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FAQ Residential and Domestic Systems

BAFSA provides a free inquiry service for both its members and the general public and each year deals with hundreds of enquiries. Many of the same questions crop up regularly and this publication and BIF 6A and 6B are intended to provide a ready reference to some of the most Frequently Asked Questions.

? What standard should I comply with when procuring or designing sprinkler systems in residential or domestic premises?

The preferred UK standard remains BS 9251: 2014 Sprinkler systems for residential and domestic occupancies - Code of practice. Components for such systems should comply with BS 9252:2011: Components for residential sprinkler systems - Test methods and specifications. Note that this standard is presently under review with an updated edition scheduled for publication in September 2020.

You could also use BS EN 16925:2018 (published in June 2019) Fixed firefighting systems. Automatic residential sprinkler systems. Design, installation and maintenance.

The US National Fire Protection Association issues a wide range of standards which are used extensively in the US and elsewhere. NFPA 13-R covers residential sprinkler systems and 13-D is for domestic properties.

? I am an experienced plumber and want to set up in business as a sprinkler installer for domestic and residential properties. What formalities or registration do I have to comply with?

It is unlikely that you will be invited to install or maintain any systems that are either mandated by an insurance company or which are being required as a condition of building regulations approval unless you have some objective evidence of competence.

If the system is to be supplied with water from a water company service main, then the supply company concerned will require an installer to demonstrate its competence or have the work undertaken under the control of a Registered Plumber. It is a legal requirement that anyone installing or maintaining any type of fire systems required for the safety of life must be able to prove their competence.

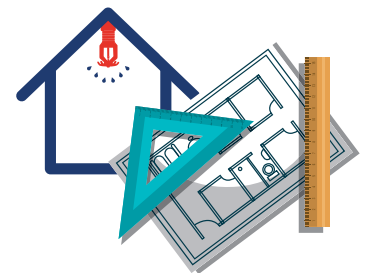
Most domestic and residential sprinkler systems presently being installed in England are either at the behest of a housing association or local authority, enlightened developer, aware homeowner or as a requirement of achieving alternative compliance with Approved Document B of the Building Regulations. In this latter case it is likely that the building control department will require evidence of competence before granting approvals. Regulations in Scotland and Wales now require the provision of sprinklers in many types of new or refurbished domestic and residential premises.

The most effective way of proving competence is for the installer to be third party accredited by an UKAW approved certification body such as the LPCB/BRE, Warrington FIRAS or IFC.

? Does the installation of sprinklers permit 'trade-offs' in respect of requirements regarding escape routes and passive fire protection measures?

'Trade-offs' or trade-ups as they should be more correctly termed, are often appropriate when a building is fitted with a full sprinkler system. Examples of the sort of trade-ups that might be possible include:

- Doubling compartment sizes.
- Doubling travel distances to escape routes.
- Reductions in fire compartment ratings.
- Reductions in the number of smoke stops doors and lobbies.
- Accepting sprinklers as alternative compliance for the access requirements for access by the fire and rescue service under Approved Document B5 or the Scottish Technical Handbooks
- Allowing open plan living rooms/kitchens in dwellings.
- Accepting non-compliance in the provision of means of escape for attic and loft conversions.



APPLICABLE STANDARDS



BS 9251: 2014

BS 9252: 2011

BS EN 16925: 2018

NFPA 13-R
& 13-D

IFC®

3RD PARTY
CERTIFICATION



? Are sprinklers suitable for installations in kitchens? Surely, they will be ineffective on deep fat fryers?

Sprinklers are actually highly effective in suppressing fires in cooking appliances and there have been many documented cases where a single sprinkler head has totally extinguished a kitchen fire which started in a frying pan.

? What materials can be used for the pipework in sprinkler systems?

Sprinkler water supplies can use steel (mild or stainless), copper or approved CPVC. See BIFs 8e and 8g for further information.

? I have been told that CPVC pipe work is incompatible with some firestopping materials. Is this correct?

Some firestopping chemicals can react with the plastic content of CPVC pipework. Only materials approved by the pipe manufacturer should be used to seal pipe penetrations.

? How should car parks in blocks of flats be protected?

Car park sprinklers should be designed to BS EN 12845 rather than BS 9251. Where a BS 9251 system is being installed, care should be taken to ensure that the water supply (including water storage and pumps) will be adequate to serve the car park system.

? Are there are parts of a dwelling which do not need to be fitted with sprinkler protection?

BS 9251 allows sprinkler protection to be omitted in the following:

- Bathrooms with a floor area of less than 5 m²;
- Cupboards and pantries with a floor area of less than 2 m² or where the least dimension does not exceed 1 m;
- Attached buildings such as garages and boiler houses without direct access from within the protected building;
- Crawl spaces;
- Ceiling voids;
- External balconies permanently open to the outside;
- Uninhabited loft/roof voids

However, consideration should be given to common sense decisions - for example, the use of candles in bathrooms have been responsible for many domestic fires. Equally, 'ceiling voids' may end up being used as storage spaces. There have also been a number of recent fires which have started on balconies so consideration should be given to the likely risk of this happening.

? Can a sprinkler system use water taken from a domestic storage tank or cistern?

Provided that there is a reserved capacity equal to the minimum storage volume as stated in Para 5.8.4.2 of BS 9251 this is acceptable. Water may also be supplied from swimming pools and ponds provided adequate filtration measures are in place

? How should sprinkler pumps be supplied with electrical power.

This is an area not well understood by electrical contractors who often provide a feed from the consumer unit ('fuse box'). Para 5.9.1 of BS 9251 is quite clear on the requirements:

The electrical supply to the pumps should be installed in such a way as to minimise the risk of electrical supply failure by having a separately fused connection taken after the meter and from the supply side of the fuse box, using approved fire-resistance cabling.

Note the requirement for fuses - RCD's are specifically prohibited

? Do the pumps have to be listed/approved or can any pump, valves etc be installed in R+D sprinkler systems? Who should install the pumps and associated equipment?

BS 9251 does not specifically state that the sprinkler pump must have any third-party accreditation or approval. It only states that the pump/s must be suitable for use in a sprinkler system (and the same reference to suitability for pipe, fittings, and valves etc.).

The criteria for suitability are 'sketchy' but is listed in BS 9251 Para. 5.9.1 a) to l).

BS 9251 Para. 3.9 describes a competent person for sprinkler installation work.

BS 9251 Para. 6.1.1 states that the system should be installed by a competent person,

It is BAFSA's opinion that only a competent sprinkler installer and a competent qualified electrician (both of whom can issue compliance certificates) are used for the supply, installation and commissioning of the pump and its associated equipment.

? Is CPVC pipe acceptable for use in a domestic sprinkler systems and fillers be used to seal a CPVC pipe passing through a wall?

There are a few CPVC pipe and fittings suppliers who have had their products approved in the UK by The Loss Prevention Certification Board (LPCB) scheme LPS 1260. Products approved to this scheme are suitable for use in domestic sprinkler systems.

If you go to the CPVC manufacturer's website, you can find a list of acceptable 'filler materials' for wall penetrations. Any mastic or filler must be compatible with the CPVC pipe you are using, and ideally make use of the product recommended by the manufacturer. If you follow their recommendations all should be satisfactory.

Note: Apply caution when pipes pass through walls that may have sharp metal edges.

If you have a question or seek advice regarding automatic water-based fire suppression systems, please email the team : ian.gough@bafsa.org.uk or joe.mcafferty@bafsa.org.uk. If they do not have an answer for you, they will know someone who has! FAQs can be found at bafsa.org.uk/sprinkler-systems/faqs/