



# Head start

How can we be confident that sprinkler systems will perform correctly when needed? **Keith MacGillivray** sets out the essential points to check...

**F**OR MORE than 40 years, the British Automatic Fire Sprinkler Association (BAFSA) has been working tirelessly to ensure that automatic fire sprinklers are properly designed, installed and maintained in all UK buildings. The performance of these criteria combined with approved design and installation ensures that automatic fire sprinkler systems will always be fit for purpose.

One of BAFSA's priorities is to inform specifiers, regulators, insurers and others of the benefits of specifying that contractors and equipment involved in the design and installation of automatic fire sprinkler systems are third party certificated.

There are currently two British Standards for the design and installation of automatic fire sprinkler systems in the UK: *LPC Rules for Automatic Sprinkler Installations Incorporating BS EN 12845: 2015* and *BS 9251: 2005*. The primary objective of the former is the protection of commercial and industrial premises, while the latter is specific to domestic and residential occupancies for life safety protection. There are also separate third party certification schemes explicit for each of the sprinkler design standards and which strongly recommend the use of third party 'listed' or 'approved' contractors for the design and installation of sprinkler systems.

## Accreditation schemes

The concept of a third party certification scheme is to provide confidence to regulators, specifiers, industry and the public at large that the manufacturer, contractor etc have been subject to assessment of their competence against recognised industry or product standards and have satisfied these requirements.

In the UK, although third party certification is widely recommended and endorsed by Part B of the Building Regulations and other guidance documents, it is only mandatory for electrical and gas installation work in dwellings.

While initial design and installation rules were developed by insurers, this function has now moved into standards committees: BS – British Standards, CEN – European Standards, and ISO – International Standards.

Third party certification schemes allow specifiers, users, occupiers, owners and enforcement bodies to have confidence that the products have been thoroughly and independently evaluated and will continue to be manufactured to the same specification as originally tested.

Likewise, our installer members submit their designs and completed installations to the scrutiny not only of the appropriate accreditation bodies, but also of

other regulators and the insurers. Third party certification remains a voluntary process, but one with which all BAFSA members must comply.

## Certification bodies

Reputable third party certification bodies (and testing facilities) apply to UKAS for accreditation so they can be assessed. In this way, they can demonstrate to industry that they are competent to undertake such work and will conduct themselves in a manner that keeps them independent and impartial of their clients, to avoid conflicts of interest.

Once accredited, the certification body is required to undergo annual surveillance audits and five yearly reassessments, to ensure they continue to operate in compliance with the requirements of accreditation standards applicable to the type of work they undertake, the industry technical standards and their own scheme commitments.

Therefore, choosing a contractor with third party certification from a body that is UKAS accredited provides the confidence that, in addition to the contractor having been competence assessed by the certification body, the certification body is itself subject to an assessment of competence and abilities by UKAS.

Currently, there are three accredited bodies that operate such certification schemes for sprinkler installations. The Loss Prevention Certification Board (LPCB) runs the LPS 1048 scheme for commercial automatic sprinkler installations, and the LPS 1301 scheme specifically for residential and domestic sprinkler installations.



Exova Warringtonfire runs separate FIRAS schemes for commercial and industrial, as well as residential and domestic sprinkler installations. IFC Certification Ltd (IFCC) operates both product and installer certification schemes against its own rigorous international, European, British or industry standards.

As there are two sprinkler system design standards, it is not unusual to find that a particular contractor will have more experience of one standard than the other. Consequently, it is of the utmost importance that any selected contractor employed to undertake work is fully conversant with the design practices of the relevant standard, and can demonstrate competency within that particular scope of work.

On successful completion of a contract, a contractor who is a member of a third party certification scheme is able to issue a Certificate of Conformity, thus verifying compliance with the defined installation standards. Contractors who are members of a third party scheme are regularly audited to various degrees depending on their standing within the scheme, and usually must be quality assessed to ISO 9001:2008. Design personnel have to demonstrate full competence in their field of work to the satisfaction of the scheme operator.

## Installer qualification

Seven years ago, BAFSA instigated the development of the first National Occupational Standards for the mechanical fire protection sector, which state what is required of a worker in terms of performance and knowledge. These provided the building blocks for the IQ Level 2 Certificate in Fire Sprinkler Installation – the first nationally recognised qualification for sprinkler installers, which was designed, developed and launched in 2015 by BAFSA.

To acquire this qualification, students must achieve seven mandatory units which reflect the knowledge and competencies necessary to meet the industry standards for the installation role. Neath Port Talbot Group, The Manchester College and Llandrillo College currently deliver the qualification, and it is hoped that educational establishments in London and Glasgow will soon join this list of BAFSA's preferred training providers.

## Maintenance regime

Owners or occupiers of industrial premises need to take routine steps to ensure that their sprinkler protection is always available to control or suppress any fire that might occur. Once a sprinkler system has been handed over to its owners, the responsibility for the equipment will rest with them. Whether or not the system will operate as designed is dependent on the correct maintenance procedures being carried out.

The system must be inspected and maintained regularly in accordance with national and international standards, and is also subject to a programme of review to ensure that the system remains compliant for the

fire risks present. UK legislation imposes significant liabilities on employers and/or commercial and industrial property owners who fail to maintain fire safety equipment intended for the protection of life from fire.

Domestic sprinkler systems require little maintenance, with the exception of an annual inspection which should be undertaken by a competent person. However, occupiers of sprinklered homes should be aware of how the system works and what to do in the case of faults or actuations.

To assist with this, the installer should provide a logbook containing:

- details of the system design, water supplies and components
- statement of compliance with the BS 9251: 2014 or other appropriate standard
- results of the commissioning tests
- details of authorities consulted
- routine inspection and maintenance programme
- a 24 hour emergency number to contact for assistance

Occupiers should be aware that in the case of a system with a self monitoring pump, the system will test itself each week and will sound a local alarm if any faults occur during the self test. Some systems may automatically report faults to the installation company.

Knowing where the sprinkler system shut off valve is will enable firefighters to shut the system down once they are sure that the fire has been extinguished. If it cannot be located, ask the house builder or landlord or contact the installer, whose name and phone number should be on a tag near the system's controls.

### Points to note

Awareness of measures that may compromise the operation of the system is also invaluable, including the following:

- do not paint the sprinkler heads and/or their cover plates, as the added coat of paint will absorb heat and can delay the operation of the sprinkler, and may also prevent water from flowing
- do not hang anything on the sprinkler heads – sprinklers are sturdy, but hanging something on them could dislodge the device that holds the water back
- make sure that tall items of furniture or ornaments are not so placed that they shield the sprinkler heads or obstruct the flow of water
- no modification should be made to any sprinkler equipment except in accordance with BS 9251: 2014 or any other standard utilised
- reinstatement of the system following maintenance or actuation should only be carried out by a competent person, and the logbook should be annotated to indicate the reason for reinstatement and any actions taken
- sprinkler systems must be protected from freezing – external pipes may be protected by trace heating, while internal pipes will be protected by central heating systems, so these should be left on if the



house is unoccupied during periods when extremely low temperatures are predicted

### System benefits

One of the benefits of sprinklers that is most often ignored is the additional flexibility that they can provide to designers and builders. In unconventional or unusual buildings, the inclusion of sprinklers in a specification will often enable building regulations compliance to be achieved in an extremely cost effective manner.

Sprinklers have also been used as a compensating feature in developments where the building regulations cannot be complied with in respect of means of escape or access for the fire service. Some projects have even reported that providing sprinklers has brought a cost saving as a result of the building authority permitting trade offs regarding means of escape facilities.

The equipment is also ideal for protecting buildings constructed from non traditional materials, such as those constructed wholly or largely from timber or using recycled materials. Where a truly green or carbon neutral building is demanded, a sprinkler system will ensure that no fire will destroy that building.

BAFSA members have the knowledge, experience and expertise to design, install and maintain sprinkler systems to the most rigorous standards, thus ensuring people, property and the environment are all protected from the destructive forces of fire ■

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