation work, and goes on to describe the scope of activity of three principal third-party approvals bodies.

At BAFSA's 2010 Annual General Meeting a resolution was adopted which made it incumbent upon installer members to gain certification/approval under a scheme operated by a UKAS-accredited certification body. It was resolved that non-certificated member installers were to have 24 months from November 2010 to achieve certification.

5.1 The United Kingdom Accreditation Service (UKAS)

In the United Kingdom UKAS is responsible for the assessment and accreditation of the competence of organisations in the fields of:

- measurement
- testing
- inspection
- certification of
 - systems
 - products
 - personnel.

Laboratories/organisations may be accredited by UKAS to perform calibration or testing services. Any laboratory which seeks such accreditation must satisfy UKAS assessment managers that it is technically competent and that it operates a quality system, to rigorous international standards.

UKAS lists its services on its website, www.ukas.org. Visitors to the website who are interested in sprinkler matters might opt to search the category ‘Certification bodies’ under the keywords ‘fire sprinklers’ to see the list of UKAS-accredited laboratories which have some involvement in aspects of sprinkler certification. Among the UKAS-accredited certification bodies are three that are of particular relevance for users of this Yearbook since, among other things, they assess and provide accreditation of fire sprinkler installation companies. The three organisations are:

- Loss Prevention Certification Board/BRE Certification Ltd;
- Warrington Certification Ltd;
- IFC Certification Limited.

5.2 Loss Prevention Certification Board

BRE Global, based at Watford, works to ensure that fire, security, environmental and other products and services provide the quality of performance and protection that they should. It is an independent, third-party approvals organisation, offering certification of products, services and systems to an international market. Its work in fire and security certification is carried out by the Loss Prevention Certification Board (LPCB), which is part of BRE Certification Ltd and assesses and certifies fire and security products, systems and services against standards such as British and European Standards, as well as its own suite of Loss Prevention Standards (LPS) which have been developed in cooperation with manufacturers, installers, end users and insurers. The LPCB is an example of a third-party certification body. Specifiers and contractors should be aware that their clients, their clients’ insurers and building control officers will be seeking evidence that new sprinkler systems or extensions of existing systems meet the requirements of published standards and that approval by a UKAS-accredited organisation such as the LPCB will provide such evidence. Any system which has been installed by a company approved by the LPCB, for example, can be given a Certificate of Conformity (see 5.2.3 below) as evidence that it has been correctly installed.

5.2.1 Loss Prevention Standard 1048-1

Chapter 14 of this book contains a list of BAFSA members, many of them being companies which install sprinkler systems and have been approved by the LPCB under its Loss Prevention Standard 1048-1, *Requirements for the approval of sprinkler contractors in the UK and Ireland*. There are four levels of approval under LPS 1048-1 (see Table 5.1) and BAFSA’s categorisations of the competencies of its own member installers are based on the approval levels of LPS 1048-1.

Table 5.1. Approval levels of LPS 1048-1 sprinkler contractors and categories of work related thereto.

Categories of work	Approval level			
	1	2	3	4
A Pre-calculated ordinary hazard systems, installations, extensions and alterations (excluding water supplies)	†	‡	‡	□
B Pre-calculated high hazard systems, installations, extensions and alterations (excluding water supplies)	†	‡	‡	□
C Town’s mains water supplies	†	‡	‡	□
D Pumped water supplies	†	‡	‡	□
E Base build contracts (pre-calculated design principles)	X	‡	‡	□
F Systems, installations, extensions and alterations involving fully hydraulically-calculated design principles	X	X	†	□

† Allowed to undertake this Category of Work under supervision.

‡ Allowed to undertake this Category of Work; supervision may be required depending on whether the Contractor has been granted self-certification for this Category of Work.

□ Allowed to undertake this Category of Work; Contactor can self-certificate this Category of Work.

X Not allowed to tender for or to undertake this Category of Work.

If an installer succeeds in meeting the requirements of LPS 1048-1 this indicates that the company is capable of designing, installing and maintaining sprinkler systems to the following installation standards:

- *LPC Rules for automatic sprinkler installations incorporating BS EN 12845*, with the set of LPC Technical Bulletins (TBs) that are current at the particular time. (Note: LPS 1048 Certificates of Conformity – see below – may be issued for life safety systems designed solely to BS EN 12845 and TBs 201, 202 and 233 if applicable, providing no other technical bulletins are used to carry out the design. Any other contracts shall be certificated against the whole of the LPC Sprinkler Rules); or
- BS 9251 for residential and domestic occupancies; or
- NFPA 13: *Standard for the installation of sprinkler systems* (industrial and commercial premises) (excluding NFPA 13D (domestic) and NFPA 13R (residential)); or
- FM Global loss prevention data sheets (excluding residential data sheets)

To see the full scope of LPS 1048-1, simply Google ‘LPS 1048’ then click on the (currently) second option, ‘[PDF] LPS 1048-1 Issue 4_1’.

5.2.2 LPCB Red Book

The Red Book is the LPCB's *List of approved products and services* and contains listings of fire protection products and services, contact details for supplier companies and references for relevant LPCB certificates. Companies which are approved under the terms of LPS 1048-1 will be issued with an appropriate certificate by the LPCB, listed in the Red Book and entitled to use an LPCB logo (plus certificate number), in support of their sprinkler-related activities. The LPCB applies strict supervision of the use of its certification marks and monitors potentially negligent or fraudulent use thereof.

For complete information, Google 'red book live', click on the 'Home' option, scroll down to the Red Book section titles, and click on 'Automatic sprinkler, water spray and deluge systems'. This is Part 3 of the Red Book. The LPCB offers enquirers free access to the complete text of the Red Book, including the option of requesting the latest version on memory stick.



Fig. 5.1. The LPCB controls the use of its approvals' logos. The illustration shows a product certification mark, which must at all times be used with the relevant certificate number placed centrally beneath. For certain applications an LPCB-approved company is allowed to include the UKAS logo alongside the LPCB mark, as shown.

5.2.3 LPCB Certificates of Conformity

Subject to their approval level, either the sprinkler installing company or the LPCB issues Certificates of Conformity as evidence that, for example, a sprinkler system meets its professional standards of performance and quality. Such Certificates are only issued for systems installed by installers recognised by the LPCB and, for the fire and rescue service, approved inspectors, building control departments, local authorities and insurance companies they are evidence that a system complies with the LPC Rules. It is also third-party verification for the client that their system has been designed and installed to the correct standard.

5.2.4 Loss Prevention Standard 1301

In June 2007 the LPCB issued LPS 1301: *Requirements for the approval of sprinkler installers in the UK and Ireland for residential and domestic sprinkler systems*. The Board had noted that, while automatic sprinklers installed in residential and domestic premises would safeguard life, property and the environment, equipment design and system configurations were continually advancing. Thus it was felt that a suitable installation standard would benefit

installers and ensure that systems would be designed to be appropriate to the occupancy to be protected and to operate reliably in the event of a fire. The text of LPS 1301 is available via www.RedBookLive.com but at the time of writing there are no installer companies listed under this scheme.

5.3 Warrington Certification Limited

Warrington Certification Limited (WCL) is part of Exova Warringtonfire and is accredited by UKAS as an independent, third-party assessment organisation. It offers a comprehensive range of certification schemes for fire protection systems, including CERTIFIRE for products and FIRAS for installers, as well as certification to ISO 9001: 2008.

FIRAS (from FIRE Accreditation Scheme) was originally a training and accreditation initiative aimed at installers of passive fire protection products and operated from the then Warrington Fire Research Centre. It is still run independently at Warrington but with continuing collaboration with the fire trade organisations, in pursuit of higher standards of installation of fire protection products on UK construction sites. FIRAS offers voluntary, third-party certification for installation contractors of (a) commercial and industrial and (b) residential and domestic sprinkler systems.

Table 5.2. Comparison of categories of installer levels.

LPS 1048-1 level	BAFSA membership level	FIRAS commercial and industrial
1	1	'Approved' status. Pre-calculated contract, without water supplies.
2	2	'Certificated' status. Pre-calculated contract, without water supplies. 'Approved' status. Pre-calculated contract, with water supplies.
3	3	'Certificated' status. Pre-calculated contract, with water supplies. 'Approved' status. Fully hydraulically calculated contract with water supplies.
4	4	'Certificated' status. Fully hydraulically calculated contract with water supplies.

In general terms, FIRAS certification assesses the technical capability of the installation contractor, the competence of the contractor's personnel and regularly inspects sites of ongoing contracts to monitor compliance requirements.

5.3.1 FIRAS: sprinkler installation, commercial and industrial premises

There are two certification categories for installation contractors:

- Approved: entry level, working under overstamping/inspection arrangements; also, inspection of contracts for a minimum of 24 months within a defined scope of activity;
- Certificated: either (a) a progression from Approved level or (b) direct entry from an equivalent certification scheme and working in defined scopes of activity without overstamping/inspection.

The defined scopes of activity are:

- FHC: fully hydraulically calculated contracts with water supplies;
- PCW: pre-calculated contracts with water supplies;
- PC: pre-calculated contracts without water supplies.

Warrington certifies the installer's quality management system to ISO 9001: 2008.

Assessment is carried out in accordance with a wide range of inspection and surveillance criteria. In addition, the technical criteria specify that all sprinkler systems and installations shall be designed in accordance with one of the following standards:

- LPC Rules for automatic sprinkler installations;
- NFPA 13 (excluding 13R and 13D);
- FM Global property loss prevention data sheets (excluding residential data sheets);
- other documented engineering standards, such as LUL.

It is also a requirement that all equipment and spare parts shall be third-party certificated to a standard recognised by FIRAS.

5.3.2 FIRAS: sprinkler installation, residential and domestic premises

FIRAS also certifies installers of residential and domestic systems. In the R&D scheme, there is one certification category for all installation contractors. The structure of the scheme is as follows:

Pre-certification

- Technical assessment of contractor, including inspection of ongoing contracts;
- Assessment of office-based routines/procedures;

- Assessment of competence of personnel, especially regarding completion of recognised training courses.

Surveillance after certification

- Design reviews and site inspections of ongoing contracts at the discretion of FIRAS;
- Annual office inspection;
- Notification of new contracts via FIRAS online database;
- Issue of Certificates of Conformity via FIRAS online database.

Technical criteria

All systems to be designed to a recognised standard, such as:

- BS 9251
- NFPA 13D
- NFPA 13R.

5.3.3 Warrington Technical Directory

The details of installation contractors listed by FIRAS can be found by visiting www.firas-register.co.uk. Click on 'FIRAS register' and scroll down to the sprinkler installer listings. There are listings for (a) residential and domestic and (b) commercial and industrial system installers.

5.4 IFC Certification Limited

IFC Certification Limited (IFCC), part of the IFC Group, is accredited by UKAS as an independent, third-party certification body providing voluntary product and installer certification and is also a European Notified Body to provide CE Marking of products under the requirements of the Construction Products Directive. It offers a comprehensive range of certification schemes for fire protection products and systems under the IFCC Product Certification Schemes and an expanding range of IFCC Installer Certification Schemes.

All IFCC Schemes are independently run by IFC Certification Ltd. with valuable input provided by ongoing collaboration with fire industry trade associations, in order to ensure that such schemes continue to focus on higher standards of installed fire protection in the UK, Europe and the Middle East. IFCC offers voluntary, third-party certification of both (a) commercial and industrial and (b) residential and domestic sprinkler system installers.

The two schemes each involve IFCC assessing the technical capability of the contractors to design, install and commission systems in accordance with the applicable standard and auditing of the contractor's quality management systems, which must be appropriate to the type and scale of business the contractor undertakes. The schemes also include inspections of site installation and commissioning activities to monitor compliance with design requirements and those set out in the applicable standard.

5.4.1 IFCC SDI 22: Scheme for contractors installing residential and domestic sprinkler systems

The scheme operates on there being one certification category for all contractors installing residential and domestic sprinkler systems. The scheme incorporates:

Pre-certification

- design review;
- audit of office based activities / processes;
- inspection of installation / commissioning activities at sample sites;
- verification of personnel competence / training.

Ongoing surveillance

- design reviews and site inspections of ongoing contracts;
- annual audit of office based activities / processes;
- notification of new contract awards via the IFCC online database;
- issue of Certificates of Compliance via the IFCC online database.

All sprinkler contractors certificated under this scheme shall be suitably experienced in the design, installation and commissioning of residential and domestic sprinkler systems in accordance with the following standards:

- BS 9251: 2005
- NFPA 13D
- NFPA 13R.

IFCC also require that the contractor shall operate a suitable management system appropriate to the size of their business.

Application on-line via: www.ifccertification.com

5.4.2 IFCC SDI 23: Scheme for contractors installing commercial and industrial sprinkler systems

The scheme operates on there being two categories of installer:

Category 1 – Certificated Contractor only approved to design and install pre-calculated Light and Ordinary Hazard classified sprinkler systems without new water supplies. Category 1 contractors require supervision/‘overstamping’ by IFCC.

Category 2 – Certified Contractor approved to design, install and commission Light, Ordinary and High Hazard classified sprinkler systems (pre-calculated and using Full Hydraulic Calculations). Approved to design, install and commission sprinkler systems fed from all types of water supply. Category 2 contractors are able to self-certify their work and do not require supervision.

All sprinkler contractors certificated under this scheme shall be suitably experienced in the design, installation and commissioning of industrial and commercial sprinkler systems in accordance with the following standards:

- LPC Rules for automatic sprinkler installations incorporating BS EN 12845
- NFPA 13 (excluding NFPA 13D & 13R)
- FM Global Property Loss Prevention Data Sheets.

It is also a requirement that all equipment and spares used shall be third-party certificated to a standard recognised by IFCC. IFCC also require that the contractor shall operate a quality management system in accordance with the requirements of ISO 9001: 2008.

Application on-line via: www.ifccertification.com

5.5 Conclusion

There are a number of other UKAS-accredited organisations which are involved in testing components or materials found in sprinkler systems but in the United Kingdom the LPCB/Warrington Certification/IFC Certification are the only organisations which certify installation work and installer companies. All three organisations have websites which give more details of their services. The reader will find, in chapter 14, many references to BAFSA member installers being certificated by these organisations.

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LPCB is an independent third party approvals body offering certification of products and services for the sprinkler market.



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- Flow meters
- Pipe couplings and fittings and pipework supports
- Plastic pipes and fittings
- Sprinkler heads and bulbs
- Suction tanks
- Valves and valve stations, etc.

Installers are approved to:

- LPS 1048 Sprinkler system contractors in the UK and Eire
 LPS 1301 Sprinkler installers in the UK and Ireland for residential and domestic sprinkler systems

Once approved the product or service is then listed in the world renowned Red Book, available free of charge in book, CD ROM or updatable memory stick formats and is continually updated online. Our Loss Prevention Standards can also be downloaded from the website.

Visit our website: www.redbooklive.com
 Email: enquiries@lpcb.com
 Tel: +44(0)1923 664100
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bre

6 Business Sprinkler Alliance

A year of research

The Business Sprinkler Alliance (BSA) is a group of fire safety professionals working to achieve greater business resilience through the enhanced adoption and acceptance of automatic fire sprinklers in commercial and industrial premises. BAFSA is a founding member of the BSA, as is the Chief Fire Officers' Association (CFOA), the European and National Fire Sprinkler Networks, and insurer FM Global.

Since the BSA's inception in early 2010 it has been striving towards achieving its goals, which are to highlight the true costs of fire to UK plc, raise awareness of the business benefits of automatic fire sprinkler systems (fire sprinklers) and influence UK Government to take a more proactive regulatory approach – be it through incentivising or mandating the installation of sprinklers – so that the UK's fire safety regulations are aligned more closely with the rest of Europe.

The BSA adopts a principled approach to lobbying based on the belief that it generally need to work with the grain of Government and not against it. To date the BSA has hosted events with and given speeches to various national and local governments as well as a number of Fire and Rescue Services. It continues to implement its stakeholder programme, engaging with businesses and the media directly to widen its ally base.

6.1 Everyone's environment

The BSA understands that influential and qualitative research plays an important part in reframing the debate with key civil servants. With respect to sustainable business practice, the BSA has sought to close the information gap on the environmental and social benefits of fire sprinklers. As readers of this article will know, fires damage the environment – from the noxious fumes that emanate from burning plastics and contaminants to run-off water containing firefighting foams; there is a clear case to safeguard ourselves and our businesses from fire as much as possible. Yet, historically, there has been little research into how the installation of fire sprinklers can have a positive impact on society, the environment and the wider economy.

The BSA understood early on that in order to close this information gap it needed to produce a ground-breaking report that would stand up to scientific

scrutiny. It commissioned the environmental research group, Bureau Veritas, in 2010 to investigate the environmental impacts of fire in sprinklered and unsprinklered industrial and commercial buildings (ICBs).

The final report, entitled *Assessing the Role for Fire Sprinklers* and released in 2011, was the first of its kind. It revealed a number of astonishing conclusions into the environmental and community impacts of fire in sprinklered and unsprinklered single-storey commercial and industrial premises.

The report results showed that installing sprinklers into ICBs across England and Wales would save an estimated 9 billion litres of water every year (the volume presently used to fight fires) – the equivalent of five times the UK's entire annual bottled water consumption⁴.

The research findings also proved that ICBs fitted with sprinklers often use only 0.2 per cent of water to extinguish a fire in comparison to a building with no sprinklers that experiences a fire.

Another fundamental conclusion the report found was that fires in ICBs without sprinklers needlessly emit upwards of 350,000 tonnes of CO₂ each year. This is the equivalent to the annual emissions of over 140,000 European cars. The report confirmed the clear net carbon benefit of installing sprinkler systems in all buildings over 5,000m² over a 30 year life span.

6.2 Cost-benefits of fire sprinklers

In addition to the environment and social research, the BSA understands that businesses need tangible evidence on the benefits of fire sprinkler installation. After all it is bottom line growth that business is mainly concerned about.

The BRE has been commissioned by the BSA to undertake a cost-benefit analysis (CBA) for fire sprinklers in industrial and commercial premises taking into account the full cost of fire. The analysis is not solely arbitrary. Information from the Bureau Veritas report will be fed into the study. The CBA aims to determine whether the cost of installation and the on-going maintenance of fire sprinklers in ICBs is more than, equal to or less than the cost of the overall impact of fires associated with those buildings, including environmental, social and business interruption costs.

The comprehensive CBA research is on-going. In the interim, the BSA wishes to make a special mention to BAFSA's own Steve Mills, whose collection of real-life business 'sprinkler stop' information (where fires have occurred and been controlled to the seat of origin or extinguished by fire sprinklers) has been invaluable towards the BRE research analysis. The BSA urges BAFSA's

members to continue to submit information on sprinkler stops wherever and whenever possible, for example, by contacting Steve whenever a fire sprinkler head needs to be replaced. (And see chapter 15, below, for a summary of notable 2011/12 sprinkler stops.)

So what of all this research? Its purpose is twofold.

Firstly, the BSA aims for the findings from fire's true impacts to be considered, in addition to life safety, in the next revision of Approved Document B to the Building Regulations.

Secondly, given the contribution fire sprinklers make in quickly minimising fire damage, the BSA aims to assemble for Government and business the information they need to make the right choices in making UK plc better protected, more sustainable and more resilient as a result. Should BAFSA's members require more information about the BSA's activities, please visit its web page on www.business-sprinkler-alliance.org or contact BAFSA directly.

⁴ <http://www.britishbottledwater.org/vitalstats.html>

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7 Principal Standards for sprinkler and watermist installations

Automatic fire sprinkler systems have an enviable reputation for reliability, founded on attention to detail in their design, performance and installation. That reputation has been built upon the requirements contained in technical standards (national and international) which have been developed over a very long time. It is exactly 200 years since an early type of system was installed in the Theatre Royal, Drury Lane; thus modern systems benefit from two centuries' worth of practical experience and technical advance.

In the United Kingdom the British Standards Institution is the independent, national body responsible for preparing, publishing and, when necessary, updating British Standards such as those with which the fire sprinkler industry and its works shall comply. The BSI committee which works on sprinkler standards is designated FSH/18/2 and under the direction of FSH/18 it is responsible for UK input on sprinkler matters into European and International committees CEN/TC191/WG5 and ISO/TC21/SC5.

7.1 Standards published and in development

The current principal sprinkler standard in application in the UK is BS EN 12845: *Fixed firefighting systems – Automatic sprinkler systems – Design, installation and maintenance*: 2004 + A2: 2009. Within the BS EN are references to other existing British Standards (normative references), the appropriate requirements of which Standards are incorporated within its overall conditions and specifications.

There are other kinds of standards. For example, the Loss Prevention Certification Board (LPCB) administers a set of Loss Prevention Standards (LPS) in the general area of fire and security products and services and it tests companies and their products against the requirements of such Standards, including a number which relate to sprinkler systems. The LPCB is an independent third-party testing and certification organisation which is accredited in turn by the United Kingdom Accreditation Service.

This chapter provides a brief overview of the main British/European Standards and also advises how to look overseas for other standards' information. Section 7.9 deals with the *LPC Rules for automatic sprinkler installations*, a long-established, insurance industry sponsored publication which, with its Technical Bulletins, is regarded as the Bible of the British sprinkler industry.

7.2 BS EN 12845: publication history

The European Standard EN 12845 also has the status of a British Standard, as BS EN 12845. It is one of two European Standards which were planned to cover automatic sprinkler systems, the other being EN 12259: *Fixed firefighting systems: Components for sprinkler and water spray systems*; BS EN 12845 covers only the types of sprinklers specified in EN 12259: Part 1: *Sprinklers* (that is, sprinkler heads).

BS EN 12845: 2003 was published by the British Standards Institution, but not without some controversy concerning changes which had been made to the original wording of the Comité Européen de Normalisation's (CEN) text between its committee's approval and its subsequent publication. Complaints by member bodies were upheld and the changes reversed in the 2004 version. Those changes were said to have no technical implications. EN 12845 provides full details on pipework sizing, sprinkler heads and placement thereof, water supplies, alarms, valves, pumps, commissioning and maintenance.

Since the appearance of the first version a CEN task group has worked on other necessary amendments to the 2004 edition and two batches of amendments, A1 and A2, were approved for inclusion in a further revised version, which has now been published. BSI calls it BS EN 12845: 2004 + A2: 2009.

Annex L to the 2003 publication specified (as mentioned above) that the EN covered only the types of sprinklers specified in EN 12259: Part 1. It said that during the years that the EN was in preparation, special technologies had been developed for special applications, including:

- early suppression fast response sprinklers (EFSR);
- large drop sprinklers;
- residential sprinklers;
- extended coverage sprinklers;
- special in-rack sprinklers.

It also said that the engineering of such applications was quite specialised and that it was intended to include them in future editions of the Standard.

Thus it had been supposed that another edition of BS EN 12845 (expected to be issued in 2011) would include requirements and recommendations relating to some of the above-listed applications. However, the extent of the amendments was ruled to be too large by CEN. Instead, the committee worked the changes into the text as the first review of the Standard. At the time of writing, Autumn 2012, the text is ready and expected to be sent to the national standards bodies for a vote, with publication in the Spring

of 2013. The new edition of the Standard will bring in CSMA and ESFR sprinklers. In parallel, the committee has begun work on a full review of the Standard.

7.3 Review of EN 12845

The review involves:

- setting a more logical sequence of topics within the document;
- reviewing all the clauses and the hundreds of changes proposed thereto;
- the introduction of new clauses, for example a treatment of ESFR systems.

To speed up the process the CEN committee has split into groups to deal with separate sections of the Standard. All groups will agree all revisions of all sections. BAFSA has a representative in the BSI delegates in the committee and hopes to be able to influence the inclusion of paragraphs from the LPC Rules where appropriate.

Some issues are certain to arise. For example, countries such as Greece, the Netherlands and the UK would wish to retain the pre-calculated pipe sizing option for Ordinary Hazard systems. Since most national delegations to the CEN committee take an opposite view, the UK representatives will draft an Annex to preserve that option. Similarly, life safety issues are primarily a UK requirement so the UK will review the existing Annex F and rewrite it if necessary. A probable compromise will be to retain most of the measures in Annex F but to change the title, replacing the words 'life safety'. All sprinkler systems are capable of saving life, indeed that is the primary purpose of residential sprinkler systems. The representatives from other countries argue that the term 'life safety' is causing confusion.

It is proposed to keep BAFSA members informed about the progress of the review via BAFSA's Technical Committee (TC), where possible, and interested members are welcome to attend relevant TC or subcommittee meetings. Any requests or suggestions for changes to the Standard will need to be supported with:

- clause reference;
- reason for change;
- suggested wording.

The TC will report to BAFSA Council regarding progress at CEN and members will also be kept informed via the Association's website and with articles in *Sprinkler Focus*. There was a preliminary progress meeting in Paris

in May 2012 when proposed amendments from sub-groups were considered by the main Working Group and a further meeting is planned for November 2012. There is an optimistic target completion date in 2013 for the review process, after which there will be a consultation period.

BS EN 12845: coverage

BS EN 12845 specifies requirements and gives recommendations for the design, installation and maintenance of fixed fire sprinkler systems in buildings and industrial plants. It gives particular requirements for sprinkler systems, which are important when measuring protection. Its requirements and recommendations also apply to any addition, extension, repair or other modification to a sprinkler system. They do not apply to water spray or deluge systems.

The Standard covers the classification of hazards, provision of water supplies, components to be used, installation and testing of the system, maintenance, and the extension of existing systems. It identifies construction details of buildings, which are the minimum necessary for satisfactory performance of sprinkler systems complying with this standard. The Standard also covers sprinkler kits where a kit includes all the components necessary to complete the installed sprinkler system.

BS EN 12845 does not cover water supplies to systems other than sprinklers. Its requirements can, however, be used as guidance for other fixed firefighting extinguishing systems provided that any specific requirements for other firefighting extinguishing supplies are taken into account.

The requirements are not valid for automatic sprinkler systems on ships, in aircraft, on vehicles and mobile fire appliances or for below ground systems in the mining industry.

The 2009 amendments to BS EN 12845 (see 7.2) include a CEN update and corrections to the national foreword.

7.4 BS EN 12259

This European Standard has the general title *Fixed firefighting systems: Components for sprinkler and water spray systems* and its series of Parts is component-specific. The Standard was originally planned to contain the Parts listed below, but far from all of them have been published or are in preparation – some exist in draft form, as indicated:

Part 1: 1999: *Sprinklers*

Part 2: 1999: *Wet alarm valve assemblies*

Part 3: 2000: *Dry alarm valve assemblies*

Part 4: 2000: *Water motor alarms*

Part 5: 2002: *Water flow detectors*

Part 6: *Pipe couplings*

Part 7: *Pipe hangers*

Part 8: *Pressure switches*

Part 9: (draft) *Deluge alarm valve assemblies*

Part 10: *Multiple controls*

Part 11: *Medium and high velocity water sprayers*

Part 12: (draft) *Pumps*

Part 14: (draft) *Sprinklers for residential applications*.

The introduction of the Construction Products Regulations (CPR) brings some important changes for the UK. From July 2013 the British opt-out of CE-marking will cease. Products covered by Parts 1-5 as listed above must then be CE-marked. In practice to avoid duplicate stocks the manufacturers have for years CE-marked these products when sold in the UK. The CPR will also require Parts 1-5 to be revised. CEN/TC/191/WG5 is waiting for some guidance from CEN as to how this should be done. The revised Standards will therefore not be published in time for the manufacturers to reject them by July 2013. However, there is no expectation of any changes that will affect the performance of the products; rather, the paperwork and reporting requirements may change. Since the entire construction products sector is in this position and the sprinkler products affected have proven themselves through previous testing and many years of successful field experience, there is no cause for concern.

7.5 BS 9251: domestic and residential systems

Interest in the benefits of sprinkler systems in dwellings became evident in the UK in the 1990s and pressure for a full national standard for such occupancies resulted in the publication of BS DD 251 (a draft Code of Practice, in 2000) and DD 252 (dealing with system components, 2002). Following a five yearly review of DD 251 it was published as BS 9251: 2005: *Sprinkler systems for residential and domestic occupancies. Code of practice*.

The delayed five-yearly review of BS 9251 is due to begin in December 2012 following an invitation for submissions from interested parties to the responsible BSI committee, FSH18/2. It is expected that a revised version of

the Standard will be available as a draft for public comment by the Spring of 2013. It is BAFSA's intention to propose parts of its Technical Guidance Note No.1 (see below) to the review group as the basis for a revised standard.

CEN/TC/191/WG5 never found time to focus on residential sprinklers, although the need for a European Standard was identified some years ago. It has now therefore formed a task group to develop a European Standard for residential sprinkler systems. The task group will use BS 9251 and the Nordic INSTA 900-1 standards as starting points.

While BS EN 12845 can be used for the design and installation of a sprinkler system in any type of premises, for domestic and residential buildings whose use falls within the scope of the standard, it will usually be simpler and more cost-effective to refer to BS 9251.

Systems designed in accordance with BS 9251 will consist of a water supply, backflow prevention valve (check valve), stop valve, priority demand valve (where required), automatic alarm system (both internal and external) and pipework connected to quick response sprinklers. The Standard illustrates alternatively systems that operate via:

- water supplies from the service mains (unmetered and domestic metered);
- boosted mains supplies (unmetered and domestic metered);
- stored water and fire pump fed (usually with an infill from a metered supply even though water supplies for firefighting purposes should be supplied free of charge).

BS 9251 is appropriate for application to systems in domestic occupancies which would include individual dwelling houses, individual flats, maisonettes and transportable homes. It is also applicable to residential occupancies, for multiple occupation, not exceeding 20m tall, which could include apartments, residential homes, houses in multiple occupation, blocks of flats, boarding houses, old persons' homes, nursing homes, residential rehabilitation accommodation and dormitories. When specifying domestic sprinkler systems care should be taken to assess whether or not the fire/fuel loading in any occupancy is likely to be greater than normally expected to be found, in which case a BS EN 12845 system is more likely to be appropriate. It may be also that where a single compartment is likely to exceed 40m², BS 12845 should be used.

While it is BAFSA's view that the advice and information contained in BS 9251 has been found to be generally sound, a number of its clauses have given rise to differences and difficulties of interpretation, and it is generally

agreed in the sprinkler industry that parts of the Standard would benefit from clarification and amplification.

In consequence, BAFSA published its first Technical Guidance Note, TGN1: *The design and installation of residential and domestic sprinkler systems*, which covers issues arising from installers' practical experience of designing and installing residential and domestic sprinkler systems using BS 9251: 2005. The second edition of BAFSA TGN1 was published in late summer of 2010 and the TGN has been subject to continuous review for 18 months prior to the planned publication of a third version in November 2012. New material covers:

- town's main connection – clarification on sizing/hydraulic losses;
- protection of loft spaces – lofts to be sprinkler protected unless sealed, fire rated and agreed with the Authority Having Jurisdiction;
- citation of sprinkler head test standard – amended to acknowledge BS 9252 but noting that only heads tested to UL 1626 are available;
- need for evidence of sprinkler contractor competency;
- fire pumps need regular auto-test features;

A number of other possible amendments are also under consideration for inclusion before republication of TGN No.1.

7.5.1 Components for residential sprinkler systems

After some years' existence as DD 252, BS 9252 was published in May 2011. The Standard, *Components for residential sprinkler systems: Specification and test methods for residential sprinkler systems*, specifies requirements for the construction and performance of sprinklers which are operated by a change of state of an element or bursting of a glass bulb under the influence of heat, for use in residential and domestic automatic sprinkler systems conforming to BS 9251. Test methods and a recommended test schedule for type approval testing are given but, as far as BAFSA is aware, no sprinkler heads available in the UK have been tested to BS 9252.

Meanwhile, CEN/TC/191/WG5 has voted to adopt the Nordic INSTA 900-2 standard as the residential sprinkler head component standard. This Standard includes the UL 1626 fire test protocol under a licence agreement with UL. The UK delegation was alone in voting against and instead proposed BS 9252. Due to the Construction Products Regulation, it may be some time before INSTA 900-2 is published as BS EN 12259: Part 14 and BS 9252 is withdrawn. In practice the residential sprinkler heads on the British market have already been successfully tested against the fire test protocol in UL 1626 and thus against the future European Standard.

7.6 Loss Prevention Standards

It was mentioned at the start of this chapter that the LPCB administers a number of standards relating to sprinkler systems and components. Those interested in learning more can visit www.RedBookLive.com, where all the Loss Prevention Standards are available to view.

7.7 Other standards

While most sprinkler installations in the United Kingdom are designed to BS EN 12845 and BS 9251, there are other standards available for use. This normally results when property owners and/or their insurers require systems to be designed and installed to comply with other international standards, such as those of the National Fire Protection Association (NFPA) of the USA or of Factory Mutual insurance company (in which connection see the boxed item on FM Global data sheets). The use of non-European standards is permissible (in the UK at least) since EN 12845 was not subject to an EU mandate as a Harmonised Standard issued under the Construction Products Directive.

The NFPA's principal sprinkler standard is NFPA 13: *Standard for the installation of sprinkler systems*, which describes a range of sprinkler system approaches, design development alternatives, and component options that are all acceptable, depending on the type of premises. Chapters 8 and 9 below deal with changes which will be found in the 2013 edition of NFPA 13 (and 13D and 13R) since the 2010 edition(s), including a change of title for 13R. For NFPA 13, the NFPA advises building owners and their designated representatives to evaluate carefully the alternatives with regard to appropriateness and preference. This standard is composed to provide the minimum requirements for the design and installation of the automatic fire sprinkler systems and exposure protection sprinkler systems that it covers. It is written with the assumption that the sprinkler system shall be designed to protect against a single fire originating within the building in which it is installed.

NFPA 13D (2010/2013) deals with the installation of sprinkler systems in one- and two-family dwellings and manufactured homes. NFPA 13R (2010) covers sprinklers in residential occupancies up to and including four [US] stories in height. Visit www.nfpa.org and click on Codes and Standards to learn more about this series of standards.

NFPA 13 is published in French, Spanish and Portuguese and there is presently strong marketing activity by NFPA to make the standard more acceptable internationally.

FM Approvals (part of FM Global) is very well established in third-party certification of property loss prevention products and services. Its testing and approval services span more than 500 categories of products and services, including fire protection (sprinklers and water mist) equipment. FM's *Approval Guide* contains information on thousands of products and services tested and includes engineering data and technical information on the application and use of listed products. Visit www.fmglobal.co.uk/product-certification.

Advice on installing sprinkler systems to meet the requirements of FM Global can be found in their Property Loss Prevention Data Sheet 2-0, *Installation guidelines for automatic sprinklers* and its Data Sheet 8-9, *Storage of Class 1, 2, 3, 4 and plastic commodities*. See the adjacent boxed information about FM Global's data sheets.

FM Global's range of loss prevention data sheets

An example of international guidance exists in the form of FM Global's series of property loss prevention data sheets, published in 15 numbered sections. Section 2 is entitled 'Sprinklers' and within that section the sheet numbers all begin '2-'.

Within each data sheet information is presented in a common sequence, thus:

- **Section 1.0: Scope**
This section describes the subject of the data sheet. When appropriate – perhaps in order to prevent misapplication of its recommendations – it also lists aspects of the topic not covered by the data sheet. It may also contain information on changes from previous editions of a sheet.
- **Section 2.0: Loss prevention recommendations**
A section which covers the subject areas (such as construction, occupancy, protection etc) within which the recommendations are grouped.
- **Section 3.0: Support for recommendations**
Detailed information to help the reader understand the reasons for the recommendations.
- **Section 4.0: References**
Lists of all documents to which reference has been made
- **Appendix A: Glossary of terms**
- **Appendix B: Document revision history**

cont.

The principal sprinkler data sheet is data Sheet 2-0: *Installation guidelines for automatic sprinklers*, which was re-issued in April 2011. Other sheets which may be of immediate interest to readers are 2-1: *Prevention and control of internal corrosion in automatic sprinklers* (May 2001) and 2-5: *Installation guidelines for automatic sprinklers in residential occupancies* (January 2010). To learn more visit www.fmglobal.com and register to view the complete range of data sheets which are available to download

7.8 Watermist systems

Watermist systems are dealt with at greater length in chapter 4, which discusses the recent BAFSA Technical Guidance Note No.3 on the topic. Commercial, industrial, residential and domestic watermist systems can be specified and installed to a number of Standards, including those produced by BSI, CEN, FM and NFPA.

The British Standards Institution publishes two documents which are of current interest for UK installers:

- DD 8458-1: 2010. *Fixed fire protection systems. Residential and domestic watermist systems. Code of practice for design and installation.*
- DD 8489-1: 2011. *Fixed fire protection systems. Industrial and commercial watermist systems. Code of practice for design and installation.*

DD 8458-1 primarily covers watermist systems used for life safety purposes, but can also apply to property protection for the following:

- residential – apartments, residential homes, HMOs, boarding houses, care facilities and dormitories etc;
- domestic – individual houses, flats and maisonettes etc.

DD 8489-1 may be applied to hazards involving the following:

- local applications – involving flammable liquid fires, as detailed by DD 8489-4;
- combustion turbines and machinery spaces – with volumes up to and including 80m³ (see DD 8489-5);
- industrial oil cookers (DD 8489-6).

Outside the UK, there is a European Technical Specification (a document which does not have the same force as a Standard). CEN/TS 14972: 2008: *Fixed firefighting systems - Watermist systems - Design and installation.*

However this document was not approved by BSI for use in the UK. Other documents available include NFPA 750: 2010: *Standard on water mist fire protection* and an ANSI/FM standard 5560: 2007: *American National Standard for water mist systems*.

7.9 LPC Rules for automatic sprinkler installations

Since 1990 the UK sprinkler industry has regarded as its Bible the various versions of the Loss Prevention Council (LPC) *Rules for automatic sprinkler installations*, with its series of LPC Technical Bulletins which amplify, clarify or extend the coverage of BSI requirements.

7.9.1 BS EN 12845 and the LPC Sprinkler Rules

The LPC *Sprinkler Rules* is based on BS EN 12845 and has been published by the Fire Protection Association since 2003, with interim updates. It contains:

- the text of the BS EN;
- the section of Technical Bulletins; and also
- a section of supplementary information.

(The following panel contains information about the contents of the BS EN version of the *LPC Rules*.)

The combination of the text of the Standard and the comments and extensive technical elaborations of the Technical Bulletins provide more complete guidance for the designer and installer of an automatic sprinkler system than the bare statements of the BS EN. The Technical Bulletins are prescriptive. They note, for example, that where European sprinkler component standards exist then only components which comply with those standards shall be used. Alternatively, if there are types of components for which harmonised standards do not exist, the *LPC Rules* prescribe that components shall be approved or certificated by an appropriate organisation in accordance with specified criteria.

BAFSA enjoys membership of the insurers' RISC Authority active fire protection group, which oversees amendments and updates of the *LPC Rules*, in particular in changes to the Technical Bulletins. It is understood that, among TBs under consideration for updating are TBs 206, 209, 210 and 221. Consideration is also being given to a new TB 234 dealing with the protection of the latest types of product storage methods.

THE LPC RULES

LPC Rules for Automatic Sprinkler Installations incorporating
BS EN 12845 Fixed firefighting systems – Automatic sprinkler systems – Design, installation and maintenance

Part 1. Text of BS EN 12845: 2004 + A2: 2009

Introduction; 1. Scope; 2. Normative references; 3. Terms and definitions; 4. Contract planning and documentation; 5. Extent of sprinkler protection; 6. Classification of occupancies and fire hazards; 7. Hydraulic design criteria; 8. Water supplies; 9. Type of water supply; 10. Pumps; 11. Installation type and size; 12. Spacing and location of sprinklers; 13. Pipe sizing and layout; 14. Sprinkler design characteristics and uses; 15. Valves; 16. Alarms and alarm devices; 17. Pipework; 18. Signs, notices and information; 19. Commissioning; 20. Maintenance; Annexes; Bibliography.

Part 2. LPC Technical Bulletins

TB201: Suitable sprinkler components and services; TB202: Approved sprinkler equipment; TB203: Care and maintenance of automatic sprinkler systems; TB204: Sprinkler system grading; TB205: Consultation and acceptance for sprinkler system approval by fire insurers; TB206: Passive fire protection of sprinklered buildings; TB207: The selection of sprinkler heads; TB208: Supplementary requirements for sprinkler installations which can operate in the dry mode; TB209: ESFR sprinkler protection; TB210: Automatic sprinkler pump installation; TB213: Upkeep and testing of multiple controls; TB214: Sprinkler protection of flammable liquid stores; TB215: Sprinkler protection of idle pallet storage; TB216: Sprinkler protection of aerosols; TB217: Categorisation of goods in storage; TB218: Water supply diagrams; TB219: Sprinkler protection of cold stores; TB220: Power supplies for sprinkler pumps; TB221: Sprinkler protection of schools; TB222: Ordinary Hazard Group 3 protection using Enhanced Protection Extended Coverage sprinklers; TB223: Sprinkler protection of concealed spaces in OH3 EPEC sprinklered buildings; TB224: Sprinkler water storage tanks (cisterns); TB226: Design, installation and maintenance of underground pump chambers; TB227: Pipework; TB228: Revisions to BS EN12845 Table 1; TB229: LPC Rules for automatic sprinkler installations variations from BS EN 12845: 2009; TB230: Protection of roof spaces, floor and ceiling voids; TB231: Pipe sizing; TB232: Sprinkler installation control valve sets; TB233: Water supplies for life safety systems.

Part 3. Supplementary information

8 Significant Changes for the Upcoming [NFPA] Sprinkler Standards⁵

2013 Editions Released Soon

Bob Caputo, Fire & Life Safety America

It's hard to believe another three years have gone by but in just a few months, the 2013 editions of NFPA 13, *Standard for the Installation of Sprinkler Systems*; NFPA 13D, *Standard for the Installation of Sprinkler Systems in One-and Two-Family Dwellings and Manufactured Homes*; and NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*; will be issued. (Note: Starting in the 2013 edition, the title of the NFPA 13R standard will change to *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*.) This cycle saw more than 800 proposals and over 500 comments submitted to and considered by the sprinkler committees, many of which will bring considerable changes to the way we design and install systems. Here are a few of the more significant changes and their background.

Starting with the scope of NFPA 13, a revised §1.1.2 clarifies the fact that Water Mist Systems are not considered sprinkler systems. It states, 'This standard does not provide requirements for the design or installation of water mist fire protection systems, which are not considered fire sprinkler systems and are addressed by NFPA 750, *Standard on Water Mist Fire Protection Systems*.'

A host of definitions have been modified or added to Chapter 3 to help clarify related sections of the standard. Here are a few of them (without their definitions): Control Valve, Draft Curtain, Dwelling Unit, High Volume Low Speed Fan, Continuous Obstruction, Non-Continuous Obstruction, Clearance to Ceiling, Raw Water Source, Sprinkler System, Small Room, Antifreeze System, Combined Dry Pipe – Pre Action System, Cross Main, System Riser, Clearance to Storage, General Sprinkler Characteristics, Open Top Container, Four-Way Bracing, Hanger, Net Vertical Force, and Seismic Separation Assembly.

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Significant Changes for the Upcoming [NFPA] Sprinkler Standards | 55

One topic that has received a lot of attention over the course of more than 10 years has been internal corrosion of metallic piping systems. A new section 4.5 will state: 'Where air is used to charge, maintain or supervise sprinkler systems, nitrogen or other approved gas shall also be permitted to be used.' The option to use nitrogen or other approved gasses to inert dry pipe systems (including pre-action systems) can act as a drying agent and by removing the air/water interface within the piping system, we expect to slow or eliminate a variety of oxygen-based corrosion problems.

A new §5.6.4.4 will redefine Cartoned Group A Plastics based on the amount of expanded plastics within the carton. It states, 'Cartoned Group A plastics shall be further subdivided as either expanded or non-expanded. If the cartoned commodity is more than 40% (by volume) expanded plastic, it shall be protected as a cartoned expanded plastic. Exposed commodities containing greater than 25% by volume expanded plastic shall be protected as exposed expanded plastic.' This new guidance provides more specific detail in determining the appropriate commodity classification and related protection requirement for storage arrangements.

Perhaps no single change will impact fire sprinkler contractors more than the new §6.2.1.1 which states that, 'when a sprinkler is removed for any reason it shall not be reinstalled.'

This change means exactly what it says. If you install a new sprinkler system today and remove any sprinkler from that system in following day, week, year – that sprinkler shall be discarded and a new sprinkler is required to be installed.

In conjunction with this change, the committee added a new §25.2.1.11 stating, 'When systems are being hydrostatically tested, it shall be permitted to conduct tests with pendent or horizontal sidewall sprinklers or plugs installed in fittings. Any plugs shall be replaced with pendent or horizontal sidewall sprinklers after the test is completed.' A second hydrostatic test is not required after installing the sprinklers but obviously, another step has been added to the process and is likely impact labor hours and material costs. This change was introduced out of concern for the handling of sprinklers and their operating elements.

A new §6.2.7.4 will state, 'the use of caulking or glue to seal the penetration or to affix the components of a recessed escutcheon or concealed cover plate shall not be permitted.' This change makes it clear that no part of the sprinkler may be held in place with glue, caulk or adhesives. The escutcheons or cover plates must be in contact with their manufactured components.

Chapter 6 will also introduce new language requiring all non-metallic piping systems to be investigated for suitability in automatic sprinkler installations and listed for this service. When non-metallic materials are used in combination metallic piping systems utilizing internally coated steel piping, the steel pipe is required to have been investigated for compatibility with the non-metallic materials by a testing laboratory. Cutting oils and lubricants used for fabrication of the steel piping must also be compatible with non-metallic materials. On the surface, this is more of an issue for the manufacturers and the listing labs but it always impacts the concerns of the installing contractors. This issue had a great deal of discussion and a number of task groups who looked at the overall compatibility issues associated with non-metallic piping systems. These criteria may be removed depending on the outcome of a certified amending motion to be resolved at the NFPA annual technical session.

Although section 8.3.3.4 states that when sprinklers are changed to quick response or residential type sprinklers, all sprinklers within the compartment are required to be changed, there are still questions on whether you can combine residential sprinklers and spray sprinklers within a compartment. This confusion was caused by section 8.4.5.3 referencing the use of fast-response sprinklers. This was changed to specify just residential sprinklers can be in the compartment.

New sections in Chapter 8 will clarify that ESFR sprinklers designed to meet any criteria in Chapter 12 through Chapter 20 are permitted to protect light and ordinary hazard occupancies. Quick response CMSA sprinklers designed to meet any criteria in Chapter 12 through Chapter 20 are permitted to protect light and ordinary hazard occupancies. Standard response CMSA sprinklers designed to meet any criteria in Chapter 12 through Chapter 20 are permitted to protect ordinary hazard occupancies.

A new 8.5.5.4 will address the issue of sprinkler locations within small closets by stating, ‘In all closets and compartments, including those closets housing mechanical equipment, that are not larger than 400ft³ (11.33m³) in size, a single sprinkler at the highest ceiling space shall be sufficient without regard to obstructions or minimum distance to the wall.’

Currently, some storage protection schemes do not dictate the use of high-temperature sprinklers. A new 8.2.3.2 allows high-temperature sprinklers to be used throughout ordinary, extra hazard occupancies and storage occupancies and as allowed in this standard and other NFPA codes and standards. This change will solve the conflict of where high-temperature sprinklers may be used.

While the committee debated and did not accept rules for ‘shadowed areas’ which are addressed in NFPA 13D and 13R, they did add the following, ‘Notwithstanding the obstruction rules provided in Chapter 8, it is not intended or expected that water will fall on the entire floor space of the occupancy.’ This language should help users and Authorities Having Jurisdiction (AHJs) understand that some allowable obstructions will result in small areas of the floor that will be excluded from direct water spray.

New rules for residential horizontal sidewall sprinklers require that the deflector be located no more than 6in. from the wall on which they are mounted unless listed for greater distances.

A listed backflow prevention device shall be considered a control valve, and an additional control valve shall not be required ... this has been the case with check valves and now adds control valves.

There is a very significant change for residential sprinklers when unprotected concealed spaces are present. In the 2010 edition, the requirement to apply a 3,000ft² minimum sized remote area was added. To reflect that the residential approach is not a density/area methodology, this was changed from requiring a design basis of 3,000ft² to eight sprinklers.

The 40-ft design option utilizing ESFR K-14 sprinklers has been removed from tables in the storage chapters.

A new section was added providing criteria for spray sprinklers when protecting rack storage of exposed, nonexpanded Group A plastics. The current spray sprinkler criteria for Group A plastics in racks applies just to cartoned commodities.

While these are just some of the changes, there were many topics which didn’t get resolved. One of these is the issue of ‘Cloud Ceilings’ which have become a popular architectural feature. This topic was submitted to the NFPA Research Foundation for consideration and has received funding for full-scale fire tests. Stay tuned for the results of these tests and the code changes that should result from them.

BAFSA note: for more information about the NFPA and its Standards visit www.nfpa.org



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9 NFPA 13R & 13D⁶

Proposed Changes to the 2013 Editions

John F. Viola, FPE

The committee meetings have concluded, the NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*, and NFPA 13D, *Standard for the Installation of Sprinkler Systems in One-and Two-Family Dwellings and Manufactured Homes*, changes have been deliberated and voted upon, and in June at the National Fire Protection Association's (NFPA) Annual Conference & Expo the proposed changes will be offered to the NFPA membership.

The results of this NFPA consensus process has resulted in many changes, some of which involve grammatical and typographical errors from the last edition. However, there were a number of proposals made and accepted to provide more guidance and information to the users of the standards.

For those not familiar with the NFPA standards making process, there are a number of governing steps in accordance with NFPA rules to create or make changes to an NFPA document. These five (5) steps are clearly defined and found at the National Fire Protection Association's (NFPA) website, nfpa.org. For the sake of simplicity, the steps without definition are Call for Proposals, Report on Proposals (ROP), Report on Comments (ROC), Association Technical Meeting, and Standards Council Issuance.

The committees have brought NFPA 13R and NFPA 13D through the first three steps and now await the conference in Las Vegas. NFPA 13R and 11 other standards will consider a number of Certified Amending Motions (CAMS) that are the results of interested parties offering further changes to the document. The NFPA 13D standard along with 23 other standards were forwarded directly to the Standards Council with an issuance date of May 29, 2012 and an effective date of June 18, 2012.

Here are some of the highlighted changes in no particular order that will be included in the 2013 edition of NFPA 13R and NFPA 13D.

⁶ Reprinted by kind permission from the June 2012 issue of *Sprinkler Age* magazine, an official publication of the American Fire Sprinkler Association.

9.1 Water mist systems

Due to many proposals that addressed the inclusion of water mist systems in NFPA 13, NFPA 13R, and NFPA 13D, the committees accepted a proposal from the Technical Committee on Residential Sprinkler Systems to add new language to the scope definitions of both standards which specifically excludes water mist systems as being considered sprinkler systems. The definition also directs the user to NFPA 750, *Standard on Water Mist Fire Protection Systems*, where water mist systems are addressed.

9.2 Brass piping

This change allows for the use of brass pipe and fittings by adding ASME references in the material section of the standards for Seamless Red Brass pipe for use in NFPA 13R and NFPA 13D systems.

9.3 Shadow area

A definition of ‘shadow area’ will be inserted in the body of the text and a note placed in the annex that will further describe the area where sprinkler water discharge is affected by a wall or partition. The intent of this change is to enhance the guidance to the user that water is not required to fall on every square inch of floor space of an occupancy created by a triangular area behind a wall or partition (that was initially added to the 2010 edition in section 6.2.3.5). This change still will require adherence to the spacing rules and listings of the sprinkler heads. It will also not affect or substitute obstruction criteria in NFPA 13R or NFPA 13D.

9.4 Quick response sprinklers (NFPA 13D)

This change will allow ‘quick response spray sprinklers’ to be used in saunas and steam rooms. Because these come in high temperature ratings, it was determined to be practical to use these heads in those areas.

9.5 A new title for NFPA 13R

Starting in the 2013 edition of NFPA 13R, the title of the standard will change from, *Standard for the Installation of Sprinkler Systems in Occupancies up to and including Four Stories in Height*, to *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*. As stated in the ROP, the substantiation for this change is to clarify the intent of the code and to more closely correlate with the model building codes. It further states that the revised title is more consistent with the origin and development statement within the standard.

9.6 Balconies, decks, and patios (NFPA 13R)

This is one of the changes that will affect many designs of NFPA 13R systems. With this change, NFPA 13R will state that sprinklers will need to be installed to protect covered attached exterior balconies, covered attached exterior decks and covered ground floor patios serving dwelling units in buildings of Construction Type V (wood-framed buildings). This change was accepted to bring the requirements to sprinkler these types of building components in line with the model building codes which have required it for several editions.

9.7 Drains for relief valves (NFPA 13D)

This change adds a provision for drains on the relief valves located in the home. Relief valves are required when system pressures could exceed the pipe pressure rating. It was noted that some relief valves have been located in places without regard for the provision of proper drainage.

9.8 Test valves for pressure reducing or regulating devices (NFPA 13D)

When there is either a pressure reducing or regulating device installed on an NFPA 13D system, the change requires an annual testing of the device to make sure the pressure gauge reads a reasonable value. This change will appear in the annex section of the standard under A.12.2.1 of the 2013 edition.

9.9 Dwelling unit control valve location (NFPA 13R)

This change involves adding a new section 6.8.8 and will say, ‘The control valve for a system or portion of a system protecting a dwelling unit shall not be located in a different dwelling unit than the unit it serves.’ The reason for this inclusion is self explanatory and is necessary to prevent unwanted waterflow in dwelling units. It gives the ability of the dwelling unit occupant to be in control of the water control valve for his or her unit.

9.10 CPVC compatibility

There has been much discussion and action around the compatibility issue with CPVC piping systems. Over the years there have been great attempts made to transfer the liability for piping failures that come as a result of incompatible materials coming in contact with CPVC system piping. Some of the manufacturers have instituted programs that test and list certain products that may come in contact with CPVC as being compatible or incompatible. Other attempts have been associated with notification requirements that the contractor needs to post on job sites and other places where information is kept. The 2013 edition NFPA 13 committee has seen fit to address some of the issues with compatibility by including language that would require

compatibility testing on corrosion inhibitors, cutting oils, and lubricants on combination CPVC/STEEL piping systems. Other language was developed to throw a net over other possible sources of contamination such as paint, electrical and communication wiring, thread sealant, and gasket lubricant.

The technical correlating committee for automatic sprinklers wanted to include such language in the 2013 edition of NFPA 13R. However, the technical committee for residential sprinkler systems rejected that proposal.

There are a number of Certified Amending Motions that will deal with the issue of compatibility and its inclusion in the 2013 edition of NFPA 13R. As discussed in the beginning, these motions will be presented and taken up by full NFPA members present at the annual conference.

In any event, the issue of compatibility needs to be addressed at the manufacturer's level to deal with an acceptable method of addressing the compatibility problem.

9.11 Summary

In summary, these are some of the changes that you will see in the next editions of NFPA 13D and NFPA 13R. The annual conference and exposition in Las Vegas will close the chapter on most of the issues for the 2013 editions of these widely used standards. Some of the issues will surface again in subsequent editions and others will be handled with Tentative Interim Amendments.

10 Time Out - Out of Time⁷

Flashover and Residential Sprinklers

Glenn A. Gaines, Deputy U.S. Fire Administrator

Recently there has been much discussion in regard to response times of fire and Emergency Medical Services (EMS) field assets, and rightly so. Rapid intervention is something fire and EMS do that is unique in government service. As a response enterprise we look to professional standards, Federal Regulations and current and planned growth patterns to determine what type of response resources are needed and how they will be deployed. Up to this point in time, when calculating an acceptable response time for EMS intervention, we have used the period of time when the lack of oxygen can lead to brain damage (6 minutes) and the time to flashover and its relationship with the temperature curve (5 minutes to flashover).

But time out. Do these assumptions still hold true? My sources tell me that when humans are deprived of oxygen for 6 minutes or more we can expect brain damage to occur. This standard and condition remains valid. However, science and actual field experience clearly demonstrate that the 5 minute to flashover in residential buildings, where nearly 85% of Americans die from fires, is no longer valid. In fact, if we are asleep upstairs in our bedroom and have working smoke alarms on all levels of our home (and that clearly is not the case in all residences) then, when a fire starts on the main level of the residence, we have about 3 minutes to escape if we are to have a chance of survival. Folks, this was just not the case 10 years ago. But most of the legacy furnishings are long gone and have been replaced by synthetics-laden materials that are tantamount to solidified gasoline.

The increased combustibility of home furnishings and decorative finishes create a situation where the likelihood that firefighters will be able to rescue you is remote if you are asleep at the time of the fire. We are routinely seeing flashover in as little as 3½ minutes creating a condition where we know humans cannot survive. We have neither the financial nor human resources to place fire stations strategically within 3½ minutes of every citizen. I am not proposing to throw out the standard 5 minute response time. The fact is

⁷ This chapter is reprinted by kind permission of the U.S Fire Administration.

that in order to contain today's fires to the unit, townhouse, or single-family detached structure, the 5-minute response time is still valid. But if we are to provide firefighters or EMS responders with an opportunity to save the lives of critically injured or ill patients, then the 5-minute response time goal may not be enough.

Look, we have 78 million baby boomers each with a life expectancy of somewhere around 85 years of age. They are getting more frail, less nimble and increasingly at risk, especially when we are seeing these extraordinary fire growth patterns.

I believe these are ominous conditions that demand our immediate action. So what should we be talking about? What is the answer? I believe we already know the answer. Residential sprinklers. Residential sprinklers save lives and stop fire spread before it reaches killer magnitude. There is ample empirical evidence that they protect lives and property. We have seen it in Scottsdale, Arizona and in Prince Georges County, Maryland, where, contrary to opponents, residential sprinkler ordinances have not driven up building costs or deterred housing development. Why have we not been able to convince political leaders to adopt the requirement for residential sprinklers? If we take an objective view at the reasons for this lack of movement toward a safe and effective solution, it cannot be anything other than the almighty dollar and political influence.

It is and has been the position of builders and developers that they will experience a loss of profit if residential sprinklers are required. But that hasn't been the case in jurisdictions where sprinkler legislation is in place. It is suggested that residential sprinklers will leak. They do not. They leak no more often than any other piece of pipe in your home. Another argument is that sprinklers are a huge draw on the water system. They are not. They use about 9½ gallons per minute per sprinkler head. Over 90% of residential fires are extinguished with two or fewer sprinklers heads.

The United States Fire Administration (USFA), the fire organisations, and every one of the more than 1.3 million firefighters, must continue the relentless battle to present the facts and continue the fight for residential sprinkler requirements.

The other part of this conundrum is how do we find a way to reduce the combustibility of interior furnishings? They have been successful in Great Britain; we can be successful here. We have done it with mattresses with huge success. The USFA, the National Institute of Standards and Testing, the home furnishing industry and others committed to fire safety have begun to look for low cost, high return solutions for tackling this problem. Let's

hope that firefighter engagement, political courage and technical scientific solutions bear fruit and forestall what I see as a true potential national disaster on the horizon.

For now, the message for citizens who live in residences without residential sprinklers is to install and maintain working smoke alarms; prepare and practise a fire escape plan; and, if awakened by a smoke alarm, get out, get out fast and do not re-enter. Folks you have about 3, yes 3, minutes.

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11 The Reference Shelf: book reviews

Since many of the fire sector periodicals appear to have stopped reviewing books which may be of interest to fire safety professionals, BAFSA have decided to pick up on this shortfall. We will also review any books submitted in future issues of Sprinkler Focus, when space permits.

Celebrating the History of Mather & Platt Ltd, author not stated. The M&P Long Service Association, 2012. 138pp. No ISBN. £10.00

Company histories (and your reviewer is a fan of these, including the wonderfully titled Always Under Pressure (North Thames Gas)) tend to fall into three categories, the interesting, the useful and the dull. This history of fire industry pioneer Mather & Platt is most certainly useful and far from dull. The early days of the company as a manufacturer of rollers for the textile industry are well covered, as is the move into pump manufacturing. However the really interesting stuff arrives in 1883 with the formation of Dowson & Taylor, Fire Engineers (possibly the first use of that term?) whose early appointment of one John Wormald as the manager responsible for overseas development really does demonstrate what a small world we all live in. The eventual merger of D&T with M&P brought a considerably expanded range of fire products - including the first modern fire doors to M&P who had acquired rights to Frederick Grinnell's fire suppression system in the mid 1880s.

The book describes just what enlightened employers the Mather family were, providing showers when few of the employees would have access to baths (other than a tin bath in front of the fire), educational facilities, a canteen and medical services.

Illustrated throughout with some rare and possibly unique photographs this is a useful study well deserving of its place on the reference shelf. If there are criticisms they relate to the questions that are not answered rather than those that are. More on M&P in wartime would be welcomed; as would information on subsidiary companies - for example Mather & Platt (India). Perhaps there is enough material for a second part? And in this one, we might find out whether it was a Heinkel 111 or a Junkers 88 which machine-gunned Leslie Heaviside during one lunch hour.

HCB Angus Fire Engine Builders, Adrian Fisher, Amberley Books, 2012, 128pp. ISBN 978-1-4456-0535-7. £14.99

There is a great deal of interest in firefighting vehicles and any manufacturer-specific work will have to fight to gain its place in bookshops. The author, an enthusiast, has taken over the ownership of the HCB Angus archives and it would be reasonable to assume that this fairly brief study will not be the first from this source.

HCB-Angus (Hampshire Car Bodies) were based at Totton, Southampton and in a fairly brief lifespan produced more than 6500 vehicles for service with UK brigades as well as overseas fire services and industrial plants. (The reviewer inherited a very sad-looking Series III Land Rover L4P (as illustrated in Plate 23) in the Gulf and managed a very useful forward control Land Rover 100 LFP in the Far East which did sterling service on a construction site despite being 15 years old.)

There is an extensive review of the company's products including - as well as the standard Type B water tender - many specials and airfield appliances. Perhaps one of HCB's strengths was its willingness and ability to manufacture on-off appliances (such as the riot control vehicle ordered by the UK Government - and left to decay when someone changed their mind) as well as the two London Salvage Corp's damage control units well illustrated on pages 90 and 91.

Perhaps one of the outstanding achievements of the company was the development of the Crew Safety Vehicle (CSV) water tender which was designed with the safety of the riders as a first principle. This unique design exceeded by a comfortable margin all contemporary standards of crash resistance and survivability and 121 Bedford-chassied appliances were produced including three support vehicles for the MoD's special weapons convoys and in 1978 an emergency tender for Bahrain - this was still on the run as late as 2000.

The history of the company is not neglected from its foundation in the mid 1930s to its demise in 1993. The fact that the company is perhaps less well known than its UK competitors such as Dennis and Merryweather should not deter the reader. It was in 1964 when George Angus & Co (well known manufacturer of hose reels, fittings and other firefighting equipment) bought into HCB, merging the vehicle business with Angus's Fire Armour appliance division. The 1960s also saw a tie up with Simon Engineering who were one of the pioneers of hydraulic platforms for firefighting. George Angus was then purchased by Dunlop Holdings in 1968 and then sold to Guthrie Ltd, a Malaysian based company. In the early 1990s the writing was on the wall,

however, when close analysis of the costs of production indicated that each appliance built incurred a loss of around £1000.

Highly recommended for the fire brigade enthusiast and a serious contribution to the history of the British fire service.

Influx have extended the scope of their approvals for **flowmeters** used in sprinkler installations to include **FM and LPC** ranges.

Firesure FM and LPC approved flowmeters are available with groove or wafer flange connection.

Further options, such as Firesure X with extended connection hoses between the test section and flow indicator provide system designers with the fullest range of easy to read installation choices.

Firesure Type FM

Firesure and Firesure X

Flowmeters for Sprinkler Systems

Firesure

Firesure X

Flowmeter and flow rate

Pump Unloading	Flow Rate
200	0 - 200
250	0 - 250
350	0 - 350
450	0 - 450
550	0 - 550
650	0 - 650
750	0 - 750
850	0 - 850
950	0 - 950
1050	0 - 1050
1150	0 - 1150
1250	0 - 1250
1350	0 - 1350
1450	0 - 1450
1550	0 - 1550
1650	0 - 1650
1750	0 - 1750
1850	0 - 1850
1950	0 - 1950
2050	0 - 2050

* Suitable for 10mm-diameter pipe/tube diameter, for 15mm-diameter pipe/tube diameter see page 10.

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12 BAFSA at work

BAFSA has been supporting the sprinkler industry for almost 40 years and now has in place a highly effective team of specialists and volunteer leaders to ensure the Association's objectives are delivered. Its structure incorporates a number of permanent committees and other groups where volunteers from the industry and supportive organisations meet together to work on tasks and projects in support of the Association's objectives and to deliver the policy set out by BAFSA's Council. The organisational structure is described below.

12.1 BAFSA Council

The Council is made up of representatives of all categories of membership elected by all the membership. The Council consists of not more than nine installer members, not more than five manufacturer and supplier members and not more than three associate members. A new Council is elected at each Annual General Meeting. The Chairman, Vice Chairman and Treasurer are elected by Council at its first meeting each year. Where there are two or more members elected from the same company, group or organisation, Council is required to confirm the right of the member to sit on Council at the first meeting each year by a vote with a majority of 75% being required. Currently Peter Armstrong of Armstrong Priestley is BAFSA's Chairman, the Vice Chairman being Martin Hartley of Argus Fire Protection who also chairs the Technical Committee.

12.2 Technical Committee

The purpose of the technical committee is to understand, review, advise and comment on all technical aspects of fire sprinklers with respect to:

- current UK sprinkler Standards;
- current European sprinkler Standards;
- Technical Bulletins to the LPC Rules;
- Government departments' initiatives and documentation;
- the schemes of third-party approvals bodies such as FIRAS and LPCB.

In addition, the Technical Committee is resourced to attend and be involved in working groups with other organisations involved in the development of standards for sprinklers in the UK and Europe, such as:

- Loss Prevention Council;
- British Standards Institution;
- RISC Authority;
- Fire Protection Association.

The Technical Committee will also provide technical support to member companies and individuals.

The Technical Committee – under its current Chairman Martin Hartley of Argus Fire Protection – meets four times a year; there is generally an attendance of 8 or more individuals and new members would be most welcome to join the group. In the first instance, please contact the Secretary General

12.2.1 Service and Maintenance Sub-committee

This Sub-committee, chaired by Russell Dixon of Hall & Kay, is currently working on guidance for:

- adequate design, controls and monitoring of heating and frost protection measures to safeguard systems;
- 25-year maintenance regimes/checks for sprinkler heads and pipework;
- means of recycling fire pump cooling and minimum flow water to minimise environmental impact of sprinkler systems;
- water storage tank condition inspections and maintenance regimes;
- consultation with BRE/LPCB on minimum standards and listings for specialist sprinkler maintenance companies;
- prescriptive maintenance routines for sprinkler fire pumps in order to standardise scope of maintenance.

12.3 Residential and Domestic Sprinklers Group

In effect the R&D Group is that part of the Technical Committee dealing with matters affecting residential and domestic sprinkler installations. Under its current Chairman, Ray Hammond from FIRAS (Warrington Exova), it meets approximately four times a year. R&D is a busy sector at the present time and the R&D Committee's work is varied:

- providing BAFSA's input to the BSI Working Group which will start to review BS 9251 in December 2012;
- work on the revisions to TGN1;
- helping new BAFSA installer members achieve accreditation;

- maintenance issues affecting pumps;
- scrutiny of publications such as Approved Document B to the Building Regulations and statutory documents such as the Water Regulations.

12.4 Watermist Group

Matters affecting watermist systems are now handled by a joint watermist group which includes representatives from both BAFSA and the Fire Industry Association. The Group is chaired by Bob Whiteley.

12.5 Marketing Committee

BAFSA's Marketing Committee meets 6 times per annum, generally every 8 weeks and always in advance of the board meeting. Simon Rooks of Hall & Kay Fire Engineering, BAFSA's Treasurer, has been the Committee's Chairman since 2007. Meetings are on average attended by 10 or more members from a wide background including the Fire & Rescue Services, manufacturers, commercial/industrial contractors, residential and domestic member contractors and BAFSA staff. The Committee work on a wide range of tasks, which include:

- development of new marketing and promotional literature;
- production of new BAFSA information files (BIFs);
- promoting the benefits of sprinklers by attending target market exhibitions;
- news/editorial developments;
- arranging annual members' meetings and conference;
- the BAFSA Yearbook and ad hoc reports, and the promotion thereof.

New members would be welcome to join the Marketing Committee – enquiries in the first instance to BAFSA HQ.

12.6 Training Committee

The current Training Committee Chairman is Mike Green, Hall Fire Protection and the Committee meets four times a year. Its role is to understand, review, advise and comment on all training aspects of fire sprinklers in relationship to training needs for:

- current UK sprinkler Standards;
- current European sprinkler Standards;
- Technical Bulletins to the LPC Rules;



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- Government departments' initiatives and documentation;
- the schemes of third-party approvals bodies such as FIRAS and LPCB;
- City and Guilds courses;
- National Vocational Qualifications.

In addition, the Training Committee provides resources to attend and be involved in working groups with organisations concerned with the development of training standards for sprinklers in the UK and Europe and some examples of these are:

- Loss Prevention Council;
- British Standards Institution;
- RISC Authority;
- Fire Protection Association.

The Training Committee will also provide technical support to member companies and individuals on request.

Training Committee meetings are generally attended by 4 to 6 members and new recruits to this group would be most welcome - please contact BAFSA.

12.6 Secretary General and support staff

Meanwhile, back at the ranch in Ely, there is the Secretary General, Stewart Kidd. The SG is effectively the chief executive of the Association and is responsible to the Council for its day to day administration, with particular emphasis on promoting the more effective use of sprinklers. There are also statutory, formal duties under the Companies Acts as the Company Secretary. The SG's role is part-time and paid and involves him in all aspects of BAFSA's activities including Council meetings and the Marketing Committee. He is supported by a range of other helpers including Ian Gough (Senior Technical Adviser), Steve Mills (Fire & Rescue Services Coordinator), Wendy Otway (PR Consultant), Mike Gale (Publications Consultant) and Andrew Heskins (Design Consultant) as well as the office team at Price Bailey who provide accommodation, accounts and office services.



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13 All-Party Parliamentary Group and sprinklers

All-Party Groups (APGs) are informal cross-party groups that, although having no official status within Parliament, are recognised by Parliament, where they are registered under the 1985 Resolution of the House of Commons. This register is primarily to show which APGs are recognised by Parliament, who their officers are, and information about the source and extent of financial and material assistance received from outside Parliament. They are essentially run by and for Members of the Commons and Lords, though Ministers may also be officers or members of APGs. Many APGs involve individuals and organisations from outside Parliament in their administration and activities, to sustain current awareness in specialist topics.

The All-Party Parliamentary Fire Safety and Rescue Group's title is sufficiently explanatory to need no elaboration. There are formalities to be gone through before an APG receives Parliamentary recognition and official registration and one condition is that an adequate number of Members of the House of Commons and House of Lords have signed up to support an APG's interest and existence, while maintaining the correct balance of Government and Opposition in its make-up. The Fire Safety and Rescue APG is appropriately supported and structured.

The APPFSRG seeks to hold three seminars a year on topics related to its interest in fire protection matters. At its AGM in July 2012 it was noted that, despite an extremely busy political year, the Group had maintained its reputation for activity in Parliament by holding three seminars, which were well attended by public and private sector fire safety interests. The Group additionally holds business meetings, either to consider fire related issues itself, or to meet as a smaller group, with other MPs or outside organisations to discuss matters which are appropriate to its work. These matters are frequently brought to the attention of Government Ministers or Secretaries of State. The Group held seven such meetings in the last Parliamentary year, and some Group members were successful in processing an adjournment debate and a private member's bill.

Specific seminars were held, including one on 9 May 2011, where the theme was 'Our post-coalition future for Britain's Fire Safety', an event which was headed by the active and passive fire sector with contributions from local and central government.

On 19 September 2011 the seminar topic was ‘Who is responsible for Britain’s Fire Safety under Localism and the Big Society?’, a specialist All-Party analysis on the future for fire in the new world of light-touch government, a much reduced civil service and with the fire sector responsible for taking the lead. A number of key politicians and leaders in the fire sector participated, with added sponsorship from the Business Sprinkler Alliance.

13.1 The APG sprinkler seminar

On 6 February 2012 the emphasis was on automatic fire sprinklers, with the theme ‘Sprinklers save lives, property, money, jobs, communities and the environment: The evidence is compelling isn’t it?’. This was planned as an All-Party analysis of the issues – in the minds of architects, building control officers, approved inspectors, housing providers, the construction sector, developers and health and care providers – asking why these groups continue to remain unconvinced of the merits of sprinkler systems.

A record number of 130 people attended the seminar and heard contributions from speakers from the Local Government Association Fire Commission, the Chief Fire Officers’ Association, the Department of Communities and Local Government and the Fire Brigades Union, among others. Some MPs talked about very serious fires in their constituencies in premises where sprinklers were not fitted, and speculated upon the different outcomes had sprinklers been present. There was also a presentation on the Callow Mount project (see chapter 2 above) by Steve Seaber, the project manager.

13.2 APG contact

The APG’s Secretariat Office is at 19 Douglas Street, Westminster, London SW1P 4PA (tel: 020 7828 0828, fax: 020 7931 0893). The Honorary Administrative Secretary is Ronnie King OBE, and the APG’s officers are Douglas Smith and Tony Lawson.

Part 2: Reference information

14 List of BAFSA members

The list of BAFSA members is in two sections.

Section 14.1 is a listing of members under the different categories of membership.

Section 14.2 provides details of member organisations, listed alphabetically by member name, with particulars of addresses. It also contains descriptions of members’ activities and other details, based on information supplied by members. Section 14.2 includes the Fire and Rescue Services in Scotland. Readers should note that the Scottish F&RSs will be reformed as a single national service by April 2013, under the direction of Alasdair Hay, presently Acting CFO, Tayside F&RS. The new service will operate from an interim headquarters at Perth Community Fire Station.

14.1 Categories of membership

Installer level 4

API Vipond Fire Protection Limited
Argus Fire Protection Company Limited
Armstrong Priestley Ltd
Comenco Fire Systems Limited
Domestic Sprinklers Ltd
Hall & Kay Fire Engineering
Hall Fire Protection Ltd
Mercury Engineering
Nationwide Fire Sprinklers Ltd
Pyro Protection Limited
Tyco Fire & Integrated Solutions (UK) Ltd

FVS Limited
Marioff Ltd

Solent Fire Protection Services Limited
Thameside Fire Protection Co Ltd
UK Firewatch Limited

Installer level 2

Automatic Fire Control Ltd
Eton Fire Ltd (Cannock office)
First Fire Protection Ltd
RMD Fire Control Ltd

Installer level 1

Adima Group Ltd
Advanced Fire Technology
AES Sprinklers
Fire Defence (Northern) Ltd
Fire Design Solutions
Fire Sprinkler Systems
Integrated MEP
RAD Fire Sprinkler Co Ltd

Installer level 3

AD Sprinkler Protection Ltd
Blue Shield Fire Protection Ltd
Bush (Fire Engineering) Ltd
DIS Sprinklers
Eton Fire Ltd (head office)
Fire Defence

Residential Sprinkler Solutions Ltd
Thermotech Fire Protection Ltd
Triangle Fire Systems Ltd

Associate installer

Associated Fire Systems Ltd
East Midlands Fire Limited
EMTEC Fire Systems
Falcon Fire Ltd
Fire Sprinkler Systems (UK)
Firemain Engineering Ltd
Frank Fox Sprinklers (Scotland) Ltd
Mandara Sprinklers
PFP 2000 Ltd
Phoenix Plumbing & Heating Contractors Limited
Snowdonia Fire Protection
Sprinkler Protection UK Ltd
Ultra Surefire Ltd

Sprinkler head manufacturer

Rapidrop Global Limited
Reliable Fire Sprinkler Ltd
Tyco Fire Protection Products
Victaulic
Viking SupplyNet Ltd

Manufacturer and/or Supplier

Armstrong Integrated Limited
Bailey & Mackey Ltd
Balmoral Tanks
Boole's Tools and Pipe Fittings Ltd
BSS Group
Clarke UK Limited
CST Industries (UK) Ltd
Fire Protection Centre Limited
Franklin Hodge Industries Limited
Galglass Ltd
Grundfos Fire Systems
Heat Trace Northern Ltd
International Plastic Systems Ltd
IPS Flowsystems
JEM Fire Pumps Ltd
Job GmbH

Lubrizol Advanced Materials Europe
Pegler Yorkshire Group Limited
Project Fire Products Ltd
Sale Engineering Products
Shawston (International) Ltd
SPP Pumps Limited
Tata Steel
Tubetrade plc

Associate organisation

Anglian Water Services Ltd
Avon Fire & Rescue Service
Bedfordshire Fire & Rescue Service
Central Scotland Fire & Rescue Service
Cheshire Fire & Rescue Service
Cornwall Fire & Rescue Service
Dorset Fire & Rescue Service
East Sussex Fire & Rescue Service
FM Global/FM Insurance Co Ltd
Gemstone Building Surveyors
Grampian Fire & Rescue Service
Greater Manchester Fire & Rescue Service
Hampshire Fire & Rescue Service
Hereford & Worcester Fire & Rescue Service
Hertfordshire Fire & Rescue Service
Highlands & Islands Fire & Rescue Service
Humberside Fire & Rescue Service
IFC Certification Ltd
Kent Fire & Rescue Service
London Fire & Emergency Planning Authority – London Fire Brigade
Marsh Risk Consulting
Merseyside Fire & Rescue Service
Mid & West Wales Fire & Rescue Service
Norfolk Fire Service
North Wales Fire & Rescue Service
North Yorkshire Fire & Rescue Service
Nottinghamshire Fire & Rescue Service
Royal Berkshire Fire & Rescue Service
South Wales Fire & Rescue Service

South Yorkshire Fire & Rescue Service
Staffordshire Fire & Rescue Service
Strathclyde Fire & Rescue Service
Suffolk Fire & Rescue Service
TMEI (Tokio Marine Europe Insurance) Ltd
United Kingdom Warehousing Association
Warrington Certification Ltd
West Midlands Fire Service
West Yorkshire Fire & Rescue Service
Wiltshire Fire & Rescue Service
Xact Consultancy and Training Limited
Zurich Risk Engineering

Associate trade

ASLR Fabrication Services Ltd
Canute LLP
Firetech Pump Services Ltd
Harris Pipework Fabrications Ltd
Influx Measurements Limited
International Tube and Fittings
Lenpart Industrial Products

Liquitech Ltd
Lowara (UK) Limited
PEL Services Limited
Pipework Engineering Services Ltd
Powerpro Fire Pump Services
Shutgun (UK) Ltd
Universal Fixings Ltd
Zeffire Limited

Associate individual member

10ability Consultancy
Aquaspray Fire Protection Ltd
BGW Associates Limited
DKP Associates
DM Services
D MacKinnon Fire Protection Services
Fire Rail Consultants
INTEGRITAM Construction
Consultancy
Optima Fire Consultants Ltd
Risk Consulting (davidrsmith) Ltd
Chris Tomkins
Roy Young Consultancy

14.2 List of BAFSA members

10ability Consultancy

Westview House
Larkfield Drive
Rawdon
Leeds LS19 6EL

Tel: 0113 250 4712
Fax: 0784 112 5889
Email: john@johnstreets.co.uk
Web: www.10ability.co.uk

Membership category: Associate individual

Contact: John Streets

Our activities are in three principal sectors:

- fire engineering - covering all aspects from fire safety design to legislative compliance to problem solving;
- training - including BS 9251 (residential and domestic sprinklers) in association with a partner organisation;
- fire risk assessment - performed by a qualified fire engineer.

AD Sprinkler Protection Ltd

2nd floor, Heaton Mill
Grey Street
Denton
Manchester M34 3RG

Tel: 0161 336 0001
Fax: 0161 336 6608
Email: mail@adsprinklers.co.uk

Membership category: Installer level 3

Accreditation: LPS 1048-1

Contact: Amanda Ball, Managing Director

Design, supply, install, test and commission sprinkler protection.

Adima Group Ltd

St Bartholomews Court
18 Christmas Street
Bristol
Avon BS1 4BT

Tel: 0117 317 8140 (*and mobile:* 07968 729534)
Fax: 0117 317 8141
Email: steve.lj@adima-group.com
Web: www.adima-group.com

Also at: Cardiff (tel: 02920 786402) and Taunton (tel: 01823 352 709)

Membership category: Installer level 1

Accreditation: FIRAS (domestic and residential)

Contact: Steve Lloyd-Jones, Managing Director

Specialists in the design, installation and maintenance of domestic and residential sprinkler systems in accordance with BS 9251: 2005 and NFPA 13D/R. We work closely with builders, architects, local authorities, regulatory bodies and private householders. Clients and projects range widely by type and size, from small homeowners to major residential developments. The company has installed systems in a variety of listed/heritage buildings, from country cottages to churches and water mills. Other services are also available.

Advanced Fire Technologies Ltd

Unit A1
Trecenydd Business Park
Caerphilly
Mid Glamorgan CF83 2RZ

Tel: 0844 911 9991
Fax: 0844 911 9992
Email: info@advancedfiretechnologies.co.uk
Web: www.advancedfiretech.co.uk

Membership category: Installer level 1

Contact: Terry Hewitt/Andrew Mock

Advanced Fire Technologies Ltd is a specialist fire protection company based in Wales. It possesses appropriate trade qualifications to undertake all aspects of fire sprinkler work - domestic and residential systems, design, installation, ongoing maintenance and system alterations are contained in its services portfolio. Its sprinkler staff has over 23 years' experience of working on sprinkler protection and is ready to offer informative, code-compliant advice regarding your sprinkler needs. On completion of all works, then fully code-compliant insurance-approved certification is issued, complemented with a 12-month labour and three-years parts warranty.

AES Sprinklers

23 Windrush Road
Kesgrave
Ipswich
Suffolk IP5 2NZ

Tel: 01473 614446
Fax: 01473 620443
Email: marcus@anglianenergy.co.uk
Web: www.aessprinklers.co.uk

Membership category: Installer level 1

Contact: Marcus Horner, Senior Partner

AES Sprinklers have been designing and installing domestic and residential sprinkler systems since 2000. As well as being a member of BAFSA, AES is recognised under the FIRAS third-party certification scheme. The company ensures that it keeps abreast of changes in standards, including requirements under BS 9251: 2005 and the application of the NFPA 13D/13R regulations where appropriate, and that its staff training is updated as appropriate. AES liaises with Building Control departments, fire officers, architects and clients to ensure that each system is specifically designed to satisfy both the customer's requirements and the related regulations.

Design, Supply & Installation of Fire Sprinkler Systems



LPS 1048-I
Approved Sprinkler Contractor
Certificate ASC-102

FOR THE COMPLETE PACKAGE.
**Design, supply, install, test, commission, service
and maintenance of fire sprinkler systems.**

- LPC Level 3 Approved Installer
- BS 5306 PT2
- BS EN 12845
- BS 9251 : 2005
- BAFSA Member
- Airport Approved Contractor :
MANCHESTER – LIVERPOOL – STANSTED
GATWICK – HEATHROW

office : 0161 336 0001 fax : 0161 336 6608
email: mail@adsprinklers.co.uk VAT No : 882 849370 Registered No : 5799379

**AD SPRINKLER
PROTECTION LTD**

Anglian Water Services Ltd

Water Regulation Team
PO Box 495
Huntingdon
Cambridgeshire PE29 6YY

Tel: 01480 326910
Email: jwood@anglianwater.co.uk
Web: www.anglianwater.co.uk

Membership category: Associate organisation

Contact: John Wood, Team Leader

API Vipond Fire Protection Limited

10/12 Glenfield Road
Kelvin Industrial Estate
East Kilbride
Lanarkshire G75 0RA

Tel: 01355 237588
Fax: 01355 263399
Email: john.mccann@vipondltd.co.uk
Web: www.vipondfire.co.uk

Also at: Co Antrim (tel: 028 9055 2812)

Membership category: Installer level 4

Accreditation: LPS 1048 certificated sprinkler installer and supervising body. LPCB ISO 9001:2000.

Contact: John McCann, Managing Director

The company offers total fire protection by means of the design of complete detection and suppression systems. We provide first quality installation, service and training for the operation and maintenance of customers' fire protection systems. Our dedication ensures that our customers receive the most advanced, custom-designed fire protection system using the best products available. Among our specialisms is the installation of sprinkler systems in new and existing buildings, both commercial and residential.

Aquaspray Fire Protection Ltd

61 Horringer Road
Bury St Edmunds
Suffolk IP33 2DQ

Tel: 01284 754335
Fax: 01284 754335
Email: jscmonteiro@aol.com

Membership category: Associate individual

Contact: J S C Monteiro

Self-employed design engineer of automatic sprinkler installations with over 30 years' experience.

**Argus Fire Protection Company Limited**

Hendglade House
46 New Road
Stourbridge
West Midlands DY8 1PA

Tel: 01384 376256
Fax: 01384 393955
Email: info@argusfire.co.uk
Web: www.argusfire.co.uk

Membership category: Installer level 4

Accreditation: LPS 1048 certificated sprinkler installer and supervising body. LPCB ISO 9001:2000. LPCB OHSAS 18001:1999. LPCB certified to LPS 1014 (certificated fire detection and alarm system firms)

Contact: Martin Hartley, Technical Director

The principal activity of Argus Fire is the design, installation and maintenance of active fire protection systems such as automatic sprinkler, waterspray, water mist, expanded foam and inert systems, together with electrical fire detection and alarm systems. We can supply any ancillary items that may be required to make a complete 'turn-key' package such as breathing apparatus, safety suits and fireman's equipment.

Armstrong Integrated Limited

Wenlock Way
Manchester M12 5JL

Tel: 08444 145 145
Fax: 08444 145 146
Email: jcarr@armlink.com or kgingell@armlink.com
Web: www.armstrongintegrated.com

Also at: Halesowen, West Midlands (tel: 0121 550 5333)

Membership category: Manufacturer

Accreditation: LRQA ISO 9001: 2000, ISO 14001: 2004. Pumps approved to FM Global 1311, 1319 and 1371; LPS 1131.

Contact: John Carr (UK north)/Mr Ken Gingell (UK south)

Manufacturer of centrifugal and reciprocating pumps, pressurisation units, booster sets and packaged pump room enclosures for fire protection installations.



Armstrong Priestley Ltd

Seventy Seven
Holbeck Lane
Leeds LS11 9UL



Tel: 0113 394 4040 (*Leeds*); 0191 206 9085 (*North east*)

Fax: 0113 394 4041

Email: sales@armstrongpriestley.co.uk

Web: www.armstrongpriestley.co.uk

Membership category: Installer level 4

Accreditation: LPS 1048 Level 4 certificated sprinkler installer and supervising body.
FIRAS certification scheme for installation of residential and domestic sprinkler systems designed to BS 9251. BSI ISO 9001: 2008 Quality management.

Contact: Terry Bennett

Armstrong Priestley are specialists in automatic fire suppression systems and with over 36 years of experience we are able to offer clients a wealth of expertise. From our head office in Leeds and our Newcastle office, we design and install automatic fire sprinkler systems, hose reel and hydrant packages, low and high pressure water mist and gas suppression systems which are all designed to recognised national and international design standards throughout the United Kingdom.

- 24 hour call-out service
- planning supervisor service for CDM contractors
- in house fabrication
- own employed workforce
- authorised Ultramist distributor
- member of the Confederation of Construction Specialists
- Safe Contractor approved.

ASLR Fabrication Services Ltd

Opal Way
Stone Business Park
Stone
Staffordshire ST15 0SS

Tel: 01785 286 060

Fax: 01785 818 728

Email: sales@aslrfab.co.uk

Web: www.aslr.co.uk

Membership category: Associate trade

Accreditation: BRE Global assessed to ISO 9001: 2008, Quality management

Contact: Lee Norris/Chris Shenton

ASLR are a leading supplier of powder coated pre-fabricated steel pipework to the fire protection industry. All aspects of fabrication are carried out at our purpose-built facility in Staffordshire where we continually strive to create an efficient and service-driven package to our clients, utilising our state-of-the-art equipment. An in-house powder coating facility gives our pipework the tough, durable and attractive finish which befits the high standard of fabrication which we set ourselves and apply to all contracts.

Associated Fire Systems Ltd

Units 14-15, Ramac Industrial Estate
Ramac Way
Charlton
London SE7 7AX

Tel: 0208 853 1133

Fax: 0208 502 5074

Email: ppatten@afs-ltd.co.uk

Web: www.afs-ltd.co.uk

Membership category: Associate installer

Contact: Peter Patten

The company provides fire sprinkler and water mist systems to protect a wide variety of premises across all kinds of risk levels. It also installs other types of fire prevention systems and delivers related services.

Automatic Fire Control Ltd

Unit 7, Kingsdown Orchard
Hyde Road
Swindon
Wiltshire SN2 7RR

Tel: 01793 821588

Fax: 01793 821587

Email: info@automaticfire.co.uk

Membership category: Installer level 2

Accreditation: LPS 1048 approved sprinkler installer: ISO 9001: 2000.

Contact: Julian Taylor

Automatic Fire Control Ltd is an LPCB listed sprinkler installer approved to design, install, maintain and service sprinkler systems conforming to the LPC Rules for Automatic Sprinkler Installations. Established in 1984, Automatic Fire Control Ltd supports commerce, industry, retail and residential sectors together with education and school establishments. Working from a UK base it covers the whole of the UK and Ireland and offers bespoke service in the design, installation and commissioning of new sprinkler systems and the inspection, testing and servicing of existing systems. Quality is the key and the company is accredited to ISO 9000: 2000 by the LPCB.

Avon Fire & Rescue Service

Service HQ
Temple Back
Bristol BS1 6EU

Tel: 0117 926 2061 ext 268

Fax: 0117 925 0980

Email: John.blackmore@avonfire.gov.uk

Web: www.avonfire.gov.uk

Also at: Bath (tel: 0117 926 2061 ext 477) Bristol (tel: 0117 926 2061) Weston-super-Mare (tel: 0117 926 2061 ext 577) Yate (tel: 0117 926 2061 ext 8250)

Membership category: Associate organisation

Contact: John Blackmore

Avon Fire & Rescue Service is active in providing advice and consultation to employers and owners of industrial and commercial premises on a wide range of safety topics. It also gives specialist advice about workplace fire risk assessment as part of its objective of assisting employers to comply with their legal obligations. With regard to automatic sprinkler protection, the Service has a number of officers qualified to advise about the design, installation, commissioning and maintenance of domestic/residential sprinkler systems to BS 9251. It is also closely involved in the fitting of sprinkler systems in school premises and in houses in multiple occupation in Avon.

Bailey & Mackey Ltd

Baltimore Road
Birmingham B42 1DE

Tel: 0121 357 5351

Fax: 0121 357 8319

Email: alan.pithers@baileymackey.com

Web: www.baileymackey.com

Membership category: Manufacturer/Supplier

Contact: Alan Pithers, Sales Director

Bailey & Mackey are manufacturers of LPCB-approved pressure switches, pressure gauges and pressure transducers for fire protection use in sprinkler, deluge and extinguishing gas systems.

Balmoral Tanks

Unit 2, Coomber Way Industrial Estate
Croydon
Surrey CR0 4TQ



Tel: 0208 665 4100

Fax: 0208 665 0200

Email: n.ross@balmoral.co.uk

Web: www.balmoralfire tanks.com

Also at: Llantrisant, Pontyclun (tel: 01443 235 170)

Membership category: Manufacturer/Supplier

Accreditation: Tanks assessed to LPCB/LPS 1276; BS ISO 9001: 2008, Quality management

Contact: Norman Ross

Balmoral cylindrical sectional tanks for fire sprinkler protection application are manufactured in accordance with LPCB and FM standards. Designs in accordance with NFPA 22 can also be supplied. Balmoral Tanks strives to provide the best quality product on the market. To achieve this, the company adheres to a production Quality Management System that is accredited to ISO 9001: 2000 standards. Thus, all panels and accessories are produced under the most stringent quality audit to meet the required structural and durability performance.

Bedfordshire Fire & Rescue Service

Southfields Road
Kempston
Bedford
Bedfordshire MK42 7NR



Tel: 01234 845000

Fax: 01234 845035

Email: len.allen@bedfire.com

Web: www.bedsfire.com

Membership category: Associate organisation

Contact: Len Allen, Fire Safety Technical Officer

Bedfordshire Fire and Rescue Service is working to increase the number of domestic sprinklers in 'at risk' premises, as well as sprinklers in newly built schools and residential care premises. The Service is working with the National Fire Sprinkler Network, local councils, building control departments, social care services, schools, landlords, architects, construction companies and others to achieve this.

BGW Associates Limited

Prudential Buildings
16 Guildhall Walk
Portsmouth
Hampshire PO1 2DD

Tel: 07517 117 066

Fax: 02392 831 338

Email: info@bgwa.net

Web: www.bgwa.net

Membership category: Associate individual

Contact: Barry Watson

BGW Associates Limited offer a range of independent services, designed to help our clients reduce costs associated with the installation and maintenance of fire sprinkler systems, while maintaining compliance with design code requirements and the latest legislation and guidance. Services include:

- quarterly risk assessments
- annual risk audits
- asset register updating
- compliance inspection and snagging
- staff training for weekly testing and emergency non-fire sprinkler isolation

Blue Shield Fire Protection Ltd

Blue Shield House
Queen Street
Tring
Hertfordshire HP23 6BQ

Tel: 01442 828000
Fax: 01442 828001
Email: sales@blueshieldfire.co.uk
Web: www.blueshieldfire.co.uk

Membership category: Installer level 3

Accreditation: LPCB ISO 9001: 2000.

Contact: Ashley Gorton, Director

From its base in Hertfordshire Blue Shield Fire Protection delivers its services of design, supply, installation and maintenance of safety systems to all types of premises - office blocks, factories, warehouses and shopping malls are its main areas of work - throughout Great Britain.

Blue Shield's expertise embraces fire sprinkler systems, hose reels, wet and dry rising fire mains and fire alarm and detection systems. Since it is not affiliated to any equipment manufacturer its clients can be reassured that it gives independent advice on equipment matters.

At its Tring stores Blue Shield keeps a huge stock of automatic sprinkler system components covering everything from pipework to sprinkler heads to valves to pumps and much else. In the event of an emergency call-out it will usually have the required materials in stock.

Boole's Tools and Pipe Fittings Ltd

Haigh Avenue
Whitehill Trading Estate
Stockport SK4 1NU

Tel: 0161 480 7900
Fax: 0161 474 7142
Email: terry.seville@booles.co.uk
Web: www.booles.co.uk

Membership category: Manufacturer/Supplier

Contact: Terry Seville, General Manager; Mr David Yates, Sales Manager

We stock a fully comprehensive range of tubes, valves, fittings, flanges and allied pipeline products which means that we can supply the items customers need whenever they need them. The items we supply are produced to the finest tolerances, using the latest technology, most being manufactured in accordance with the relevant British, American or European standards. Customers also enjoy the unique benefit of being able to use Boole's own machine shop for cutting, threading and grooving of our tube products.

BSS Group

Fleet House
Lee Circle
Leicester LE1 3QQ

Tel: 0116 262 3232 (and mob 0778 543 2134)
Fax: 0116 253 1343
Email: dean.fairclough@bssgroup.com
Web: www.bssindustrial.co.uk

Membership category: Manufacturer/Supplier

Accreditation: BS ISO 9001: 2008 (Quality management) and BS ISO 14001: 2004 (Environmental management systems)

Contact: Dean Fairclough

BSS offer an extensive range of fire protection products through our distribution network. We have over 60 branches nationwide offering next day delivery and collection services. We supply Victaulic, Geberit and Yorkshire product ranges as well as dry riser equipment. Please visit our website for more details.



Bush (Fire Engineering) Ltd

Unit 28
Metro Business Centre
Kangley Bridge Road
Sydenham
London SE26 5BW

Tel: 0845 241 9860
Fax: 0845 241 9861
Email: sales@bushengineering.com
Web: www.bushengineering.com

Membership category: Installer level 3

Accreditation: LPS 1048 registered supervised sprinkler. LPCB ISO 9001: 2008.

Contact: Paul Oakenfill, Managing Director

Bush Engineering is a privately owned company of fire protection engineers which offers a comprehensive package of services by its in-house team of trained and skilled staff. It offers free surveys and quotations for projects located within the M25 for: sprinklers; fixed gas suppression systems; foam systems; dry risers; wet risers; fire alarms; fire pumps; hose reels; and portable extinguishers.



**FLOW SWITCHES FOR
DOMESTIC/RESIDENTIAL SPRINKLER SYSTEMS**

- SIMPLE AND SWIFT INSTALLATION
- COMPACT, LIGHTWEIGHT, RELIABLE, COST EFFECTIVE DESIGN
- NO SPRING FATIGUE DUE TO SEALED MAGNET PADDLE RESETTING – TESTED TO OVER 1,000,000 CYCLES
- MANUFACTURED WITH 40 YEARS OF FLOW SWITCH EXPERIENCE

SiKA

**APPLICATIONS
ENGINEERING LTD**
61 Horsted Square, Bellbrook Industrial Estate,
Uckfield, East Sussex, TN22 1QG
Tel: 01825 764737 • Fax: 01825 764820
Website: www.appleng.co.uk • Email: info@appleng.co.uk

Canute LLP

Seventy Seven Holbeck Lane
Leeds
West Yorkshire LS11 9UL

Tel: 0113 394 4095
Fax: 0113 394 4041
Email: info@canutesoft.com
Web: www.canutesoft.com

Membership category: Associate trade

Contact: John Moore

Canute provides FHC, a hydraulic analysis package suitable for calculating water-based fire protection systems including all types of fire sprinkler systems, deluge, water-mist, hydrant and foam monitor systems. FHC has hundreds of users in over 30 countries and is accepted by all major design authorities and fire insurers.

- complies with international standards such as EN 12845, LPC, NFPA, BS 9251 and FM
- any type of pipe network can be modelled, such as trees, loops, grids or any combination
- can use Hazen-Williams or Darcy-Weisbach pressure loss equations
- easy to read and inclusive reports.

Central Scotland Fire & Rescue Service

Main Street
Maddiston
Falkirk FK2 0LG

Tel: 01324 716996
Fax: 01324 715353
Email: gordon.pryde@centralscotlandfire.gov.uk
Web: www.centralscotlandfire.gov.uk

Membership category: Associate organisation

Contact: Gordon Pryde, Group Manager

CANUTE

Cheshire Fire & Rescue Service

Winsford
Cheshire CW7 2FQ



Tel: 01606 868768
Email: mandy.eeles@cheshirefire.gov.uk
Web: www.cheshirefire.gov.uk

Membership category: Associate organisation

Contact: Mandy Eeles, Business Safety Manager

Cheshire Fire Authority has a vision of 'a Cheshire where there are no deaths, injuries or damage from fires or other emergencies'. Sprinkler systems are proven to save lives and property; they improve firefighter safety, minimise environmental damage and reduce economic loss. In support of these aims Cheshire Fire & Rescue Service proactively endorses the installation of sprinkler systems in domestic, educational, commercial and industrial premises. Cheshire Fire & Rescue Service is also a member of the National Fire Sprinkler Network and actively involved in raising the profile of sprinklers at a national level.

Clarke UK Limited

Unit 1, Grange Works
Lomond Road
Coatbridge
Lanarkshire ML5 2NN

Tel: 01236 429946
Fax: 01236 427274
Email: jblackwood@clarkefire.com
Web: www.clarkefire.com

Membership category: Manufacturer/Supplier

Accreditation: Diesel engines approved/listed by LPCB via LPS 1239.

Contact: John Blackwood, Managing Director

In 1980 Detroit Diesel bestowed on Clarke Fire Protection the UL-FM certification and global marketing activities for the fire pump industry. Clarke then became the manufacturer of UL-FM engines. Today Clarke manufactures 35 different models of UL-FM engines for more than 78 customers around the world and since 1980 more than 21,000 diesel engines have been sold under the Clarke name. The training of service dealer network staff has been an important commitment by Clarke in helping to support its customers. It links to the provision of a continuous and assured supply of service parts, a key element in the Clarke mission to protect people and property from the hazard of fire.

Comoco Fire Systems Limited

Cleeve House
Malvern Road
Lower Wick
Worcester
Worcestershire WR2 4YX



Tel: 01905 741600
Fax: 01905 741620
Email: enquiries@compcofire.co.uk
Web: www.compcofire.co.uk

Also at: Glasgow (tel: 01355 570 033), Hemel Hempstead (01442 224 2821) and Leeds (tel: 01924 470 961)

Membership category: Installer level 4

Accreditation: LPS 1048 certified sprinkler installer.

Contact: James Greenwood

COMPICO Fire Systems is an independently owned fire engineering company based in the Midlands with branch offices in Glasgow, Hemel Hempstead and Leeds. Founded in 1988, the company has carried out work in the UK and Europe, its team of engineers has a wealth of experience to carry out contracts for active fire protection systems of any size or complexity, with expertise in automatic sprinkler systems being a particular strength. COMPICO works closely with clients at every stage of a project to provide them with a quality, yet competitively priced, package of solutions and support.

Cornwall Fire & Rescue Service

Old County Hall
Truro
Cornwall TR1 3HA

Tel: 01872 323745
Email: kthomas@fire.cornwall.gov.uk
Web: www.cornwall.gov.uk/default.aspx?page=7130

Membership category: Associate organisation

Contact: Kevin Thomas, Area Manager

Cornwall Fire and Rescue Service strongly encourages the fitting of fire sprinklers in all types of buildings at the design stage, and points out that the fitting of sprinklers can often lead to benefits arising in other aspects of fire safety design.

CST Industries (UK) Ltd

Cotes Park Lane
Cotes Park Industrial Estate
Alfreton
Derbyshire DE55 4NJ

Tel: 01773 835321
Fax: 01773 836578
Email: nlange@cstindustries.com
Web: www.cstindustries.com

Membership category: Manufacturer/Supplier

Accreditation: Suction tanks approved to procedures in LPCB scheme document SD 037 and LPS 1254 and 1276. Vortex inhibitors LPCB approved.

Contact: Neil Lange, Managing Director

Design, manufacture and installation of bolted, sectional storage tanks manufactured from galvanised steel, glass fused to steel and epoxy-coated steel, suitable for the fire sprinkler market and many other industries. The company also inspects and repairs all types of storage tanks.

**D MacKinnon Fire Protection Services**

5 Place Farm House
Place Farm Way
Monks Risborough
Buckinghamshire HP27 9JQ

Tel: 07872 997 593
Email: mail@dm-fire.co.uk
Web: www.dm-fire.co.uk

Membership category: Associate individual

Contact: Doug MacKinnon

Consultancy for fire protection projects.

D.I.S. Sprinklers

183 Westgate Street
Gloucester
Gloucestershire GL1 2RN

Tel: 01452 304927
Fax: 01452 306692
Email: sprinklers@dis-ltd.co.uk
Web: www.dis-ltd.co.uk/sprinklers

Membership category: Installer level 3

Accreditation: LPCB ISO 9001: 2008; LPCB LPS 1048 approved sprinkler contractor (approval level 3).

Contact: Wayne Davies, Manager

DIS Sprinklers is a division of the DIS Group and was formed to complement the group's building services package. Since formation in 1985 the division has completed a large range of automatic sprinkler projects in industrial, retail and commercial buildings, covering all hazard categories together with domestic and residential installations.

Design is carried out by highly qualified personnel to the appropriate national and international standards. All designs implement sprinkler system design software and the DIS team have the resources to meet today's needs for fast-track design and installation. They achieve close cooperation and coordination with all trades in order to meet the requirements of the authorities having jurisdiction, the client and/or the end user.

DIS Sprinklers actively support the wider use of fire sprinkler systems for all types of occupancies, in particular schools, care homes, large warehouses, HMOs and high rise buildings.



DKP Associates

2 Longleat Court
Great Holm
Milton Keynes
Buckinghamshire MK8 9EE

Tel: 01908 568278

Fax: 01908 568278

Email: despotten@aol.com

Membership category: Associate individual

Contact: Des Potten

DKP Associates provides quality assurance and health and safety consultancy and training to the fire protection industry. The company also presents training courses on behalf of BAFSA, the Association of Building Engineers and the Institution of Occupational Safety and Health. It also provides independent fire protection consultancy to the end user.

DM Services

Rosebank
Fagl Lane
Hope
Flintshire LL12 9PY

Tel: 01978 761 949

Fax: 0787 293 7171

Email: dale@dm-services.co.uk

Web: www.dm-services.co.uk

Membership category: Associate individual

Contact: Dale Moore

DM Services specialise in: the service and maintenance of alternate and subsidiary valves and equipment including service contracts for the annual changeovers to air from water; repairs to installations from damage or corrosion; minor changes to existing sprinkler installations to facilitate revised protection requirements.

**Domestic Sprinklers Ltd**

6 Kent Close
Weymouth
Dorset DT4 9TF

Tel: 01305 765763

Fax: 01305 777700

Email: email@domesticsprinklers.co.uk

Web: www.domesticsprinklers.co.uk

Membership category: Installer level 4

Accreditation: FIRAS (restricted ordinary hazard, commercial and industrial sprinkler installations). QMS ISO 9001: 2000.

Contact: Colin Taylor, Director

The company designs and installs: domestic and residential sprinklers to BS 9251: 2005; and restricted ordinary hazards commercial and industrial systems to BS EN 12845: 2009. It also designs and installs mist systems to DD 8458-1: 2010.

Dorset Fire & Rescue Service

Service HQ
Peverell Avenue West
Poundbury
Dorchester
Dorset DT1 3SU

Tel: 01305 252781

Fax: 01305 252799

Email: steve.underhill@dorsetfire.gov.uk

Web: www.dorsetfire.gov.uk

Membership category: Associate organisation

Contact: Steve Underhill

East Midlands Fire Limited

Unit 4, The Old Embankment
Station Road
Sharnbrook
Bedfordshire MK44 1PU

Tel: 07775 712 037; 0791 732 7532
Email: eastmidlandsfire@hotmail.co.uk
Web: www.eastmidlandsfire.com

Membership category: Associate installer

Contact: David Berry/Dan Pitchford

East Sussex Fire & Rescue Service

Headquarters
20 Upperton Road
Eastbourne
East Sussex BN21 1EU

Tel: 01323 462404
Fax: 01323 462044
Email: Jo.fowler@esfrs.org
Web: www.esfrs.org

Membership category: Associate organisation

Contact: Jo Fowler, Fire Engineer

EMTEC Fire Systems

2 Drumhead Road
Cambuslang Investment Park
Glasgow G32 8EX

Tel: 0141 646 1949
Fax: 0141 646 0418
Email: ac@emtecfire.co.uk
Web: www.emtecfire.co.uk

Membership category: Associate installer (provisional)

Contact: Alan Crichton



EMTEC Fire Systems offer a complete and comprehensive service in relation to the design, supply, installation and maintenance of all fire limiting and suppression systems, including automatic sprinkler systems. Our systems, processes and staff operate to provide a friendly, efficient and professional service throughout the United Kingdom, tailoring solutions to that of our customers' needs while ensuring compliance to the related requirements of the Loss Prevention Council, National Fire Protection Association and Factory Mutual as appropriate.

Eton Fire Ltd: Head Office

Printers Gate
Limehouse Court
3-11 Dod Street
London E14 7EQ



Tel: 0207 517 6300
Fax: 0207 538 5231
Email: fire@etonfire.com
Web: www.etonfire.com

Also at: Cannock (tel: 01543 431 340)

Membership category: Installer level 3

Accreditation: LPS 1048 Level 3, LPS 1204, ISO 9001.

Contact: Mike Ballard, Managing Director

Eton Fire Ltd is a privately owned, LPCB approved company approved under the LPS 1048 and 1204 schemes to design, install, commission and maintain sprinkler, gas and watermist systems in compliance with ISO 9001 quality management.

Eton Fire Ltd: Midlands Office

Aynsley House
Waterside Business Centre
Wolverhampton Road
Cannock WS11 1SN

Tel: 01543 431 340
Fax: 01543 571 680
Email: fire@etonfire.com
Web: www.etonfire.com

Also at: London (tel: 0207 517 6300)

Membership category: Installer level 2

Accreditation: LPS 1048 Level 2, ISO 9001

Contact: Mike Ballard, Managing Director

The Eton Fire Ltd Regional Office based in the Midlands confirms our commitment to provide high quality, compliant design, installation, commissioning and maintenance of sprinkler systems nationally.

**Falcon Fire Ltd**

PO Box 114
Heywood
Lancashire OL10 9AD

Tel: 0800 612 3595
Fax: 0844 567 8685
Email: steve@falcon-fire.co.uk
Web: www.falcon-fire.co.uk

Membership category: Associate installer

Contact: Steve Williams, Director

Falcon Fire has a wealth of experience in the design, supply, installation and servicing of dry and wet risers and other fire protection systems. Our services for dry riser testing, installation and maintenance are second to none. In our head office in Lancashire we are at a centralised location, which means we can offer a fast and responsive service to our customers nationwide when they need dry riser installation, testing or maintenance.

Fire Defence

Crown Yealm House
Pathfields Business Park
South Molton
Devon EX36 3LH

Tel: 01769 574070
Fax: 01769 574079
Email: fds@fire-defence.com
Web: www.fire-defence.com

Also at: London, Birmingham and Manchester. Use 01769 tel number (above) in the first instance.

Membership category: Installer level 3

Accreditation: LPS 1048 registered supervised sprinkler installer. LPCB ISO 9001: 2000. Registered to ISO 14001 and BS 8555.

- Established over 25 years; installation contractor certificated to LPS 1048 by LPCB;
- systems designed to BS 5305, EN 12845, BS 9251, Factory Mutual Rules, NFPA;
- quality assured to BS 9001: 2000;
- environmental accreditation to BS 14001;
- water mist, dry/wet risers, foam, hose reel and hydrant system installation as well;
- kitchen fire suppression system;
- gaseous systems;
- retro-fit experts;
- directly employed engineer staff;
- own fabrication facility;
- 24 hour/365 day call-out service;
- nationwide coverage via regional offices (Exeter, London, Birmingham, Manchester).



Fire Defence (Northern) Ltd

Unit 9, Barnsley BIC
Innovation Way
Wilthorpe
Barnsley
West Yorkshire S75 1JL

Tel: 01226 289558
Fax: 01226 249625
Email: ian.kennedy@fire-defence.com
Web: www.fire-defence.com

Membership category: Installer level 1

Contact: Ian Kennedy

Fire Design Solutions

152-154 London Road
Greenhithe
Kent DA9 9JW

Tel: 01322 387411
Fax: 01322 386361
Email: ejeffrey@firedesignsolutions.com
Web: www.firedesignsolutions.com

Membership category: Installer level 1

Contact: Liz Jeffrey

Fire Design Solutions provides a fully integrated, cost effective design and install service for residential sprinkler systems, engineered to offer occupants the safest possible protection from fire. In the event of a fire they are designed specifically to control the spread of a fire within an apartment and from that apartment to any other.

Fire Protection Centre Limited

15 Atkinson's Way
Foxhills Industrial Estate
Scunthorpe DN15 8QJ

Tel: 01724 854199
Fax: 01724 854213, *Freefax:* 0800 65 200 31
Email: sales@fireprotectioncentre.co.uk
Web: www.fireprotectioncentre.com

Membership category: Manufacturer/Supplier

Accreditation: ISO 9001: 2000.

Contact: Adam Hessel/Tim Lincoln

The Fire Protection Centre is an established, independent supplier of quality approved fire sprinklers, flow control and ancillary products. With our unrivalled customer service and industry expertise we offer customised solutions and personal service to help you satisfy project, contract and budget demands. The company is part of the Supply Centre group specialising in fire protection and safety product solutions for the security of life, property and the environment. The Supply Centre group provides installation contractors and health and safety professionals with an opportunity to access product solutions to comply with all aspects of fire and safety legislation.

Fire Rail Consultants Ltd

43 Leadale Avenue
Chingford
London E4 8AX

Tel: 07772 802991
Email: fire.rail@yahoo.co.uk

Membership category: Associate individual

Contact: Peter Haines



Fire Sprinkler Systems

Unit 4, Old Sawmills Industrial Estate
Broughton Gifford
Melksham
Wiltshire SN12 8PY

Tel: 01225 782120

Fax: 01225 783711

Email: dean@firesprinklersystemsuk.com

Web: www.firesprinklersystemsuk.com

Membership category: Installer level 1

Accreditation: FIRAS (domestic and residential)

Contact: Dean Price, Operations Partner

The company operates across the UK, installing domestic/residential systems.

Fire Sprinkler Systems (UK) Ltd

11 Westfield Gardens
Inverurie
Aberdeenshire AB51 4QL

Tel: 01467 530383

Email: info@uksprinklers.com

Web: www.uksprinklers.com

Membership category: Associate installer (domestic)

Accreditation: FIRAS (domestic and residential)

Contact: Terry Wallace, Managing Director

Fire Sprinkler Systems (UK) Ltd are leading residential fire sprinkler installers and system designers in north east Scotland. The company's work is carried out in compliance with BS 9251: 2005 and BAFSA Technical Guidance Note No 1. We use fully approved system components, all our installations are fully tested and certified, and our designers and installers are fully trained.

Firemain Engineering Ltd

Unit 6, Harrier Court
Eurolink Business Park
Lea Green
St Helens
Merseyside WA9 4YR

Tel: 01744 850063

Fax: 01744 812014

Email: info@firemain.com

Web: www.firemain.com

Membership category: Associate installer

Contact: Seán McCool, Sales Office Manager

Firemain specialise in providing the fire trade with foam system equipment for all types of foam applications. We offer a complete service including design advice, site surveys, equipment supply, commissioning, discharge testing and maintenance. Foam concentrates of all types, with quality brands and UL/FM approvals, are available. Foam enhancement of your sprinkler system, either new build or retrofit, is a speciality. Proportioning and discharging foam is the major part of our portfolio. We are pleased to work in close cooperation with design and sales teams and pride ourselves on our reputation for friendly advice. Quality products range includes: Ansul, Skum, FireDos, Cla-Val and Williams Fire & Hazard Control.

Firetech Pump Services Ltd

Unit 1, Warehouse 2
Bottoms Mill
off Woodhead Road
Holmfirth
West Yorkshire HD9 2PX

Tel: 01484 680666

Fax: 01484 680665

Email: harry@firetechpumpservices.com

Web: www.firetechpumpservices.com

Membership category: Associate trade

Contact: Harry Murray, Director

We are an independent diesel engine repairer and supplier of associated equipment to the diesel power generation, industrial, firefighting and marine sectors. Our engineers are factory trained to LPCB and NFPA standards, and we are competent suppliers and installers of approved control panels, fire pumps and associated equipment to the fire protection industry. We specialise in fire pump service and maintenance and the overhaul of all rotating and reciprocating equipment. We offer a comprehensive set of related services, including 4-hour 7-days a week emergency call-out.

First Fire Protection Ltd

Unit 3, Network 4
Lincoln Road
Cressex Business Park
High Wycombe
Buckinghamshire HP12 3RF

Tel: 01494 522031

Fax: 01494 452752

Email: enquiries@firstfireprotection.co.uk

Web: www.firstfireprotection.co.uk

Also at: High Wycombe (tel: 01494 522031)

Membership category: Installer level 2

Accreditation: LPS 1048 registered supervised sprinkler installer. LPCB ISO 9001: 2008.

Contact: R P Tickner

We design, supply, install and service fixed fire protection equipment. The company was founded in 1983 and has been undertaking the smaller size contracts such as extensions and alterations to sprinkler systems within shops, offices and factories throughout south east England. We aim for quality and speed to comply with our clients' requirements. We also operate a service department for service and maintenance of both sprinkler and hose reel installations, which includes inspection and testing of dry risers.

FM Global/FM Insurance Co Ltd

1 Windsor Deals
Windsor
Berkshire SL4 1RS

Tel: 0161 455 2800
Fax: 0161 455 2801
Email: brendan.macgrath@fmglobal.com
Web: www.fmglobal.com

Membership category: Associate organisation

Contact: Brendan McGrath, Manager, International Standards

FM Global believes its understanding of property loss prevention is unmatched. Its scientists and engineers work to advance loss prevention practices and establish new industry standards through state-of-the-art research and testing. Automatic fire sprinkler systems and their components are among the subjects of such research. FM's client servicing teams share this knowledge with clients to help them make confident, well-informed decisions about how to reduce risk and exposure and prevent potential business interruption.

Frank Fox Sprinklers (Scotland) Ltd

107 Jackson Drive
Stepps
Glasgow
Strathclyde G33 6GE

Tel: 0141 779 3455
Fax: 0141 779 3417
Email: frankfox@btinternet.com

Membership category: Associate installer

Contact: Frank Fox, Managing Director

Franklin Hodge Industries Limited

Jubilee Building
Faraday Road
Westfields Trading Estate
Hereford HR4 9NS

Tel: 01432 269605
Fax: 01432 277454
Email: sales@franklinhodge.com
Web: www.franklinhodge.com

Also at: Manchester (tel: 0161 427 8738) and Horsham (tel: 01403 211754)

Membership category: Manufacturer/Supplier

Accreditation: FM approval of broad range of tanks. LPCB approval, ISO 9001: 2008.

Contact: Nigel Snee, Managing Director

Franklin Hodge design, manufacture and install a comprehensive range of site-bolted liquid storage tanks, which are used for the storage of all types of water. Cylindrical and rectangular tanks can be offered in various sizes to suit customers' individual site requirements. Benefits offered by Franklin Hodge tanks include flexibility in design, rapid installation and long life.



FVS Limited

Broom Street
off Huddersfield Road
Newhey
Rochdale
Lancashire OL16 3RY

Tel: 01706 848599

Fax: 01706 843474

Email: fvs@fvslimited.co.uk

Web: www.fvslimited.co.uk

Membership category: Installer level 3

Accreditation: LPS 1048 approved sprinkler contractor. ISO 9001: 2000.

Contact: Gareth Fitton

FVS Limited is an LPCB approved fire sprinkler installation and servicing company with over 30 years' experience. It aims to provide the best service available from a sprinkler company and it seeks to deliver the highest level of professionalism in the design, installation, commissioning and servicing of fire protection sprinkler systems, meeting the requirements of national, international and insurance specifications. Quotations are produced free of charge and the company aims to put forward the best-engineered solution in accordance with the statutory standards and the customer's requirements, with the objective of completing automatic sprinkler systems in the most cost effective and efficient manner possible.

Galglass Ltd

321 Hough Lane
Wombwell
Barnsley
South Yorkshire S73 0LR

Tel: 01226 340370

Fax: 01226 344200

Email: kdwyer@galglass.co.uk

Web: www.galglass.com

Membership category: Manufacturer/Supplier

Accreditation: LPCB ISO 9001:2008; BS OHSAS 18001; BS ISO 14001.

Contact: Kevin Dwyer, Sales Manager

Design, manufacture and installation of cylindrical and rectangular storage tanks.

Gemstone Building Surveyors

Amber House
Manor Road
Dersingham
Norfolk PE31 6LD

Tel: 01485 545 778

Email: info@gemstonebuildingsurveyors.com

Web: www.gemstonebuildingsurveyors.com

Membership category: Associate organisation

Contact: Edward Phillips, Director

Building control, building surveying and fire risk assessments.

Grampian Fire & Rescue Service

19 North Anderson Drive
Aberdeen AB15 6DW

Tel: 01224 696666

Fax: 01224 692224

Email: david.flack@grampianfrs.org.uk

Web: www.grampianfrs.org.uk

Membership category: Associate organisation

Contact: David Flack

Grampian Fire & Rescue Service is committed to enhancing the safety of all residents and visitors in the Grampian area. The Service actively promotes the installation of residential/domestic sprinklers to BS 9251.

Greater Manchester Fire & Rescue Service

Fire Service Headquarters
146 Bolton Road
Swinton
Manchester M27 8US

Tel: 0161 6084221
Fax: 0161 6084197
Email: masseyd@manchesterfire.gov.uk
Web: www.manchester.gov.uk

Membership category: Associate organisation

Contact: Deborah Massey

Greater Manchester Fire & Rescue Service supports the need for sprinklers in new-build schools and encourages the installation of sprinklers in major refurbishment of schools in Greater Manchester. Protection levels described in Approved Document B to the Building Regulations require a satisfactory level of safety to life risk. The fire industry has traditionally supplied passive and active systems which contribute to life safety. Use of water suppression systems such as sprinklers can effectively restrict the spread of fire. Modern standards of building now consider the environmental factor very seriously and sprinklers are a clear benefit to reducing CO₂ and sustainability in buildings.

Grundfos Fire Systems

Grovebury Road
Leighton Buzzard
Bedfordshire LU7 4TL

Tel: 01525 850 000
Fax: 01525 853 981
Email: fire@grundfos.com
Web: www.grundfos.com

Membership category: Manufacturer/Supplier

Accreditation: Pumps approved to LPS 1131.

Contact: Ross Crighton

Grundfos Fire Systems manufacture a comprehensive range of pumps to meet the requirements of the fire sprinkler market. The fire business is based in the Grundfos UK head office in Leighton Buzzard, with on-site assembly and testing of a full range of diesel and electrically driven pumps, which can be offered individually or as packaged hydrant/sprinkler sets or even as complete drop in place packaged plant rooms. Grundfos fire pumps have approvals from all leading accreditation bodies including LPCB, FM and VdS. Diesel and electrical control panels are built in-house. The Grundfos Group, founded in 1945, is now the largest producer of pumps globally, employing some 14,000 people in 58 countries; the group's annual turnover is £1.4 billion.

Hall & Kay Fire Engineering

Sterling Park
Clapgate Lane
Woodgate Valley
West Midlands B32 3BU

Tel: 0121 421 3311

Fax: 0121 422 7312

Email: simon.rooks@hkfire.co.uk

Web: www.hkfire.co.uk

Also at: Windsor (tel: 01753 833444), Manchester (tel: 0161 872 7316), Glasgow (tel: 0141 887 4921) and Portsmouth (tel: 02392 241 393)

Membership category: Installer level 4

Accreditation: LPS 1048 certificated sprinkler installer and supervising body. Fire alarm and detection systems certified to LPS 1014. LPS 1204 certificated to design/install/commission fixed systems. LPCB ISO 9001: 2000.

Contact: Simon Rooks, Managing Director

Principal trading in the UK extends to all market sectors in any location serviced from any one of our six office locations, Windsor, Birmingham, Manchester, Glasgow, Portsmouth and Warrington, or from project teams established on-site for larger projects. Hall & Kay Fire Engineering are consultants, designers, installers and project managers of all forms of fixed fire protection systems. The company philosophy is to utilise high quality components in designs tailored to a client's specific requirements with access to the latest developments in fire engineering technology.

**Hall Fire Protection Ltd**

Holloway Drive
Wardley Business Park
Worsley
Manchester M28 2LA

Tel: 0161 793 4822

Fax: 0161 794 4950

Email: mike.green@halfire.co.uk

Web: www.halfire.co.uk

Membership category: Installer level 4

Accreditation: LPS 1048 certificated sprinkler installer. LPS 1050 certificated sprinkler servicing and maintenance company. LPCB ISO 9001: 2008.

Contact: Mike Green, Managing Director

As an LPS 1048 certificated contractor, Hall Fire design, supply, fabricate, install and maintain sprinkler, foam/water deluge, inert gas and water mist systems. With a 40 year pedigree as an independent company and founding member of BAFSA, we have a long-term commitment to the fire protection industry. Our project portfolio covers all major market sectors with an emphasis on retail, distribution, industrial, hotel, school, petrochemical and heritage applications. Partnering principles underpin our approach with approximately 70% of orders being on a repeat basis. In-house project engineering and management ensures full control from order placement through to handover, working within ISO 9001: 2008. Good health and safety practice is given priority, with CSCS accreditation for 100% of our engineers and fitters. Don't take our word for it. In 2005, 2007 and 2009 Hall Fire were voted installer of the year, an award sponsored by the FIA.

**Hampshire Fire & Rescue Service**

Service HQ
Leigh Road
Eastleigh SO50 9SJ

Tel: 023 8064 4000

Fax: 023 8064 3178

Email: [via website](#) *Contact page*

Web: www.hantsfire.gov.uk

Membership category: Associate organisation

Harris Pipework Fabrications Ltd

Planetary Road
Willenhall
Wolverhampton
West Midlands WV13 3SS

Tel: 01902 305830
Fax: 01902 304001
Email: enquiries@harrispipework.co.uk
Web: www.harrispipework.co.uk

Membership category: Associate trade

Contact: Stuart Harris/Adrian Hartup

This long-established company is a fabricator of steel pipework for a very wide variety of applications. The company provides quality powder-coated fabricated pipe sections to many industry sectors.

Heat Trace Northern Ltd

Alexandra Building
BICC
Wearfield
Sunderland
Tyne and Wear SR5 2TA

Tel: 01484 851 450
Fax: 01484 852 809
Email: amanda.wilson@heattraceuk.com
Web: www.heattraceuk.com

Membership category: Manufacturer/Supplier

Contact: Amanda Wilson

Heat Trace Northern operates throughout the UK from its base in Carnforth, Lancashire. Its speciality is providing solutions to trace heating problems. If you seek advice on any trace heating application, please get in touch. All the trace heating products, both self regulating heating cables and constant wattage heating cables, are manufactured by Heat Trace Limited at its facility in Frodsham, Cheshire.

Hereford & Worcester Fire & Rescue Service

Fire Safety
2 Kings Court
Charles Hastings Way
Worcester WR5 1JR

Tel: 0845 122 4454
Fax: 01905 357392
Email: mcunningham@hwfire.org.uk
Web: www.hwfire.org.uk

Membership category: Associate organisation

Contact: Mike Cunningham

Hereford & Worcester Fire & Rescue Service has a proactive community safety department, promoting home and commercial fire safety in the two counties. Specialist fire safety officers at districts give advice and support to commerce and the public sector on commercial, residential and domestic sprinklers. The inclusion of a sprinkler is advocated in all new build consultations and where merited in others, including the Service's Headquarters building that benefited from a retrofitted system before becoming fully occupied.



FIRE FIGHTING WATER TANKS

LPCB-approved:

- ▶ Cylindrical steel
- ▶ Hot press moulded GRP sectional
- ▶ Hot press steel sectional
- ▶ Technical services
- ▶ Installation
- ▶ Balmoral FireFlow™ vortex inhibitor

BALMORAL TANKS
Tel: +44 (0)208 665 4100 Email: watertanksales@balmoral.co.uk
www.balmoralfretanks.com

UK Designed and manufactured

FM518297
 LPS 1075
 bafsa
 Member BES
 BRITISH WATER
 ATCM

BALMORAL

Hertfordshire Fire & Rescue Service

Fire Protection Department
Postal Point MU103, Herts Business Services
Mundells
Welwyn Garden City
Hertfordshire AL7 1FT

Tel: 01707 292 660
Fax: 01707 292 588
Email: Ashley.theakstone@hertscc.gov.uk, administration.cfs@hertfordshire.gov.uk
Web: www.hertsdirect.org/fire

Membership category: Associate organisation

Contact: Ashley Theakstone, Fire Protection Training Officer

In addition to its traditional role of compliance, audit and enforcement, HFRS actively provides recommendations and advice on fire suppression systems to developers, architects, insurers, premises' occupiers etc in relation to buildings which require or would benefit from the fitting of sprinklers. HFRS supports formal technical training of specialist fire officers in sprinkler systems and their design principles. HFRS works in partnership with developers, licensing bodies etc successfully to install sprinklers in county built schools, residential developments, private dwellings and bespoke systems for vulnerable persons. The Service is proud to be a member of BAFSA and is actively involved in various technical committees, groups and other sprinkler networks.

Highlands & Islands Fire & Rescue Service

16 Harbour Road
Inverness IV1 1TB

Tel: 01463 227000
Fax: 01463 236979
Email: graham.robertson@hifrs.org
Web: www.hifrs.org

Membership category: Associate organisation

Contact: Graham Robertson, Group Manager

Humberside Fire & Rescue Service

Service HQ
Summergroves Way
Hessle
Humberside HU4 7BB

Tel: 01482 567 472
Fax: 01482 508 635
Email: smarin@humbersidefire.gov.uk
Web: www.humbersidefire.gov.uk

Membership category: Associate organisation

Contact: Steve Marin, Fire Safety Manager

Humberside Fire & Rescue Service is actively engaging with stakeholders to improve the safety of all dwellings and business premises within its service area. It employs personnel who are tasked with reducing risks in those buildings by the most appropriate and cost-effective method. This often means the recommendation of fitting a building with a sprinkler system. The installation of sprinklers is recommended on our corporate website and is included on our statutory consultations where relevant.

IFC Certification Ltd

20 Park Street
Princes Risborough
Buckinghamshire HP27 9AH



Tel: 01844 275500
Fax: 01844 274002
Email: ian.woodhouse@ifcgroup.com
Web: www.ifccertification.com

Also at: London, Newport (Wales), Dubai (UAE), Delft (Netherlands) and Limassol (Cyprus). All calls routed via head office switchboard, +44 (0) 1888 275500.

Membership category: Associate organisation

Contact: Ian Woodhouse, Asst Director Certification

IFC Certification Ltd is a UKAS accredited and internationally recognised provider of high quality and customer focused independent third-party certification. IFC Certification Ltd is also a Notified Certification Body for certifying products for CE Marking under the Construction Products Directive. The company is a member of the IFC Group of companies including International Fire Consultants Ltd, which has established an enviable independent position offering clients across the world impartial, expert advice.

Influx Measurements Limited

1A Bennett House
The Dean
Alresford
Hampshire SO24 9BQ

Tel: 01962 736736
Fax: 01962 736737
Email: sales@influxmeasurements.com
Web: www.influxmeasurements.com

Membership category: Associate trade

Accreditation: LPCB ISO 9001: 2000. Flow meters approved to LPS 1045 requirements.

Contact: Mark Towner, Managing Director

Influx Measurements manufacture and supply direct reading flow meters, approved under LPS 1045 for use in automatic sprinkler systems. Meters are supplied to suit both flange and groove pipe connections and can be mounted in horizontal or vertical pipe runs.

Integrated MEP

1st Floor
6 Brooklands Place
Sale
Cheshire M33 3SD

Tel: 0845 659 5920
Email: admin@integratedmep.com
Web: www.integratedmep.com

Membership category: Installer level 1

Contact: Dave Rowland, Ops Director

INTEGRITAM Construction Consultancy

Sherwood House
8 Sherwood Drive
Wakefield WF2 7QT

Tel: 01924 242577
Fax: 01924 242865
Email: andrewmilner@integritam.com
Web: www.integritam.com

Membership category: Associate individual

Contact: Andrew Milner

International Tube and Fittings

Leabrook Road
Wednesbury
West Midlands WS10 7NB

Tel: 0121 505 9940
Fax: 0121 556 1110
Email: Julian@itf.uk.com; rosemary@itf.uk.com
Web: www.itf.uk.com

Membership category: Associate trade

Accreditation: BSI accredited to BS EN ISO 9001: 2000.

Contact: Mr Julian Jenkins/Ms Rosemary Slater

International Tube and Fittings is a large distributor of pipeline products, most notably in BS 1387/10255 steel tube. The company supplies across the UK, Ireland and Europe.

IPS Flowsystems

Seaham Grange Industrial Estate
Seaham
County Durham SR7 0PT

Tel: 0191 521 3111
Fax: 0191 521 3222
Email: lwalker@ipsflowsystems.com
Web: www.ips-blazemaster.com

Membership category: Manufacturer/Supplier

Accreditation: BS ISO 9001, Quality management; BS ISO 14001, Environmental quality management systems; Investors in People.

Contact: Les Walker, Product Development Manager

IPS Flowsystems are European distributors of the CPVC Fire Sprinkler system. The company operates a third-party approved training programme for contractors installing CPVC systems (per ISO 9001 and ISO 14001). The CPVC materials supplied by IPS are tested and approved to the LPCB's LPS 1260. IPS are distributors of Victaulic residential sprinkler heads and of FM-Global-approved PE piping system for buried fire mains.

**JEM Fire Pumps Ltd**

JEM House
4 Rochdale Industrial Centre
Albion Road
Rochdale
Lancashire OL11 4HN

Tel: 01706 860534
Fax: 01706 712970
Email: aleech@jempumps.com
Web: www.jempumps.co.uk

Membership category: Manufacturer/Supplier

Accreditation: BS EN ISO 9001: 2008; Investors in People.

Contact: Andrew Leech, Director

JEM Fire Pumps Ltd is an independent company providing service and support to the fire protection industry, a market leader in the provision of service and maintenance to all types of fire pumping equipment. We offer national, international and offshore coverage; with back-up of our service centre we can provide a quick turnaround on major repairs and overhauls for new and obsolete equipment. Pumps, engines, motors, control equipment or foam systems - whatever your problem our experienced team will handle it.

**JEM Fire Pumps Limited**

JEM House
4 Rochdale Industrial Centre
Albion Road
Rochdale
Lancashire OL11 4HN

Tel: 01706 860534
Fax: 01706 712970

E-mail: aleech@jempumps.com
Web: www.jempumps.co.uk

For in excess of 20 years JEM Fire Pumps Ltd has been providing support to the Fire Protection Industry. A market leader on the provision of service & maintenance of all types of fire pumping equipment. We offer national coverage and with the back-up of our fully equipped centralised service

centre can provide a quick turn round on major repairs and overhaul's.

Pumps, Engines, Motors, Control Equipment or Bladder Tanks, whatever your problem, our experienced team will handle it.

Job GmbH

Kurt-Fischer-Str. 30
22926 Ahrensburg
Germany



Tel: 00 49 4102 2114 0
Fax: 00 49 4102 2114 70
Email: juergen.teschner@job-bulbs.com
Web: www.job-bulbs.com

Membership category: Manufacturer/Supplier

Accreditation: Approved to ISO 9001: 2008 by VdS. Sprinkler bulbs approved against requirements of LPS 1039, UL and VdS.

Contact: Jürgen Teschner

Job's THERMO BULBS are heat responsive glass bulbs which are widely used in sprinkler heads. More than 800 million THERMO BULBS have been installed worldwide and they are the choice of most major sprinkler manufacturers, a tribute to their high quality and reliability. Not only are the components highly functional but they are also aesthetically pleasing, enabling the sprinkler industry to offer sprinkler designs which meet decorative requirements as well as ensuring efficiency in operation.

Kent Fire & Rescue Service

The Godlands
Strawmill Hill
Tovil
Maidstone
Kent ME15 9QB

Tel: 01622 692121
Email: rob.lawson@kent.fire-uk.org
Web: www.kent.fire-uk.org

Membership category: Associate organisation

Contact: Robert Lawson, Head of Technical Fire Safety

Kent Fire & Rescue Service is responsible for delivering fire safety and fire prevention guidance to more than 1.5 million people in Kent and Medway. Our professional fire safety inspectors provide advice and guidance to assist business achieve compliance with regulations. We support sprinklers as a method of reducing the impact of fires on our communities.

Lenpart Industrial Products

Unit 14-15, Ramac Industrial Estate
Ramac Way
Charlton
London SE7 7AX

Tel: 020 8853 5005
Fax: 020 8858 9824
Email: sam@lenpart.co.uk
Web: www.lenpart.co.uk

Membership category: Associate trade

Contact: Samantha Siddons

Lenpart was established nearly 30 years ago and supplies hydraulic and industrial hose/tube and fittings to all industries, including supplies for sprinkler installations and other fire protection applications. There are plans to open new depots in the Midlands and South of England.

Liquitech Ltd

The Old Post Office
East Street
Pembridge
Herefordshire HR6 9HA

Tel: 01544 388883
Fax: 01544 387977
Email: andrew@liquitech.co.uk
Web: www.liquitech.co.uk

Membership category: Associate trade

Contact: Andrew Searles, Director

Liquitech Ltd was formed in 1996 and has since carried out inspection or maintenance work on more than 700 sprinkler tanks. Tanks are inspected internally with the use of a submersible camera, or by gaining access, and inspections include readings of material thickness using highly accurate ultrasonic test equipment to determine levels of corrosion in tank walls. Typical tank maintenance includes small works such as replacement ball valves, immersion heaters and contents gauges, through to cleaning and painting, lining and re-roofing etc. We also inspect sprinkler pipework using ultrasonic equipment, avoiding the need to remove sections of pipe for testing purposes.

London Fire & Emergency Planning Authority - London Fire Brigade

Community Safety Department
Room 808, Hampton House
20 Albert Embankment
London SE1 7SD

Tel: 0207 587 6251
Fax: 0207 587 6377
Email: neil.marsden@london-fire.gov.uk
Web: www.london-fire.gov.uk

Membership category: Associate organisation

Contact: Neil Marsden, Principal Admin Officer

Responsible for enforcement of fire safety legislation in London and promotion of fire safety measures, including sprinklers. Details of our fire stations and local offices are on our website.

Lowara (UK) Limited

Millwey Rise Industrial Estate
Axminster
Devon EX13 5HU

Tel: 01297 630 230
Fax: 01297 630270
Email: lowarauk.enquiries@xyleminc.com
Web: www.lowara.co.uk

Membership category: Associate trade

Contact: Darren Haydon, OEM Business Manager

Xylem Lowara, based in Axminster, Devon are manufacturers of pumps and related systems for residential, agricultural and industrial applications. Lowara manufacture and supply the Hydroquench 3000 series of domestic and residential sprinkler pump sets which comply with EN 12259 and BS 9251, giving a monthly automatic test cycle and via a constant pressurised system. They provide instant reaction to sprinkler operation with flows up to 400L/min and pressures between 1 and 7.5bar. We are also pleased to announce the introduction to our portfolio of commercial firefighting booster sets in accordance with EN 12845, which utilise our market leading series of SV multistage pumps.

Lubrizol Advanced Materials Europe BVBA

Chaussee de Wavre 1945
B-1160 Brussels
Belgium

Tel: 00 32 2678 1938
Fax: 00 32 2678 2001
Email: sinikka.freidhof@lubrizol-be.com
Web: www.blazemaster.com

Also at: UK (Steve Seaber) (tel: +44 (0)797 051 4724)

Membership category: Manufacturer/Supplier

Contact: Sinikka Freidhof, Market Development Manager, EMEAI

Lubrizol manufactures the CPVC compound and owns the BlazeMaster® trademark. BlazeMaster® CPVC was the first plastic to be approved worldwide for use in fire sprinkler systems and has proven its performance in the marketplace since 1984. It is approved by UL, FM, LPCB, VdS and CNPP, and also has NSF and WRAS potable water approvals. Manufacturers of BlazeMaster® pipes and fittings follow the Lubrizol quality programme and, in parallel with their distributors, offer the BlazeMaster® training programme for sprinkler installers.

Mandara Sprinklers

27 Eliot Road
St Austell
Cornwall PL25 4NN

Tel: 01726 77303 and 07775 691909
Fax: 01726 77303
Email: stanbarber27@aol.com
Web: www.mandarasprinklers.co.uk

Membership category: Associate installer

Contact: Stan Barber, Managing Director

We are a company based in Cornwall and specialise in installing domestic sprinkler systems to comply with BS 9251. Our company cover from Exeter down to Lands End. We are approved under the FIRAS scheme of Warrington Certification and give a FIRAS Certificate of Compliance on completion.



Marioff Ltd

Badentoy Crescent
Badentoy Park
Portlethen
Aberdeen AB12 4YD



Tel: 01224 784 844

Fax: 01224 784 885

Email: tom.knowles@marioff.co.uk

Web: www.marioff.com

Membership category: Supplier

Accreditation: Hi-Fog approvals: ANSI/FM 5560 (water mist systems), Ordinary Hazard 1; VdS 54050001, LH/OH to VdS 2562 (07/96) draft, ANSI/FM 5560 (water mist), Light Hazard Occupancies, ANSI/UL (water mist systems), OHI VdS LH/OH1, OH2 + OH3 Occupancies.

Contact: Tom Knowles, Director

Manufacturer and installer of Hi-Fog high pressure water mist systems for sprinkler and machinery space applications.

Marsh Risk Consulting

Merlin House, Commerce Park
Brunel Road
Theale
Reading
Berkshire RG7 4BY

Tel: 0118 965 4227 and 07787 157 967

Fax: 0118 958 5572

Email: richard.w.morgan@marsh.com

Also at: Birmingham (tel: 0121 452 1200), Glasgow (tel: 0141 304 4300), London (tel: 0207 357 1000) and Manchester (tel: 0161 954 7200)

Membership category: Associate organisation

Contact: Richard Morgan, Managing Consultant

Marsh Risk Consulting is a global leader in helping clients to protect their assets and operations and secure the optimum insurance coverage for their businesses. We can assist clients in determining the appropriate specification of sprinkler protection for a given risk and in providing a technical specification that would enable 'like for like' tenders to be obtained. We can review specifications and designs to ensure that the most effective protection is provided. We can also negotiate and discuss with insurers to assist in the approval process.

MARSH

MARSH MERCER KROLL
GUY CARPENTER OLIVER WYMAN

Mercury Engineering

Mercury House
Ravens Rock Road
Sandyford Business Estate
Foxrock
Dublin 18, Republic of Ireland

Tel: 00 353 1216 3000

Fax: 00 353 1216 3006

Email: fireprotection@mercury.ie

Web: www.mercuryeng.com

Also at: London (tel: 0207 841 5260), Glasgow (tel: 0141 353 0174)

Membership category: Installer level 4

Accreditation: LPS 1048 certificated sprinkler installer. ISO 9001: 2008.

Contact: Frank Robinson, Design Manager/Quality Coordinator

Mercury Engineering is a multi-service engineering company. Our Fire Protection Division is LPS 1048 certificated, level 4, authorised to self-certificate sprinkler installations for all hazard classifications to LPC, FM, NFPA and VdS standards. Mercury Engineering is LPS 1014 certificated, authorised to issue LPCB Certificates of Conformity for fire detection and alarm installations. We are also LPS 1204 certificated, authorised to design, install and commission gas suppression systems. Mercury's head office is in Dublin, Ireland and we have offices in the UK, Poland, Moscow, Libya and the Middle East. See our website.

Merseyside Fire & Rescue Service

Service Headquarters
Bridle Road
Bootle
Liverpool L30 4YD

Tel: 0151 296 4639

Fax: 0151 296 4594

Email: GlenThomas@merseyfire.gov.uk

Web: www.merseyfire.gov.uk

Membership category: Associate organisation

Contact: Glen Thomas, Community Fire Protection

Merseyside F&RS fully endorses the utilisation of automatic water suppression systems as a means of enhancing community and firefighter safety. The Service actively promotes suppression as a viable fire safety solution for the most vulnerable members of society by engaging with relevant stakeholders. It will aim to strengthen the profile and benefits of such systems by education and publicity.

Mid & West Wales Fire & Rescue Service

Fire Service Headquarters
Lime Grove Avenue
Carmarthen SA31 1SP

Tel: 0370 606 0699 ext 2263

Fax: 01792 310439

Email: r.martin@mawwfire.gov.uk

Web: www.mawwfire.gov.uk

Membership category: Associate organisation

Contact: Rob Martin, Temp Legislative FS Tech Officer

The Service is committed to enhancing the safety of its communities and is proactive in both preventative and protective fields of activity. It has introduced a risk based audit regime for the enforcement of the Fire Safety Order in commercial premises while becoming increasingly involved in safety work to reduce risk in the community as a whole. The Service recognises the important role sprinklers can play in protecting communities and actively promotes their installation, particularly in schools and premises that house the more vulnerable members of society.

Nationwide Fire Sprinklers Ltd

Unit 4
Colwick Road
Nottingham NG2 4BG

Tel: 0115 9343 880
Fax: 0115 9584 759
Email: keith.rhodes@nationwide-fire.co.uk
Web: www.Nationwide-Fire.co.uk

Membership category: Installer level 4

Accreditation: FIRAS

Contact: Keith Rhodes, Senior Engineer

A pre-eminent contractor in the domestic and residential sector, Nationwide Fire offer exclusive, industry-leading innovations including world-beating remote monitoring and reporting control systems.

**Norfolk Fire & Rescue Service**

Whitegates
Hethersett
Norwich NR9 3DN

Tel: 01603 810351
Email: richard.herrell@fire.norfolk.gov.uk
Web: www.norfolkfireservice.gov.uk

Membership category: Associate organisation

Contact: Richard Herrell, Head of Community Fire Protection

Norfolk Fire Service strives to improve fire safety in the commercial and industrial premises in the county by a coordinated approach to providing fire safety and fire prevention advice to employers, including guidance about the advantages of sprinkler protection where appropriate.

North Wales Fire & Rescue Service

Service Headquarters
Ffordd Salesbury
St Asaph Business Park
St Asaph
Denbighshire LL17 0JJ

Tel: 01745 535 250
Email: richard.fairhead@nwales-fireservice.org.uk

Membership category: Associate organisation

Contact: Richard Fairhead, Senior Fire Safety Manager

North Yorkshire Fire & Rescue Service

Fire Service Headquarters
Thurston Road
Northallerton DL6 2ND

Tel: 01609 780 150
Fax: 01609 788 520
Email: trevor.lund@northyorksfire.gov.uk
Web: www.northyorksfire.gov.uk

Membership category: Associate organisation

Contact: Trevor Lund, Group Manager

North Yorkshire Fire & Rescue Service actively promote sprinklers, fire risk reduction and fire suppression measures. NYFRS's primary focus of activity is combatting the potential risk from fire at places where members of the community reside. NYFRS organise and deliver sprinkler and water mist demonstrations (to other agencies and individuals), often collaboratively with regional fire services. Sprinkler information leaflets are included within correspondence to businesses. NYFRS develop and promote partnership agreements with other agencies, public and private, and actively encourage the adoption of sprinklers or other fire suppression measures to save lives and reduce the risk of injury and property damage.

Nottinghamshire Fire & Rescue Service

Fire & Rescue Service HQ
 Bestwood Lodge
 Arnold
 Nottingham
 Nottinghamshire NG5 8PD

Tel: 0115 967 0880

Fax: 0115 926 1081

Email: neil.williamson@notts-fire.gov.uk

Web: www.notts-fire.gov.uk

Membership category: Associate organisation

Contact: Tom Clark

The Fire & Rescue Service aims to reduce the incidence of fires and their effects by providing services which inform, encourage and support people, organisations and communities to take actions themselves to reduce the risk of fire. Sprinkler systems are an important weapon in the fight against fire and the Service maintains formal liaison with building control bodies and environmental health departments to promote the benefits of sprinklers. The Service is a member of the National Fire Sprinkler Network, seeking support for greater inclusion of sprinklers within the Building Regulations and the sharing of initiatives to promote wider provision of sprinklers in buildings.

Optima Fire Consultants Ltd

29 Oakfield Road
 Wordsley
 Stourbridge
 West Midlands DY8 5XS

Tel: 01384 79962

Fax: 01384 79961

Email: philipheims@optimafire.co.uk

Web: www.optimafire.co.uk

Membership category: Associate individual

Contact: Philip Hems, Director

Optima Fire Consultants (established 1986) provides design engineering and consultancy service with special application to high-risk, high-value facilities in the chemical, petrochemical, power generation, warehousing and industrial sectors. Sprinklers, water and foam deluge, extinguishant gases, hosereels, hydrants, detection and alarm devices, passive protection, fire and smoke barriers and fire water run-off schemes are applied to our projects with skill and experience. From initial concept, through detailed specification, scheme drawings, hydraulic analysis, technical management and commissioning to final handover, Optima provides the assurance that the fire protection you really need is delivered in a professional and cost-effective manner.

Pegler Yorkshire Group Limited

St Catherine's Avenue
 Doncaster
 South Yorkshire DN4 8DF

Tel: 0844 243 4400

Fax: 0844 243 9870

Email: adam.moroney@pegleryorkshire.co.uk

Web: www.pegleryorkshire.co.uk

Membership category: Manufacturer/Supplier

Accreditation: LPCB, VdS and FM

Contact: Adam Moroney

Supplier/manufacturer of Xpress carbon galvanised and stainless steel sprinkler tube and fittings.

PEL Services Limited

Units 1-2, Belvue Business Centre
Belvue Road
Northolt
Middlesex UB5 5QQ

Tel: 020 8839 2100
Fax: 020 8841 1948
Email: David.jarman@pel.co.uk
Web: www.pelfire.co.uk

Membership category: Associate trade

Contact: David Jarman, Director

From critical life safety systems to essential property protection, PEL Fire & Security systems safeguard premises and their occupants throughout the UK and the Republic of Ireland, applying the benefits of appropriate technology and guaranteeing compliance with governing standards.

PFP 2000 Ltd

Unit D3A, Olympic Business Park
Drybridge Road
Dundonald
South Ayrshire KA2 9BE

Tel: 01563 850 919
Fax: 01563 850 819
Email: info@pfp2000.co.uk

Membership category: Associate installer

Contact: Tom Palmer, Managing Director

Specialists in the supply, installation, testing and commissioning of dry riser and sprinkler installations for residential and domestic premises.

**Phoenix Plumbing & Heating Contractors Limited**

11 Alexander Street
Clydebank
Glasgow G81 1SQ

Tel: 0141 941 1716
Fax: 0141 952 2555
Email: jim@phoenixplumbingltd.co.uk
Web: www.phoenixplumbingltd.co.uk

Membership category: Associate installer

Contact: Jim Keenan, Director

Domestic and residential sprinkler installation.

Pipework Engineering Services Ltd

124 Emily Street
Highgate
Birmingham
West Midlands B12 0XJ

Tel: 0121 440 5995
Fax: 0121 440 3246
Email: bhamoffice@pipeworkengineering.co.uk
Web: www.pipeworkengineering.co.uk

Also at: Brierley Hill (tel: 01384 74674)

Membership category: Associate trade

Accreditation: BSI ISO 9001: 2000.

Contact: Andy Blincoe

Established in March 1982, Pipework Engineering Services Ltd is now a leading supplier of prefabricated mild steel pipework to the fire protection industry. Accreditation to BS EN ISO 9001: 2000 is evidence of the company's commitment to quality.

Powerpro Fire Pump Services

Powerpro UK Ltd
Middlemore Lane West
Alridge
Walsall WS9 8BG

Tel: 01922 454585
Fax: 01922 454586
Email: jason@powerprouk.com
Web: www.powerprouk.com

Membership category: Associate trade

Contact: Jason Cooper, Engineering and Sales Director

Our engineers are fully conversant with all types of fire pumps and design specifications including high pressure water mist. This enables us to offer our customers a comprehensive maintenance facility which includes - but is not limited to - routine servicing, and major and minor overhauls on engines, pumps and control panels.

We believe that our service - established over 24 years - is effective, efficient and available on demand, supported as it is by our experienced team of engineers 24 hours a day, 365 days a year.

Project Fire Products Ltd

Pasturefields Industrial Estate
Pasturefields Lane
Hixon
Stafford
Staffordshire ST18 0PH

Tel: 01889 270999
Fax: 01889 270974
Email: sales@projectfire.co.uk
Web: www.projectfire.co.uk

Membership category: Manufacturer/Supplier

Contact: Bernard Cain

Project Fire are recognised worldwide as leading innovators in the field of fire protection. With over 30 years experience, Project Fire have successfully developed a portfolio of products designed to improve or simplify the installation, testing and use of sprinkler systems. All products are fully tested and approved to meet international safety standards and codes.

Pyro Protection Limited

Saddleworth Business Centre
Huddersfield Road
Delph
Oldham OL3 5DF

Tel: 01457 879222
Fax: 01457 879888
Email: mjsmith@pyroprotection.co.uk
Web: www.pyroprotection.co.uk

Membership category: Installer level 4

Accreditation: FIRAS (both commercial & industrial and residential & domestic). QM approved to BS EN ISO 9001: 2008. Member of the SAFEcontractor accreditation scheme. CHAS scheme member. Construction Line member. All our office staff, engineers and installers carry Construction Skills Certification Scheme (CSCS) accreditation.

Contact: Matthew Smith

Pyro Protection Limited are independent specialists in the provision of fire sprinkler protection and allied fire suppression fields. We provide consultation, proposals, design, project management, commissioning, training and ongoing service and maintenance. Our area of expertise encompasses not only sprinkler systems but also deluge systems, foam enhancement, low/medium/high expansion foam systems, wet/dry risers, fire hydrants and hosereels. We are engineers and although we often produce innovative solutions to fire protection problems we also ensure that all our system designs are compliant with recognised international standards, including BS EN 12845, NFPA and FM Global, and we only install approved equipment.

RAD Fire Sprinkler Co Ltd

58A St John's Road
Tunbridge Wells
Kent TN4 9NY

Tel: 01892 680 090
Fax: 0560 341 3879
Email: info@radfiresprinklers.com
Web: www.radfiresprinklers.com

Membership category: Installer level 1

Accreditation: FIRAS certified (residential and domestic)

Contact: Paul Hummerston, Director

Covering south-east England, we specialise in the design, installation and maintenance of domestic and residential fire sprinkler systems. We work closely with architects, developers and local authority building control departments and provide advice on mains water provision issues. We are registered in the FIRAS third-party certification scheme.

Rapidrop Global Limited

Rutland Business Park
Newark Road
Peterborough PE1 5WA

Tel: 01733 847510
Fax: 01733 553958
Email: rapidrop@rapidrop.com
Web: www.rapidrop.com

Also at: Dubai (tel: + 971 4 885 6671); Qatar (tel: +971 4 885 6671); Denmark (tel: +45 9796 2698); Sweden (tel: +46 (0) 8 5333 2355); France (tel: +33 677 058 986); Turkey (tel: +44 7736 476 121); South Africa (tel: +44 7850 821 754); USA (tel: 00 1 630 689 4700

Membership category: Sprinkler head manufacturer

Accreditation: LPCB approved to ISO 9001.

Contact: Martyn Willimer, UK Sales Manager

Rapidrop Global, a UK-based manufacturer of fire sprinkler products with international sales and distribution serving the needs of the fire detection and suppression industry. Our dedicated, skilled supply and engineering teams pride themselves with providing extensive experience and knowledge in assisting clients with the selection and supply of accredited, competitive, value-for-money solutions. Since year 2000 we have developed our core product range that now includes sprinkler heads, flexible sprinkler connections, alarm and control valves, pump house equipment, pipe jointing and support products plus special risk products.



Reliable Fire Sprinkler (UK) Ltd

Unit 25, Birches Industrial Estate
East Grinstead RH19 1XZ

Tel: 01342 316800

Fax: 01342 314679

Email: rsandalls@reliablesprinkler.com

Web: www.reliablesprinkler.com

Membership category: Sprinkler head manufacturer

Accreditation: LPCB approved to ISO 9001.

Contact: Roy Sandalls, Sales Manager

Reliable Automatic Sprinkler Company is one of the world's largest producers of automatic fire sprinklers and sprinkler control equipment and a major distributor of sprinkler system components. Founded in 1981 by Frank J Fee, Reliable today, three generations on, is still under the leadership of the Fee family. Reliable is a manufacturer of devices designed to protect life and property from the effects of fire. Three goals are at the heart of Reliable: first, to be the leading worldwide manufacturer of innovative, quality oriented fire sprinklers and system devices; second, to be a leading supplier of the fire sprinkler system components; and third, to be the leader in providing the highest level of operational excellence in customer service. Reliable's international office is based in the UK with sales and distribution centres dealing with more than 50 countries worldwide.

Residential Sprinkler Solutions Ltd

119 Walton Avenue
Harrow
Middlesex HA2 8RA

Tel: 0208 864 3914

Email: info@residentialsprinklers.co.uk

Web: www.residentialsprinklers.co.uk

Membership category: Installer level 1

Accreditation: FIRAS (domestic and residential)

Contact: Paul Moody, Director

Domestic/residential sprinkler system installation throughout the UK.

Risk Consulting (davidrsmith) Ltd

7 Rectory Close
Barby
Rugby CV23 8TY

Tel: 078720 12720

Email: david@riskconsultingltd.co.uk

Web: www.riskconsultingltd.co.uk

Membership category: Associate individual

Contact: David Smith, Managing Director

Project management of sprinkler installations including conceptual drawings/calculations, site inspections and commissioning. Also independent evaluation of existing systems, as well as general fire risk reviews including fire risk assessments.

RMD Fire Control Ltd

The Coach House
22 Lower Stone Street
Maidstone
Kent ME15 6LX

Tel: 01622 682522

Fax: 01622 692675

Email: sprinklers@rmdfire.co.uk

Web: www.rmdfire.co.uk

Membership category: Installer level 2

Accreditation: LPS 1048 level 2 approved sprinkler contractor. LPCB ISO 9001: 2008.

Contact: David Verga

RMD Fire Control Ltd was founded in 1976 by time served engineers skilled in the design and installation of automatic fire sprinkler systems and it has grown steadily over the years into one of the most successful companies in the industry. It carries out works across the whole of the United Kingdom and Ireland. Dedicated to providing quality throughout its organisation, the company operates the Standard ISO 9001/2008 certificated by the Loss Prevention Certification Board.

Roy Young Consultancy

55 Louvain Way
Watford
Hertfordshire WD25 7EH

Tel: 01923 672228
Fax: 01923 447672
Email: royyoung239@ntlworld.com

Membership category: Associate individual

Contact: Roy Young

Royal Berkshire Fire & Rescue Service

103 Dee Road
Tilehurst
Reading
Berkshire RG30 4FS

Tel: 0118 938 4000
Fax: 0118 959 0510
Email: asheg@RBFRS.co.uk
Web: www.RBFRS.co.uk

Membership category: Associate organisation

Contact: Gene Ashe, Head of Prevention/Protection

RBFRS plays a key role in promoting a better understanding of the benefits of sprinklers and will work to encourage building owners and developers to install systems where there is a case for doing so. While the installation of sprinklers is beneficial in any building, we believe our focus should be directed at those premises where the most significant impact can be achieved, such as schools, residential care homes, domestic housing and higher risk commercial premises. We believe more should be done to promote the wider use of sprinklers in these premises and are actively working to support this aim.

**Sale Engineering Products Ltd**

Unit 4, Brookfield Business Park
Brookfield Road
Cheadle
Cheshire SK8 2PN

Tel: 0161 428 1180
Fax: 0161 491 2434
Email: stephen.burr@saleengineering.co.uk

Membership category: Manufacturer/supplier

Contact: Stephen Burr, Director

The company manufactures a very wide range of specialist products for the fire sprinkler industry. Visit the website to browse the breadth of sprinkler products available, too extensive to list here.

Shawston (International) Ltd

Great Norbury Street
Hyde Road
Cheshire SK14 1BW

Tel: 0161 368 4545 and 07793 836 317
Fax: 0161 367 8114
Email: info@shawston.co.uk
Web: www.shawston.co.uk

Also at: London (tel: 01494 460 910) and Glasgow (tel: 0141 778 6975)

Membership category: Manufacturer/Supplier

Contact: Paul Beardow

Shawston designs, manufactures and distributes support systems for fire sprinkler, mechanical and electrical engineers. All brackets are either stocked or manufactured on our sites in Manchester, London and Glasgow. Shawston also carry in-depth stock of steel tube, malleable iron fittings, Victaulic grooved fittings, sprinkler heads and devices, as well as Rapidrop flexibles.



Shutgun (UK) Ltd

Shutgun House
Willow Farm
Long Lane
Hargrave
Chester CH3 7RG



Tel: 01829 781 664

Email: info@shutgun.co.uk

Web: www.shutgun.co.uk

Membership category: Associate trade

Contact: Joanne Wood, UK Manager

The Shutgun is a tool designed to shut off activated fire sprinkler heads instantly. Shutgun gives the fire service and maintenance personnel the ability to minimise water damage from activated fire sprinklers.

Snowdonia Fire Protection

The Old Smithy
Waunfawr
Caernarfon
Gwynedd LL55 4YS

Tel: 01286 650 235

Fax: 01286 650 413

Email: servicemail@snowdonia-fire.co.uk

Web: www.snowdonia-fire.co.uk

Membership category: Associate installer

Contact: Peter Greasley

We install, maintain and design fire safety systems of all sizes, from simple alarm and emergency lighting systems for very small premises to complex systems for large office buildings and factories. Our work is approved by NICEIC and BAFE. Our networked client database means that site histories, false alarm management and outstanding calls are all available instantly for communication to engineers in the field.

**Solent Fire Protection Services Limited**

12 Heritage Business Park
Heritage Way
Gosport
Hampshire PO12 4BG

Tel: 023 9251 0230

Fax: 023 9251 1510

Email: info@solentfire.co.uk

Web: www.solentfire.co.uk

Membership category: Installer level 3

Accreditation: LPS 1048 registered supervised sprinkler installer.

Contact: Simon Tooth, Managing Director

Solent Fire specialise in the installation and maintenance of automatic sprinkler systems. It is an LPS 1048 registered sprinkler installer, recognised to design and install sprinkler systems in compliance with the LPC Sprinkler Rules.

South Wales Fire & Rescue Service

Service HQ
Forest View Business Park
Llantrisant
Pontyclun
South Wales CF72 8LX



Tel: 01443 232700

Fax: 01443 232180

Email: r-oconnell@southwales-fire.gov.uk

Web: www.southwales-fire.gov.uk

Membership category: Associate organisation

Contact: Ritchie O'Connell, Fire Engineering

South Wales Fire & Rescue Service is the regulatory body responsible for fire safety enforcement and fire safety advice across the ten unitary authorities of: Rhondda Cynon Taf; Merthyr Tydfil; Blaenau Gwent; Caerphilly; Monmouth; Torfaen; Newport; Cardiff; the Vale of Glamorgan; and Bridgend. SWF&RS actively promotes and endorses the widespread adoption of automatic water suppression systems as an integral part of wider fire safety solutions.

South Yorkshire Fire & Rescue Service

Command HQ
197 Eyre Street
Sheffield
South Yorkshire S1 3FG

Tel: 0114 253 2463

Fax: 0114 269 1899

Email: rbrason@syfire.gov.uk

Web: www.syfire.gov.uk

Membership category: Associate organisation

Contact: Roger Brason, Legislative Fire Safety

Among the statutory duties of South Yorkshire Fire & Civil Defence Authority is its duty to provide an efficient and effective Fire & Rescue Service to its population. The Service is responsible for delivering fire protection advice to the domestic and commercial sectors, including advice about fire detection, alarm and suppression systems, including the provision of guidance concerning the suitability of automatic sprinkler systems to protect particular premises and risks.

**SPP Pumps Limited**

1420 Lakeview, Arlington Business Park
Theale
Reading
Berkshire RG7 4SA

Tel: 0118 932 3123

Fax: 0118 932 3302

Email: alex_playfair@spppumps.com

Web: www.spppumps.com

Membership category: Manufacturer/Supplier

Accreditation: Pumps approved to LPS 1131.

Contact: Alex Playfair, Fire Pump Division

SPP has been manufacturing and supplying pumps and associated equipment for well over 100 years. Focused on market requirements, it has grown to become a recognised world leader in the design and production of centrifugal pumps and fluid handling systems for a variety of applications across a wide range of industries. The fire protection and firefighting applications include pumps suitable for automatic sprinkler systems, and SPP manufactures pumps that have been approved to LPS 1131. Thus the company has control of and responsibility for the design, construction, testing and performance of fire pump sets incorporating its LPCB approved fire pumps.

Sprinkler Protection UK Ltd

18 Close Hendre
Rhiwbina
Cardiff CF14 6PN

Tel: 02920 610 923

Email: info@sprinklerprotection.co.uk

Web: www.sprinklerprotectionuk.co.uk

Membership category: Associate installer

Contact: Mark Honeyball/Brian Fakir

The company designs, fabricates, installs and maintains sprinkler systems for commercial and residential premises. Its services also include work on: fire pumps; wet and dry risers; hose reels; fire extinguishers; fire detection systems; gaseous systems.

Staffordshire Fire & Rescue Service

Central Risk Reduction
F&RS HQ
Pirehill
Stone
Staffordshire ST15 0BS

Tel: 01785 898 767

Fax: 01785 898 395

Email: andrew.brown@staffordshirefire.gov.uk

Web: www.staffordshirefire.gov.uk

Membership category: Associate organisation

Contact: Ian Sloss, Head of Risk Reduction

Staffordshire Fire & Rescue Service is committed to improving fire safety in commercial and residential premises within the county. The Service strives to deliver effective advice on all fire safety matters such as fire detection, alarm and suppression systems, including guidance on the suitability of automatic sprinkler systems to protect life and property.

Strathclyde Fire & Rescue Service

Service Headquarters
Bothwell Road
Hamilton
Strathclyde ML3 0EA

Tel: 01698 338 544
Fax: 01698 338 277
Email: Alan.smith@strathclydefire.org
Web: www.strathclydefire.org

Membership category: Associate organisation

Contact: Alan Smith

Suffolk Fire & Rescue Service

Endeavour House
8 Russell Road
Ipswich
Suffolk IP1 2BX

Tel: 01502 524106
Fax: 01502 586426
Email: paul.field2@suffolk.gov.uk
Web: www.suffolk.gov.uk/PolicingAndPublicSafety/FireAndRescueServices/

Membership category: Associate organisation

Tata Steel

PO Box 101
Weldon Road
Corby
Northamptonshire NN17 5UA

Tel: 01536 404241
Fax: 01536 404836
Email: simon.bradford@tatasteel.com
Web: www.tatasteeluk.com

Membership category: Manufacturer/Supplier

Contact: Simon Bradford, Area Sales Manager

Tata is a major manufacturer and supplier of steel tubes. Its INFIRE red painted, exact length cut, pregrooved tube is the UK's most popular steel tube for the sprinkler market.

Thameside Fire Protection Co Ltd

Unit 4, Sovereign Park
Cranes Farm Road
Basildon
Essex SS14 3JD

Tel: 01268 597999
Fax: 01268 597998
Email: johnallen@thamesidefire.co.uk
Web: www.thamesidefire.co.uk

Membership category: Installer level 3

Accreditation: LPS 1048 approved sprinkler contractor. LPCB 9001: 2000.

Contact: John G. Allen, Managing Director, Andy Belsey, Managing Director, Darko Petrovic, Operations Director and John L. Allen, Project Director

Design, fabrication, installation and maintenance of all sprinkler systems. All related fire protection work undertaken: fire alarms, extinguishers and dry risers etc. Established 1985.

- System designed to BS 5306, BS EN 12845, BS 9251, and NFPA and FM standards.
- Fabrication facilities
- National coverage; including service contracts and 24-hour breakdowns
- Directly employed installation and service staff
- Special risk work and confined space operations
- Health and safety paramount
- Environmental accreditation to BS 14001
- Emphasis on client satisfaction, which brings 85% repeat business
- All market sectors covered, from High Street retail to petrochemical.



Thermotech Fire Protection Ltd

Unit 10, Bamford Business Park
Reddish
Stockport SK4 1PL

Tel: 07766 513147; 0161 476 5551

Email: ian.grist@thermotech.fireprotection.co.uk

Membership category: Installer level 1

Contact: Ian Grist, Contracts Manager

Thermotech Fire Protection Limited was formed in 2000 to offer retail companies a reliable cost effective planned and reactive maintenance service covering the whole of the UK. Our engineers all have a minimum of 10 years experience within the fire protection industry and are fully conversant with all fixed firefighting systems. The management have all worked through the ranks and can offer a technical back up second to none.

TMEI (Tokio Marine Europe Insurance Ltd)

60 Gracechurch Street
London EC3V 0HR

Tel: 020 7398 3149

Fax: 020 7398 2940

Email: pwall@tokiomarine.co.uk

Web: www.tokiomarine.co.uk

Also at: Birmingham (tel: 0121 654 9220) and Manchester (tel: 0161 638 8701)

Membership category: Associate organisation

Contact: Philip Wall, Deputy General Manager, Corporate Risk Engineering

Founded in 1879, Tokio Marine is recognised as Japan's oldest insurer. Tokio Marine Europe Insurance Ltd is the European arm of the group and is rated AA for financial strength by Standard and Poor's. Tokio Marine Europe provides tailored commercial property, casualty, marine and personal accident/travel insurance solutions for a wide range of business sectors across Europe. Risk management and claims handling are at the core of our operations, and automatic fire protection in the form of sprinklers is regarded by Tokio Marine Europe as an important feature of property loss control, by virtue of the effectiveness and reliability of the systems.

Chris Tomkins

c/o HDI-Gerling Industrial Insurance Co Ltd
Comore Plaza, 20 Colmore Circus
Queensway
Birmingham
West Midlands B4 6AT

Tel: 07837 841 667

Email: chris.tomkins@hdi-gerling.co.uk

Membership category: Associate individual

Contact: Chris Tomkins

Chris Tomkins is an expert in Engineering and Construction insurance at a major industrial insurance company which seeks to distinguish itself through its approach to Underwriting, Claims and Risk Management.

Triangle Fire Systems Ltd

18 Moorhurst Road
St Leonards-on-Sea
East Sussex TN38 9NB

Tel: 01424 812 557

Fax: 01424 812 557

Email: colin@trianglefiresystems.co.uk

Web: www.trianglefiresystems.co.uk

Membership category: Installer level 1

Accreditation: FIRAS (residential and domestic)

Contact: Colin Chantler, Director

Tubetrade plc

Ten Acres
Berry Hill Industrial Estate
Droitwich
Worcestershire WR9 9AQ

Tel: 01905 791000

Fax: 01905 827715

Email: tube@tubetrade.com

Web: www.tubetrade.com

Membership category: Manufacturer/Supplier

Contact: David Howells, Director

Stockists of EN10255 red, self colour and galvanised tubes in plain, grooved or threaded ends. Full cutting service available. Standard stock lengths 6.5m to 8.0m.

Tyco Fire & Integrated Solutions (UK) Ltd

Tyco Park
Grimshaw Lane
Newton Heath
Manchester M40 2WL



Tel: 0800 877 8200

Fax: 0161 455 4541

Email: bwhiteley@tycoint.com

Web: www.tycofis.com

Also at: Aberdeen (tel: 01224 894292), Belfast (tel: 02890 813699), Birmingham (tel: 0121 623 1000), Bristol (tel: 0117 927 7271), Crayford (tel: 01322 552410), Dublin (tel: 00 353 1496 6077), Dudley (tel: 01384 458993), East Kilbride (tel: 01355 225132), Manchest

Membership category: Installer level 4

Accreditation: LPCB certificated installer. LPCB: manufacturer of approved complete range of sprinklers, installation valves, alarm motors and gongs, sprayers and associated equipment.

Contact: Bob Whiteley, Engineering & Standards Manager

Approved component manufacture, system design and installation, inspection, service and maintenance of the whole range of sprinkler systems in accordance with national, European, overseas and international standards to meet all approval requirements. Specialist departments deal with the range of requirements, from small extensions to large multi-installation systems, including special hazard installations employing high velocity, medium velocity water spray and mist systems. Multi-product systems to protect a wide range of hazards is a further specialist activity.

Tyco Fire Protection Products

Tyco Park
Grimshaw Lane
Newton Heath
Manchester M40 2WL

Tel: 0161 875 0400

Fax: 0161 875 0491

Email: kscourfield@tyco-bspd.com

Web: www.tyco-fsbp.com

Membership category: Sprinkler head manufacturer

Contact: Kate Scourfield

Tyco Fire Protection Products is a strategically aligned business unit of Tyco International with globally recognised products sold under leading brands, including ANSUL, CHEMGUARD, DBE, EZCare, FLAMEVision, GRINNELL, HYGOOD, NEURUPPIN, PYRO-CHEM, RAPID RESPONSE, SIMPLEX, SKUM, SPRINKCAD, THORN SECURITY, VIGILANT, Williams Fire & Hazard Control, and ZETTLER. Tyco Fire Protection Products produces fire protection, detection and mechanical building construction solutions for commercial, industrial, institutional, governmental and residential customers. Heavy emphasis is placed on research and development, resulting in innovations and global approvals. Key products include manual firefighting equipment, detection/suppression systems, extinguishing agents, sprinkler systems, valves, piping products and fittings.

**UK Firewatch Limited**

10 Apollo Court
Koppers Way
Monkton Business Park South
Hebburn
Tyne and Wear NE31 2ES

Tel: 0191 495 9525

Fax: 0191 495 9529

Email: nsison@ukfirewatch.com

Web: www.ukfirewatch.com

Also at: Romford (tel: 01708 756248)

Membership category: Installer level 3

Accreditation: LPS 1048 registered supervised sprinkler installer. LPCB ISO 9001: 2000.

Contact: Neil Sison

UK Firewatch is a registered supervised sprinkler installer, under LPS 1048, recognised to design and install sprinkler systems which conform to the LPC Sprinkler Rules incorporating BS 5306: Part 2. Other services include the design and installation of fixed fire suppression systems using:

- CO2
- IG55
- HFC 227ea
- foam
- chemical
- water mist

Full maintenance can be provided for any such system.

Ultra Surefire Ltd

Unit 4, Barnes Wallis Court
Wellington Road
High Wycombe
Buckinghamshire HP12 3PS

Tel: 01494 444123
Fax: 01494 444345
Email: pkemp@ultrafiregroup.co.uk
Web: www.ultrafiregroup.co.uk

Membership category: Associate installer

Accreditation: Apply to USS for information concerning its wide variety of product/system approvals, including LPS 1048 and FIRAS.

Contact: Peter Kemp, Managing Director

Ultra are specialist suppression providers, being experienced installers of high and low pressure water mist, gaseous (including FM200 and inert) and sprinkler systems. Its project management team provides comprehensive design and system support to suit clients' requirements.

**United Kingdom Warehousing Association**

Walter House
418-422 Strand
London WC2R 0PT

Tel: 020 7836 5522
Fax: 020 7438 9379
Email: dg@ukwa.org.uk
Web: www.ukwa.org.uk

Membership category: Associate organisation

Contact: Roger Williams, Chief Executive Officer

A trade association for the third-party logistics sector.

Universal Fixings Ltd

New John Street
Halesowen
West Midlands B62 8HT

Tel: 01384 422284
Fax: 01384 897446
Email: sales@universalfixings.co.uk
Web: www.universalfixings.co.uk

Membership category: Associate trade

Accreditation: NQA certificated to BS EN ISO 9001: 2000

Contact: James Billingham

Manufacturers and suppliers of pipe supports and channel bracketry including non-standard fabrications and presswork. Universal Fixings provides a complete service to sprinkler installers. Its situation in the heart of the West Midlands and at the centre of the national motorway network permits fast and efficient delivery countrywide.

**Victaulic**

Units B1 & B2
SG1 Industrial Park
Cockerell Close
Off Gunnels Wood Road
Stevenage SG1 2NB

Tel: 01438 310690
Fax: 01438 310699
Email: andy.carter@victaulic.be
Web: www.victaulic.com

Membership category: Sprinkler head manufacturer

Accreditation: LPCB, UL/FM, VdS, CNBOP

Contact: Nick Scull

Victaulic is the world's leading producer of grooved-end mechanical pipe joining systems. Since originating the grooved piping method 80 years ago, Victaulic has developed products for many industries with considerable focus on fire protection. Victaulic offers a wide range of products which include: grooved couplings and fittings; sprinkler heads; and valves, including a wide range of wet, dry, deluge and pre-action alarm valves. Victaulic is committed to fire protection.

Viking SupplyNet Ltd

G6 Bellwin House, Bellwin Drive
Flixborough Industrial Estate
Flixborough
Scunthorpe DN15 8SN

Tel: 01724 295300

Fax: 01724 295301

Email: ngroos@vikingcorp.com; sbarratt@vikingcorp.com

Web: www.vikinggroupinc.com

Membership category: Sprinkler head manufacturer

Accreditation: A variety of approvals/certifications from FM, UL, LPCB and VdS.

Contact: Nick Groos, Vice President; Simon Barratt, Sales Manager (UK)

For over 80 years the name Viking has represented global leadership in fire protection. Today, the Viking Group provides the independent fire sprinkler contractor with integrated solutions to any fire protection challenge. The core of Viking's strength is the dedication and commitment of our people. We're passionate about what we do, because fire protection is all we do. We believe that protecting people and property from fire is a purposeful commitment that transcends the bottom line. Our singular, undivided focus gives us a 'professional edge' - that continues to set the Viking Group apart in a very competitive industry.

Warrington Certification Ltd

Holmesfield Road
Warrington
Cheshire
WA1 2DS

Tel: 01925 646666

Fax: 01925 646667

Email: phil.sargent@exova.com

Web: www.warringtonfire.net

Membership category: Associate organisation

Contact: Phil Sargent

Warrington Certification Ltd offers a comprehensive range of certification schemes for fire protection systems including CERTIFIRE for products, FIRAS for installers and certification to ISO 9001: 2000. Warrington Certification Ltd is part of the Exova Warringtonfire Group, the UK's largest independent fire testing, consultancy, research and certification organisation.

West Midlands Fire Service

Fire Service Headquarters
99 Vauxhall Road
Nechells
Birmingham B7 4HW



Tel: 0121 380 6300

Fax: 0121 380 7011

Email: jonathan.herrick@wmfs.net

Web: www.wmfs.net

Membership category: Associate organisation

Contact: Jonathan Herrick, Fire Safety Policy and Partnerships ManagerOfficer

West Midlands Fire Service is responsible for delivering fire safety enforcement and fire prevention guidance within the metropolitan West Midlands, with its fire safety centre personnel serving the seven constituent boroughs of Birmingham, Coventry, Sandwell, Wolverhampton, Solihull, Dudley and Walsall. The importance of fire suppression is emphasised and promoted by its officers in their regular roles in planning and enforcement, while a dedicated fire suppression officer is based at headquarters in an advocacy role, and they offer advice wherever needed. West Midlands Fire Service promotes the wider use of automatic sprinklers in commercial, educational, heritage and residential premises through legislation, partnership, working and lobbying. It has a policy of fitting sprinklers in fire service property when building new or refurbishing existing premises.

West Yorkshire Fire & Rescue Service

Service Headquarters
Oakroyd Hall
Bradford Road
Birkenshaw
West Yorkshire BD11 2DY

Tel: 01274 682311
Fax: 01274 651315
Email: nigel.charlston@westyorksfire.gov.uk
Web: www.westyorksfire.gov.uk

Membership category: Associate organisation

Contact: Nigel Charlston, Senior Fire Safety Manager

West Yorkshire Fire Service works to provide an efficient and effective emergency service to its population. It is responsible for delivering fire protection advice to the domestic and commercial sectors, including advice about fire detection, alarm and suppression systems, including the provision of guidance concerning the suitability of automatic sprinkler systems.

Wiltshire Fire & Rescue Service

Manor House
Potterne
Devizes
Wiltshire SN10 5PP

Tel: 01380 723 601
Fax: 01380 727 000
Web: www.wiltsfire.gov.uk

Membership category: Associate organisation

Contact: Julian Parsons

It is Wiltshire Fire & Rescue's policy to encourage and promote the installation of sprinklers in education, commercial, residential and domestic premises or as part of an engineered fire protection solution for a particular premises. The F&RS's sprinkler team, under the direction of the Group Manager Service Delivery (Protection), will deliver the Service's key policy objectives with respect to sprinkler protection.

Xact Consultancy and Training Limited

1-4 Gainsborough House
Battlebrook Drive
Chipping Camden
Gloucestershire GL55 6JX

Tel: 01386 277 980
Fax: 0845 0941 887
Email: trevor.norwood@xact.org.uk
Web: www.xact.org.uk

Membership category: Associate organisation

Accreditation: Approved Assessment Centre for Awarding Body Industry Qualifications for National and Specialised qualification, Centre Certificate No. 1205035.

Contact: Trevor Norwood, Director

Xact offers both open and in-house courses in:

- BS 9251: 2005, residential and domestic sprinklers for designers and installers;
- checking sprinkler systems for building control, fire service and fire risk assessors;
- Canute FHC design software for sprinkler and watermist systems;
- BS EN 12845 commercial sprinklers for designers.

Courses are approved by BAFSA, FIRAS third-party accreditation scheme and awarding bodies for national and specialised qualifications.

Open courses take place 15 times per year at hotel and conference facilities offering good communication links around the UK.



Zeffire Limited

Broom Street
Newhey
Rochdale
Lancashire OL16 3RY



Tel: 01706 848480

Fax: 01706 848490

Email: jerry.owen@zeffire.com

Web: www.zeffire.com

Membership category: Associate trade

Contact: Jerry Owen

Zeffire Limited supplies quality fire protection equipment to the fire sprinkler industry.

Zurich Risk Engineering

126 Hagley Road
Birmingham B16 9PF

Tel: 0121 697 9131

Fax: 0121 697 9132

Email: stuart.lloyd@uk.zurich.com

Web: www.zurich.co.uk/RiskServices/riskengineering

Membership category: Associate organisation

Contact: Stuart Lloyd

Zurich Risk Services, part of the Zurich Financial Services Group, is a leading provider of risk management solutions. It enables its customers to operate safer, more effective workplaces and, ultimately, reduce the total cost of risk. Its technical and operational risk management products and services sit in a range of risk areas, including property protection. Zurich Risk Services combines 80 years' experience in the safety inspection industry with 25 years' expertise in risk management. It employs over 800 people, of whom 615 are field workers, specialists in safety inspection and risk management.

15 Sprinklers at work

This section of the Yearbook contains summaries of successful activations of sprinkler systems in 2011/12. These demonstrate the continuing value of sprinkler installations across a wide range of premises and protected risks, involving fires which have developed from a considerable variety of causes.

The case studies also serve to demonstrate to all those who have responsibility for managing fire safety (especially those in industry and commerce) that (a) fires can happen in the best regulated organisations and (b) sprinklers have a major part to play in providing 24-hour fire protection throughout a building. Anybody who thinks 'It won't happen to us' might reflect that this could have been the view of those who experienced the fires described below. It is particularly worth noting how many potentially disastrous fires have been stopped instantly by the operation of a single sprinkler head.

The application of sprinklers to different types of premises is the subject of many of BAFSA's Information Files (BIFs). A full list of BIFs appears in chapter 17 of the Yearbook. To follow up this lead, visit the website, www.bafsa.org.uk, click on Publications, view the selection of BIFs, and download the BIF which most closely describes sprinkler use in the premises which you are most concerned to protect.

15.1 Reporting sprinkler stops

Steve Mills, formerly of West Midlands Fire Service, has been enlisted by BAFSA to help develop the existing good relations between the Association and the UK's fire and rescue services. Among Steve's tasks as Fire Service Coordinator will be liaison with F&RSs to encourage them to report fire stops. BAFSA members are also encouraged to report sprinkler stops by completing and returning to Steve Mills a sprinkler activation report form. A copy of a form, based on an original version emanating from CFOA's Automatic Water Suppression Systems Group, is available in the Members' Resources area of the BAFSA



website. The form can also be found on the National Fire Sprinkler Network website, at www.nfsn.co.uk/downloads.php.

15.2 Sprinkler stops

Bedroom fire, Studley Green, Wiltshire: 6 January 2011

On Thursday, 6 January 2011, sprinklers in a property in Kingswood Chase activated when fire broke out in a first floor bedroom. Two crews from Trowbridge fire station were called to the address at 6.38pm, but found the blaze had been extinguished by the sprinklers. As a result, the fire damage was minimal, and there was no risk to the house's occupants.

Retail premises, shopping centre, Peterborough: 11 January 2011

A display of cards was deliberately ignited at lunchtime in the Clinton Cards shop at the Queensgate Shopping Centre in Peterborough, on 11 January 2011. Hundreds of shoppers were evacuated from the centre. Four fire appliances were called to the incident but the fire had been quickly extinguished by the sprinkler system.

Supermarket, Plymouth: 26 January 2011

A fire broke out in the café of a large supermarket in Plymouth on the evening of 26 January 2011, following a fault with a kitchen refrigeration unit. The sprinkler system suppressed the fire within minutes. Two fire crews were called to the site at 1.00am. The shop was closed at the time of the fire but there were around 20 members of staff stacking shelves and receiving goods; it opened for business the following day.

Plastics factory, Haverhill, Suffolk: January 2011

In late January 2011, what could have been a very serious fire was averted thanks to a sprinkler system at a plastics factory in Suffolk. Two engines from Haverhill were called after the building became heavily smoke logged. The fire had started in a recycling machine at the factory but firefighters were required to spend only 30 minutes at the scene, thanks to the fire having been extinguished by a single sprinkler head.

Centre for the homeless, Greenock: 11 February 2011

A sprinkler system saved the lives of 30 people who were inside a homeless shelter when fire broke out on 11 February 2011. A chip pan fire started at 2.00am in the emergency accommodation wing of the centre but, thanks to the sprinklers, no lives were lost and the fire was extinguished before the arrival of the F&RS. The sprinkler system had been installed in 2009 during an overhaul of the council-run facility.

Supermarket, Pudsey: 26 March 2011

On 26 March 2011 hundreds of shoppers in this superstore were briefly evacuated when a fire, which started as an electrical fault on a forklift truck, spread to racking. Staff raised the alarm and the store was quickly evacuated. The store is a 4000m² building over two floors and two West Yorkshire F&RS pumping appliances were sent to the incident. Firefighters found that a single sprinkler head had activated, controlling and containing the fire to a small area of under 20m. After about 90 minutes the store had re-opened.

Supermarket logistics centre, Stoke on Trent: 31 March 2011

On 31 March 2011 a fire occurred at very large distribution centre close to the A50 in Stoke on Trent. The fire was caused by a fault in a fork-lift truck. As the fire developed, near to a loading bay, a single sprinkler head activated and controlled the fire, minimal fire service intervention was required and the very large logistics centre suffered very little disruption. The sprinkler system had been required for Building Regulations compliance given the size of the building.

Plastics industry, Gloucestershire: 25 April 2011

At 0521hr on 25 April 2011 a call was received from an automatic fire alarm at this factory in Lydney. On arrival, crews from Lydney Fire Station discovered that the low pressure alarm was activating on the sprinkler system. Having gained entry, crews were faced with an area of 90m x 45m, completely smoke-logged. It became evident that as the fire developed, near the top of the racking system in the warehouse, a single sprinkler head had activated and suppressed the fire, to the extent that minimal fire service intervention was required. Four firefighters, wearing breathing apparatus and using one hosereel, damped down the fire.

Tyre factory, Wiltshire: 14 May 2011

A fire occurred at a factory in Melksham on 14 May 2011. Four pumping appliances, one control unit and an aerial appliance from Bath were mobilised to the incident. Fire crews wearing breathing apparatus faced difficult conditions in locating the fire, with hoses having to be pulled 30 metres inside the building, although it emerged that the fire sprinkler system had successfully held the fire in check.

Dwelling, Croydon: 24 May 2011

At 1405hr on 24 May 2011, London Fire Brigade attended a fire in a property in a residential development in Croydon. On entry, firefighters noticed that a domestic sprinkler system had actuated, containing the fire to its room of origin. Damage was limited to about 5m² since the fire had been extinguished

by the single sprinkler head in the room. The sprinkler system was installed in one of five homes in the development, per recommendations in Part B5 of Approved Document B to the Building Regulations, since there is restricted fire service access to the properties.

Office within retail premises, Swansea: 6 June 2011

A very interesting sprinkler stop involved a single head on a service main system in a retail chemist's premises in a shopping centre. No firefighting activity was required since the firefighters found the fire extinguished when they arrived. There were five persons at work in the 1900m² shop at the time of the fire. One sprinkler head on the OH3 mains fed system was reported to have actuated and it controlled the fire in less than 3 minutes: there was fire damage to only 5% of the room.

Recycling plant, Neath/Port Talbot: 8 July 2011

This incident was at a £6million household recycling plant in Neath/ Port Talbot on 8 July 2011. The 1000m², 15m high building was classified as a special hazard and it had a pump and tank supply to the sprinkler system. Seven heads operated and extinguished the fire, which destroyed a conveyor belt supplying the plant's boiler. It was reported that the fire was under control in about 10 minutes but that almost 10% of the building was damaged. Operations were disrupted for 14 days while repairs were made. The two week outage in the case of this fire demonstrates very neatly the possible consequences of not fitting fire suppression over the conveyor belt.

Shopping centre, Salford: 9 August 2011

On Tuesday, 9 August 2011 a severe fire occurred in a shop unit at the Salford Centre, Manchester, during the riots that affected the city. The centre manager indicated that the sprinklers activated and although the system struggled with the size of the fire it contained it until firefighters arrived. The fire was contained to the unit and the centre continued to trade.

Bedding factory, Newcastle-upon-Tyne: 13 August 2011

At 0013hr on 13 August 2011 Tyne & Wear F&RS were called to a bedding factory owned by the City Council. Since the call originated from a fire detection system the F&RS sent one appliance. On arrival there was no obvious sign of fire but inside the main entrance door a small amount of smoke was visible and water was seen to be flowing from a toilet off the reception area. Investigation revealed the origin of the fire, an extractor fan in the toilet ceiling. Damage was limited to the extractor fan and wiring and also slight smoke and heat damage within the toilet. There were melted plastic droplets on the floor and water damage to the reception area carpet. The sprinkler system had successfully

extinguished the fire by the operation of one sprinkler head. The whole incident from call to stop was completed in 25 minutes.

Residential conversion, Bristol: 21 August 2011

At around 2330hr on 21 August 2011, a fire occurred in a flat on the 6th floor of the Robinson Building, a residential conversion of one of Bristol's former landmark industrial buildings. Two sprinkler heads on the BS 9251 system had actuated to control what appeared to be a multi-seated fire. The sprinkler system restricted the fire so well that only 5% of the flat was damaged and the fire was classified as 'out on arrival'.

Bookshop, Guildford: 25 September 2011

At just after 7pm on Sunday, 25 September 2011, a fire occurred in a bookshop in Guildford High Street. The shop, with a footprint of 400m², extends over three floors and the fire was believed to have started in the coffee shop area. The shop's sprinkler system successfully actuated, the alarm was raised and one fast-response sprinkler head operated to control the fire. Surrey F&RS responded with 40 personnel attending and 8 breathing apparatus wearers; one hose-reel was used to extinguish the fire. Firefighters were on the premises for about one hour. The fire caused damage to about 5% of the shop and, following clear up operations, the shop was able to reopen on Tuesday, 27 September.

Timber processing factory, Boat of Garten: 1 November 2011

A sprinkler system saved a timber-processing factory in Boat of Garten, Inverness-shire. At around 07:45hr on 1 November 2011 a failure occurred in an acetylene torch manifold. A fire took hold in the workshop area and the Highlands and Islands F&RS was called. One head activated to control the fire and just 10% of the workshop was damaged. The incident had the potential to heat the acetylene cylinder and cause a massive explosion. However, the sprinkler system not only controlled the fire but cooled the cylinder, preventing such an outcome.

Student accommodation, Birmingham: 31 January 2012

At 08:11hr on Tuesday, 31 January 2012, West Midlands Fire Service crews attended a fire in a 6-storey block of student accommodation in Bagot Street, Birmingham. A fire had occurred in the kitchen area of one of the student 'pods' in the recently built block. Each pod contains seven bedrooms with en-suite facilities and a communal lounge and cooking facilities. Each floor comprises a number of pods, each accessed from the main corridor/ means of escape. The fire was found to be 'out on arrival', as a single sprinkler head had activated and extinguished the fire.

What if the thing
you needed most,
wasn't there...



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2013

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Stand 405F

Supermarket, Llanelli: 31 January 2012

About 85 people were evacuated from a supermarket in Llanelli after a blaze described by firefighters as 'substantial'. Some 60 customers and 25 staff evacuated at 20:15hr on Wednesday, 22 February 2012, where a fire had started in a food aisle in the centre of the supermarket. The store's sprinkler system kept the fire in check and 'performed exactly as they should have' until crews arrived.

Paper board mill, Workington: 24 February 2012

A fire was reported on 24 February 2012 at a paper factory in Workington, Cumbria. The fire started at the dry end of a BM1 paper-machine. Two sprinkler heads located on the BM1 operated to control and extinguish the fire. As the sprinkler heads were very close to the seat of the fire, it was quickly extinguished, minimising the machine's downtime and the subsequent clear up.

Plastics factory, Northampton: 1 March 2012

At around 18:36hr on Thursday, 1 March 2012 a fire occurred in a plastic shredding machine at a manufacturer of rigid plastic packaging and plastic containers in Corby, Northamptonshire. The machine, located in a 25m² building, is an integral part of the manufacturing process at the company, which had 17 staff on duty at the time. The factory has a wet-type sprinkler system with mains/tank supply. One sprinkler head activated and the fire was controlled in 15 minutes. A stop message was sent to Fire Control after 43 minutes. After clean-up operations, normal service was resumed at the factory, and the fire had had minimal impact on production.

Mill, Batley: 27 March 2012

On the night of 27 March 2012 a fire occurred in a hopper in the felt production building of a mill premises in Batley, West Yorkshire. The premises are protected by a sprinkler system and five 68C heads operated to quell the fire when felt material within the hopper ignited. West Yorkshire F&RS attended the incident and the sprinkler system was reinstated within a short time after the fire.

Plastics Factory, Kettering: 29 March 2012

At 00:30hr on 29 March 2012 Northamptonshire F&RS was called to a fire in a factory on an industrial estate in Kettering. The fire started in a foam extruding machine and quickly spread to engulf the entire machine and nearby combustible materials. Staff fought the fire with two dry powder fire extinguishers but the burning plastic/foam product caused rapid fire growth and the staff had to abandon their attempts. Within minutes the factory's



tyco

sprinkler system activated, controlled the fire and prevented any further fire spread. When the F&RS arrived at 00:38hr the sprinkler system had the fire fully under control, leaving the fire crew to damp down a couple of hotspots on the floor.

Joinery/metalworking factory, Birmingham: 2 April 2012

At 10:55hr on Monday, 2 April 2012, West Midlands Fire Service were called to a joinery/metalworking factory in Birmingham where a fire had occurred in a fine dust extraction unit. The occupier had noticed smoke coming from the unit and said that two sprinkler heads adjacent to the units had activated very quickly and controlled the fire until the arrival of the fire service. The whole of the factory has sprinkler protection but these particular heads had been installed at the request of the premises' insurer following a risk assessment. The fire was contained within the extract system and the sprinklers prevented it from spreading beyond the immediate area of ignition. Little damage was reported.

Entertainment Complex, Newcastle upon Tyne: 3 April 2012

Tyne and Wear F&RS reported that, in the early hours of 3 April 2012, there was a successful sprinkler activation at a large leisure and retail complex in Newcastle city centre. The incident, notified to the FRS at 00:35hr, was caused by an electrical fault within an electrical intake cupboard. The centre, built in 2002 at a cost of £80m and covering almost 20,000m², is divided into 19 units consisting of restaurants, public bars, nightclubs and a 16 screen multi-screen cinema. When the fire alarm activated 200 persons were safely evacuated. Three pumping appliances with 12 crew were dispatched to the incident. Upon arrival crews found one sprinkler head in the room of origin had activated and had suppressed the fire. Despite the fact that the fire was in the electrical intake the bar was fully operational the following day.

Furniture factory, Long Eaton: 14 April 2012

At 01:11hr on 14 April 2012, Derbyshire F&RS was mobilised to a building fire in Long Eaton. The alert had been raised by a passerby who had heard an alarm activating and had seen smoke in the area. The building was brick built, single storey, approximately 20m x 40m and was used for the manufacture of furniture/upholstery. Crews were confronted by a smouldering fire which had been suppressed by the activation of the sprinkler system and contained to an industrial size wheelie bin.



Educational premises, Sheffield: 2 May 2012

At 00:23hr on 2 May 2012, fire crews were called to an incident at a new academy. The fire occurred in a storeroom at the school where an extractor unit was believed to be the source of ignition. One sprinkler head on the tank fed system operated and controlled the fire. Eighteen F&RS personnel attended and completed extinguishment within 20 minutes of arriving. The disruption caused was small and the school reopened as normal the following day.

Garment factory, Chesterton: 3 May 2012

Sprinklers helped to extinguish a fire at the factory in Chesterton in the early hours of 3 May 2012 after a fire broke out in a baling machine. Responding units automatically alerted to the fire at around 01:20hr by the factory's automatic fire alarm system found on arrival that the sprinkler system had activated and contained the fire. Factory staff were able to resume work at 04:30hr.

Dwelling, Hull: 7 May 2012

Just under five weeks after being fitted, a domestic watermist system, installed in the home of an 81 year old woman, is believed to have saved her life after an overheating chip pan caused its actuation.

Car component factory, Coventry: 9 May 2012

A fire sprinkler system helped to prevent the spread of a major fire at a car components manufacturing facility in Canley near Coventry on 9 May 2012. The fire originated in a mezzanine level electrical switchroom measuring 20m x 20m, which was protected by multiple jet controls. These activated and operated cut-off sprinkler heads located over the switchroom entrance doorways. Firefighters intervened to extinguish the suppressed fire, which was reportedly caused by a transformer fault.

Restaurant, Entertainment Complex, Portsmouth: 22 May 2012

On 22 May 2012, at 09:15hr, Hampshire F&RS were called to a restaurant at Gunwharf Quays to tackle what was described as a large blaze which reportedly started in the ventilation system in the roof space of the restaurant. While the internal fire was largely controlled by the restaurant's sprinkler system, the F&RS had to tackle the external fire from the roof.

Flour mill, Stockport: 1 June 2012

At 05:00hr on 1 June 2012 Greater Manchester fire crews from Whitehill, Stockport, Hyde and Offerton and an operational support unit were called to a flour mill on Lancashire Hill, Stockport, where there was a fire involving a



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hot air compressor, part of the ventilation system on the ground floor of the main flour mill. Sprinklers fitted inside the building had activated as result of the fire, controlling it until crews arrived to tackle it fully.

Shopping centre, Pudsey: 6 June 2012

At 05:10hr on 6 June 2012, West Yorkshire F&RS responded to a fire call to a two-storey retail centre in Pudsey. On arrival firefighters used a hose reel to extinguish a residual fire on the ground floor, the fire having been controlled by the store's sprinkler system. The fire started in a freezer unit in the food court and the sprinkler system activated at the same time as the fire was spotted by a security officer who operated a fire call point. The fire was successfully contained by the operation of five sprinkler heads (68C fast response). Fire damage was limited to 5m² in the room of origin (ground floor) and there was no fire damage beyond that area in the store's 1300m² ground floor footprint. The store reopened the next day.

Sawmill, Newbridge, Powys: 7 June 2012

At 02:03hr on 7 June 2012, Mid and West Wales F&RS attended a fire at BSW Sawmills, Newbridge on Wye, Powys. The fire had been detected by the premises' automatic fire detection system and relayed to the F&RS via an alarm receiving centre. The sawmill is of timber-frame/ timber-wall construction with a steel clad roof and measures approximately 50m x 30m x 9m. The fire was within fire-resisting compartmentation surrounding the sawmill machinery, which was in turn protected by an automatic fire detection system augmented by sprinkler heads. The fire had already been suppressed by the actuation of two sprinkler heads. Although there was some fire damage to the wood-processing machinery the fire had not travelled beyond the fire-resisting compartmentation.

Chemical factory, Banbury: 7 June 2012

At 22:00hr on 20 June 2012 firefighters from Oxfordshire F&RS was called to a chemical fire at a factory in Banbury. It took crews 2 hours to bring the blaze under control. The F&RS described it as a 'serious incident', and added, 'The sprinkler system made a significant difference and prevented the fire developing significantly and enabled us to concentrate on dealing with potential chemical issues'.

Shopping Centre, Worcester: 29 June 2012

At approximately 01:30hr on 29 June 2012, two sprinkler heads operated and contained (virtually extinguishing) a fire in a basement, containing stock for a stationery store. The shop was open for business as usual at 09:30hr on 29 June.

Theatre, St Helens: 5 July 2012

Merseyside F&RS reports that at 08:32hr on 5 July 2012, the sprinkler system in a theatre in St Helens operated to control a fire in the building, which was unoccupied at the time. The sprinkler system is believed to date from the 1950s. The sprinklers were so effective that one head was enough to ensure the fire caused minimal damage to the room of origin. Rehearsals for a school talent show, scheduled for later that day, were able to go ahead despite the fire.

Hotel, Sheffield: 14/15 July 2012

A fire in a cleaner's cupboard of a Sheffield city centre hotel on the night of 14/15 July 2012 was extinguished by the operation of a single sprinkler head. The system was reinstated almost immediately and was in full working order three hours after operation. The fire service was not called.

16 Formulae, SI units and conversion factors

This part of the Yearbook is a developing section in which will be included various technical formulae and related information of value to a wide audience in the sprinkler industry. Suggestions for additional items will be gratefully received by the editor.

16.1 Formulae

Bernoulli's theorem

Bernoulli's principle states that, in the flow of a fluid (a liquid or gas), an increase in velocity occurs simultaneously with a decrease in pressure. That statement is a simplification of Bernoulli's equation (below) which plots the situation at any point on a streamline of the fluid flow and applies the law of conservation of energy to the flow. Put another way, the total energy of the flow at any point along a horizontal pipe is equal to the sum of the pressure head, the velocity head, and the elevation head in the absence of friction. This is a principle of considerable importance to those concerned with flow in sprinkler pipework.

$$z + \frac{p}{dg} + \frac{v^2}{2g} = h$$

z = potential head or elevation
 p = pressure
 v = velocity
 g = acceleration of gravity
 d = density of fluid
 h = total head

If friction losses are ignored and no energy is added or removed from the pipe the total head h in the above equation will be constant for any point in the fluid. However, in practice, energy will increase and decrease with the effect of pumps and friction loss and this must be included in Bernoulli's equation. All practical formulae for the flow of fluids are derived from Bernoulli's theorem with modifications to account for losses due to friction.

Hazen-Williams formula for calculating the friction loss in pipework

The Hazen-Williams formula is an empirical equation and has long been used for calculating the friction loss in pipework for fire sprinkler systems. This equation uses the coefficient C to specify a pipe's roughness, which is not based on a function of the Reynolds number, as in other pressure loss equations. This, however, has the disadvantage that the equation can only be used for water within certain temperature limits and velocities. (If the

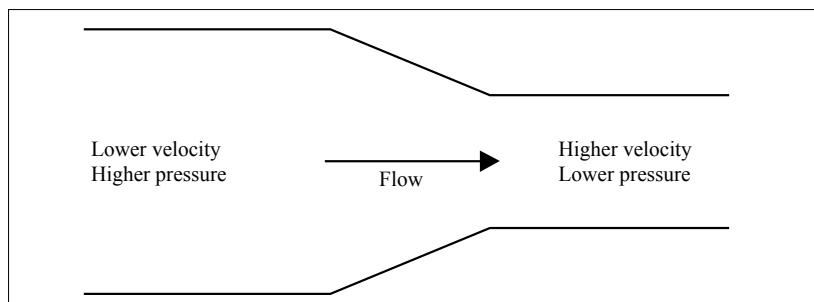


Fig. 17.1. If fluid flows at constant volume along a pipe which has a constriction, then it flows at greater velocity in the narrower pipe, where its pressure will be less.

sprinkler system is to use additives or will be subject to unusual temperature conditions then the Darcy-Weisbach equation may be more appropriate.)

$$p = 6.05 \left(\frac{Q^{1.85}}{C^{1.85} \times d^{4.87}} \right) 10^5$$

p = pressure loss in bar/m
 Q = flow through the pipe in L/min
 C = friction loss coefficient
 d = internal diameter of pipe in mm

Value of C for use in the Hazen-Williams formula

Listed in the table below are values for the coefficient C , which can be used in the Hazen-Williams formula for different design standards. The value of C represents a pipe's roughness, with higher values of C giving lower friction losses. The values given in the design standards allow for degradation of the pipe; for instance, new cast-iron pipe has a C coefficient of 130 and EN 12845 gives the value of 100, which is equivalent to a pipe which is about 20 years old.

Type of pipe	C*	C (EN 12845)	C (BS 9251)	C (NFPA 13)
Cast-iron	64-130	100	-	-
Cement-lined cast-iron		130	-	140
Copper	130-140	140	140	150
Ductile iron	120	110	-	100
Galvanised steel	120	120	-	120
Mild steel	120-150	120	120	120
Mild steel (dry and pre-action systems)		-	-	100

Plastic (CPVC, MDPE)	140-150	-	150	150
Spun cement		130	-	-
Stainless steel	140	-	150	

* Typical range of values for C for use with the Hazen-Williams formula based on common hydraulic engineering practice. This data has been compiled from several sources.

A simplified method for approximating pressure loss in pipework using the Hazen-Williams formula is to use the formula $p = kq^{1.85}$ in conjunction with the table below.

Nominal diameter mm	EN 10255 Series M		EN 10255 Series H		CPVC	
	ID mm	C = 120 value of k	ID mm	C = 120 value of k	ID mm	C = 150 value of k
20	21.70	2.67 x 10 ⁻⁵	20.5	3.52 x 10 ⁻⁵	22.20	1.58 x 10 ⁻⁵
25	27.30	8.73 x 10 ⁻⁶	25.7	1.17 x 10 ⁻⁵	27.97	5.14 x 10 ⁻⁶
32	36.00	2.27 x 10 ⁻⁶	34.4	2.83 x 10 ⁻⁶	35.41	1.63 x 10 ⁻⁶
40	41.90	1.08 x 10 ⁻⁶	40.3	1.31 x 10 ⁻⁶	40.59	8.37 x 10 ⁻⁷
50	53.10	3.42 x 10 ⁻⁷	51.3	4.05 x 10 ⁻⁷	50.88	2.79 x 10 ⁻⁷
65	68.90	9.62 x 10 ⁻⁸	67.1	1.09 x 10 ⁻⁷	61.54	1.10 x 10 ⁻⁷
80	80.90	4.40 x 10 ⁻⁸	78.9	4.97 x 10 ⁻⁸	74.93	4.23 x 10 ⁻⁸
100	105.30	1.22 x 10 ⁻⁸	103.5	1.33 x 10 ⁻⁸		
150	155.10	1.85 x 10 ⁻⁹	154.3	1.90 x 10 ⁻⁹		

Example: to find the pressure loss in 25m of 50mm EN 10255 Series M pipe at a flow rate of 500 L/min.

Look up the value of k for 50mm pipe in the table. In this example it would be 3.42×10^{-7} .

Multiply this value by the flow rate $500 \cdot 3.42 \times 10^{-7} \times 500 = 1.71 \times 10^{-4}$ pressure loss, bar/m.

Multiply the value by the pipe length, $1.71 \times 10^{-4} \times 25 = 0.004275$ (pressure loss in the pipe in bar) or 4.275mbar.

Velocity in pipe

Some design authorities limit the velocity through pipes and valves in sprinkler systems; this is the case with EN 12845, although NFPA and FM

do not have any restriction. The case for limiting velocity is that the Hazen-Williams formula is less accurate outside its normal range and equivalent pipe lengths for fittings, which are generally used, start to lose their validity. Some authorities believe that velocity is self-limiting since pressure losses increase exponentially as velocities increase, so pipe size must be increased to make use of available water supply pressure.

$$v = 21.22 \times \frac{Q}{d^2}$$

v = velocity m/s
 Q = flow of water in L/min
 d = internal diameter of pipe in mm

EN 12845 limits velocity as follows: 6m/s through valves and flow switches; 10m/s at any other point in the system.

The following table lists the maximum flows in litres per minute which can be obtained through steel pipework to EN 10255 specification for both 6m/s and 10m/s velocities.

Nominal diameter mm	EN 10255 Series M 6m/s	EN 10255 Series M 10m/s	EN 10255 Series H 6m/s	EN 10255 Series H 10m/s
20	133	222	119	198
25	211	351	187	311
32	366	611	335	558
40	496	827	459	765
50	797	1329	744	1240
65	1342	2237	1273	2122
80	1851	3084	1760	2934
100	3135	5225	3029	5048
150	6802	11336	6732	11220

Flow from sprinkler head or nozzle

The discharge from a sprinkler head can be calculated from the formula below.

$$Q = K \times \sqrt{P}$$

Q = flow in L/min
 K = k-factor for head/nozzle
 P = pressure in bar

For standard type sprinkler heads many design standards specify the k-factors and minimum pressures which can be used for different Hazard classifications and design densities. For all other types of sprinkler heads the

manufacturers' data sheets should be referred to for the k-factor and minimum head pressure.

EN 12845 specifies the following k-factors for sprinkler heads

Hazard class	Design density mm/min	k-factor L/min/bar ^{0.5}	Minimum pressure bar
Light Hazard	2.25	57	0.70
Ordinary Hazard	5.00	80	0.35
High Hazard Process	£ 10	80 or 115	0.50
High Hazard Storage Ceiling or roof sprinklers	> 10	115	0.50
High Hazard Storage In-rack sprinklers	> 10	80 or 115	2.00

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NFPA 13: *Installation of sprinkler systems*, National Fire Protection Association, USA.

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16.2 SI units and conversion tables

SI units

The International System of Units (SI units) is founded on seven base units representing physical entities which are mutually independent (see Table 16.1).

Table 16.1. SI base units.

Base quantity	Name	Symbol
length	metre	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
luminous intensity	candela	cd
amount of substance	mole	mol

Derived units are SI units formed by combining base units according to the rules or formulae linking the corresponding physical quantities (see Table 16.2).

Table 16.2. SI derived units.

Derived quantity	Name	Symbol
area	square metre	m^2
volume	cubic metre	m^3
speed, velocity	metre per second	m/s
acceleration	metre per second per second	m/s^2
mass	kilogram	kg
density	kilogram per cubic metre	kg/m^3

Engineers and scientists are accustomed to working with calculations involving very small or very large quantities and use prefixes as shorthand for such quantities. Table 16.3 gives examples of such prefixes.

Table 16.3. Internationally defined prefixes.

Meaning	Name	Symbol	Power of ten	Factor as decimal number
Trillion	exa	E	10^{18}	1 000 000 000 000 000 000
Thousand billion	peta	P	10^{15}	1 000 000 000 000 000
Billion	tera	T	10^{12}	1 000 000 000 000
Thousand million	giga	G	10^9	1 000 000 000
Million	mega	M	10^6	1 000 000
Thousand	kilo	k	10^3	1 000
Hundred	hecto	h	10^2	100
Ten	deca	da	10^1	10
Tenth	deci	d	10^{-1}	0.1
Hundredth	centi	c	10^{-2}	0.01
Thousandth	milli	m	10^{-3}	0.001
Millionth	micro	m	10^{-6}	0.000 001
Thousand millionth	nano	n	10^{-9}	0.000 000 001
Billionth	pico	p	10^{-12}	0.000 000 000 001
Thousand billionth	femto	f	10^{-15}	0.000 000 000 000 001
Trillionth	atto	a	10^{-18}	0.000 000 000 000 000 001

Conversion tables**Length (SI and British Imperial units)**

mm	cm	m	in	ft	yd
1	0.1	0.001	0.0394	0.0033	0.0011
10	1	0.01	0.3937	0.0328	0.0109
1000	100	1	39.3701	3.2808	1.0936
25.4	2.54	0.0254	1	0.0833	0.0278
304.8	30.48	0.3048	12	1	0.3333
914.4	91.44	0.9144	36	3	1

Area (SI and British Imperial units)

mm²	cm²	m²	in²	ft²	yd²
1	0.01	10 ⁻⁶	1.55 x 10 ⁻³	1.076 x 10 ⁻⁵	1.196 x 10 ⁻⁶
100	1	10 ⁻⁴	0.155	1.076 x 10 ⁻³	1.196 x 10 ⁻⁴
106	10 000	1	1550	10.764	1.196
645.16	6.4516	6.452 x 10 ⁻⁴	1	6.944 x 10 ⁻³	7.716 x 10 ⁻⁴
92 903	929.03	0.093	144	1	0.111
836 127	8361.27	0.836	1296	9	1

Volume (SI and British Imperial units)

mm³	cm³	m³	in³	ft³	yd³
1	0.001	10 ⁻⁹	6.1 x 10 ⁻⁵	3.531 x 10 ⁻⁸	1.308 x 10 ⁻⁹
1000	1	10 ⁻⁶	0.061	3.531 x 10 ⁻⁵	1.308 x 10 ⁻⁶
10 ⁹	10 ⁶	1	61 024	35.31	1.308
16 387	16.39	1.639 x 10 ⁻⁵	1	5.787 x 10 ⁻⁴	2.143 x 10 ⁻⁵
2.832 x 10 ⁷	2.832 x 10 ⁴	0.0283	1728	1	0.0370
7.646 x 10 ⁸	7.646 x 10 ⁵	0.7646	46 656	27	1

Liquid measure (SI, British Imperial and US units)

m³	l (or L[*])	ml	UK gallon	US gallon	ft³
1	1000	106	220	264.2	35.3147
0.001	1	1000	0.22	0.2642	0.0353
10 ⁻⁶	0.001	1	2.2 x 10 ⁻⁴	2.642 x 10 ⁻⁴	3.53 x 10 ⁻⁵
0.00455	4.546	4546	1	1.201	0.1605
0.00378	3.785	3785	0.8327	1	0.1337
0.0283	28.317	28 317	6.2288	7.4805	1

* The lower case letter l is frequently seen as the abbreviation for litre but confusion can arise in calculations because 'l' resembles the number 1, so the letter L is often used in technical publications to avoid confusion.

Velocity (SI and British Imperial units)

m/s	ft/s	m/min	ft/min	km/h	mile/h
1	3.281	60	196.85	3.6	2.2369
0.305	1	18.288	60	1.0973	0.6818
0.017	0.055	1	3.281	0.06	0.0373
0.005	0.017	0.305	1	0.0183	0.01136
0.278	0.911	16.667	54.68	1	0.6214
0.447	1.467	26.822	88	1.6093	1

Delivery volumes (SI, British Imperial and US units)

l/s	l/min	m³/h	ft³/h	UK gal/min	US gal/min
1	60	3.6	127.133	13.2	15.85
0.017	1	0.06	2.1189	0.22	0.264
0.278	16.667	1	35.3147	3.666	4.403
0.008	0.472	0.0283	1	0.104	0.125
0.076	4.546	0.2728	9.6326	1	1.201
0.063	3.785	0.2271	8.0209	0.833	1

Pressure and pressure head (mixed units)

Pa*	mbar	bar†	lbf/in²	ft H₂O	m H₂O
1	0.01	10 ⁻⁵	1.45 x 10 ⁻⁴	3.3 x 10 ⁻⁴	1.02 x 10 ⁻⁴
100	1	0.001	0.0145	0.033	0.0102
105	1000	1	14.5	33.455	10.2
6895	68.95	0.069	1	2.307	0.703
2989	29.89	0.03	0.433	1	0.305
9807	98.07	0.098	1.42	3.28	1

* The name 'pascal' (Pa) has been given to the unit N/m² (newtons per square metre).

† International standard atmosphere: 1atm = 101325Pa or 1.01325bar.

Technical atmosphere: 1at = 0.98066bar.

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17 BAFSA publications

Over the last seven or eight years BAFSA has increased its output of information, both for its members and for a wider audience in support of its mission to promote the wider, more effective and efficient use of fire suppression systems. This role, of providing authoritative information on the benefits of sprinkler systems and how sprinklers can play a significant role in protecting people, property and the environment from the devastating effects of fire, is key to BAFSA's successes. That information comes in a number of broad categories and this chapter contains an up-to-date account of what is available. It is notable that, increasingly, BAFSA is making information available free of charge, via its website, to a range of interested parties, not just BAFSA members.

17.1 Electronic newsletter: Sprinkler Focus

Issued up to three times a year, *Sprinkler Focus* serves to keep BAFSA members abreast of a wide range of sprinkler-related topics. It reports on technical issues, including UK and international Standards, it deals with current affairs which have a sprinkler interest (such as legislation and government initiatives). It contains summaries of sprinkler stops and also cites major fires where sprinklers might have made a difference had they been present. It also contains a 'Member News' section devoted to association membership, including a timetable of upcoming events. All BAFSA members are recipients of the e-letter, and it can be made available to any interested party by application to info@bafsa.org.uk. It is a good round-up of sprinkler information for the UK and beyond.

17.2 Sprinkler News via the web

Sprinkler News is a continuously updated news resource lodged on the BAFSA website. Here it is possible to keep abreast of developments on a full range of sprinkler-related topics, covering matters such as legislation, fire industry news, sprinkler stops, technical reports and much more. Register on the website to receive continuous updates. Bi-monthly summaries of *Sprinkler News* together with other useful and interesting information are also produced and widely circulated

17.3 BAFSA Information Files (BIFs)

BIFs are moderately short A4 documents which cover a range of sprinkler topics, some premises-related and others on technical subjects. All are written in plain English, presented and illustrated appropriately, to inform the non-expert audience. A complete list of titles follows (see Table 18.1), and any BIF can be downloaded from www.bafsa.org.uk/publications. Free single copies of any BIF will be provided on request. Multiple copies for use at conferences and seminars will also be provided free of charge subject to availability. BAFSA also has available a looseleaf binder in which BIFs can be filed – enquiries to info@bafsa.org.uk, please.

Table 17.1. List of BAFSA Information Files*

BIF No.	Title	Issue date
1	Schools (issue 3)	Jan 2010
2	Dwellings (issue 2)	May 2004
3	Heritage buildings and sprinklers	Mar 2002
4	Retail premises	Jun 2003
5	Warehouses	Jun 2003
6	Frequently asked sprinkler questions (issue 3)	Nov 2011
7	Hotels	Jly 2008
8A	Flexible connections	Nov 2007
8B	Pumps and pumphouses	Nov 2008
8C	Sprinkler heads	May 2010
8D	Use of CPVC pipe	Nov 2007
8E	Steel tube and fittings for sprinklers	May 2010
8F	Water storage tanks	Mar 2010
9	Water mist (issue 2)	Nov 2011
10	Retrofitting sprinklers	In preparation
10A	Sprinklers in car parks	Nov 2010
11	Sprinklers and the Fire and Rescue Service	Jun 2008
12	BAFSA and its members	Sept 2012
13	Sprinklers and water supplies	Nov 2008
14	Residential care homes	Oct 2007
15	Types of sprinkler systems	Nov 2008

16A	Systems maintenance for R&D sprinklers	In preparation
16B	Sprinkler system maintenance to BS EN 12845	Nov 2008
17	Hospitals and health care premises	Nov 2008
18	Residential (non-care) systems	In preparation
19	Sprinkler effectiveness	Sept 2012
20	Third party certification	Nov 2010
21	Wet and dry risers	Nov 2010
22	Biodiesel fuel and sprinkler pumps	Sept 2011

* It is possible to download a free pdf of a published BIF from the Publications section of the BAFSA website. Multiple copies of the printed versions are available for purchase, subject to stock levels.

17.4 BAFSA Technical Guidance Notes

No.1: Residential and domestic sprinklers

Entitled *The design and installation of residential and domestic sprinkler systems*, this is BAFSA's first Technical Guidance Note in a series of such documents. TGN1 covers issues arising from installers' practical experience of designing and installing residential and domestic sprinkler systems using BS 9251: 2005. Just like other BAFSA documents, a complimentary copy of TGN1 was sent to each member on publication. Subject to adequate stock levels, copies are made available (up to five) at no cost for fire and rescue services and building control departments. The document can be downloaded from the BAFSA website (www.bafsa.org.uk/publications). A fully revised edition was published in November 2012.

No.2: Using sprinkler systems in buildings and structures

The installation of sprinklers can help reduce the costs of building development and can result in improved flexibility in design matters, enhanced levels of occupant safety and increased levels of property protection. In commercial and industrial occupancies they can bring improved business resilience. Subtitled 'Compliance with current fire safety guidance', BAFSA's TGN2 provides 'one-stop' access to a range of information linked to compliance with current best practice. It will allow all those involved in the building process, such as property developers, authorities having jurisdiction, architects, designers and end users to determine which is the most advantageous approach to compliance with building regulations.

No.3: Watermist systems

This TGN, published in March 2012, is the subject of chapter 4 above. It provides an introduction to the principles and applications of watermist systems as well as providing guidance to compliance with current fire safety requirements.

17.5 Sprinklers for Safety: an Arup Fire Report

The primary purpose of this book is to promote an informed decision-making process regarding the benefits of incorporating sprinklers in the design of buildings. It provides evidence to aid those professionals involved with decisions about the incorporation of sprinklers in different building types/designs. In particular, the document reviews the application of sprinklers in the context of the Building Regulations and proposes examples of the use of sprinklers as a means of alternative compliance ("trade-offs") with Approved Document B (2006), which lists this book as a reference source. An electronic version of the publication can be downloaded via www.bafsa.org.uk/publications. Paper copies can be ordered from BAFSA (info@bafsa.org.uk) with single copies priced at £10 including UK post and packing. Copies are free to BAFSA members.

17.6 Sprinklers for Safer Living

This 2010 report from BAFSA – another commissioned from Arup Fire – describes the unique fire safety challenges which are posed by residential care homes, particularly with respect to the elderly and infirm people who live in them. It shows why an automatic sprinkler installation is considered by the fire safety community to be the single most effective fire protection feature in such premises. This volume is required reference for those who have a stake in assessing fire risks and planning fire prevention in the design, construction or management of residential care homes. Paper copies can be ordered from BAFSA (info@bafsa.org.uk) with single copies priced at £25 including UK post and packing. Copies are free to BAFSA members.

17.7 Safer High-rise Living: the book

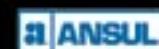
Published in April 2012, this is the Report mentioned in chapter 2; it documents the background to, and progress and successful conclusion of, the Sprinkler Coordination Group's project to demonstrate the cost-effectiveness and practicality of retrofitting sprinklers in an existing high-rise tower block at Callow Mount, Sheffield. The report has been very well received and is essential reading for those with responsibility for fire safety in high-rise social housing blocks. Paper copies can be ordered from BAFSA (info@bafsa.org.uk) with

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17.8 Safer High-rise Living: the DVD

This is the DVD which was produced to record the retrofitting of a sprinkler system in a 13-storey high-rise, social housing tower block in Sheffield. The system was installed in an occupied block in a timely and cost-effective manner. BAFSA, which funded the work and managed the project, suggests that the lessons learned from the project can be applied to the whole of the UK's stock of high-rise housing. A copy of the DVD has been provided free to each BAFSA member. Single copies of the DVD will be supplied on request to info@bafsa.org.uk. Multiple copies may be charged.

17.9 DVD: Sprinklers for Safety: Detect – Respond - Control (revised 2010)

Just like automatic fire sprinklers this BAFSA DVD is multi-functional, its aim being to appeal selectively to a range of audiences and for a variety of educational purposes. For the general audience the DVD describes the overall benefits of fire sprinkler protection, stressing its combined functions of detecting, alerting, suppressing, controlling and possibly extinguishing fires. For potential commercial/industrial end users it stresses the wider benefits of sprinklers in promoting the resilience of an organisation by protecting the business and its assets against fire. For specifiers, developers or planners it will show the practicality of a sprinkler installation in protecting against the hazard levels determined by a pre-design risk assessment. BAFSA members will have received a free copy of the DVD.

17.10 DVD: Sprinklers for Safer Living in Residential and Domestic Premises

This DVD promotes the suitability of sprinklers to cope with the types of fires which are likely to occur in places where people live. It emphasises the efficiency and success rate of sprinkler systems and demonstrates their application in a range of premises, including: dwellings; houses in multiple occupation; social housing; residential care homes; and heritage buildings. It will be of particular interest to designers who are coming new to the concept of using sprinklers in domestic or residential premises.

17.11 Other available publications

Visitors to the BAFSA website, by clicking on 'Publications', can access other documents. The heading 'Guidelines & Codes of Practice' leads to a section which contains third-party codes of practice, all of which are available in the

market, free of charge. These can be downloaded, printed if desired, and can be used as web references. It is also worth exploring the other subheadings to look at various third-party reports, some technical in character, which are lodged on the website for the benefit of members.

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BAFSA Sprinkler Yearbook 2013/14

This fifth edition of BAFSA's Yearbook is dated 2013/14 and it will take the Association up to the celebration of its 40th anniversary.

The Yearbook continues to promote the wider and more effective use of automatic fire suppression systems using water as the best way to protect people, property and the environment from the effects of fire. The book contains a collection of current news and technical information and remains a vital source of reference which supports the Association's programme of providing knowledge and education about fire sprinklers. For its mixed audience of industry experts and potential users it is an invaluable resource, to be retained for future reference.

A major chapter in this edition is a summary of the Sprinkler Coordination Group's successful retrofit project at Callow Mount, a high-rise building in Sheffield. And, as always, a most important section is its comprehensive list of BAFSA member organisations and affiliates, the bodies which are still working together, 40 years on, to advance the cause of fire protection.

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Contents include:

Foreword; The cost of domestic sprinkler systems; The Callow Mount project; Sprinklers in Wales; Watermist systems and TGN3; Installers and the assessment of competence; Business Sprinkler Alliance; Principal Standards for sprinklers and watermist installations; Significant changes in NFPA sprinkler Standards; NFPA 13R and 13D; Flashover and residential sprinklers; Book reviews; BAFSA at work; All-Party Parliamentary Group and sprinklers; List of BAFSA members; Sprinklers at work; Formulae, SI units and conversion factors; BAFSA publications.

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