

#14



Fire sprinkler systems in care homes

People are living longer. Improved working conditions, reduced smoking rates and improved healthcare have all contributed to increasing life expectancy from generation to generation.

During the 20th Century the average life expectancy in the UK increased by thirty years and life expectancy at birth in the UK in 2016 to 2018 was 79.3 years for males and 82.9 years for females.

As of April 2019, the UK elderly care home market was made up of 12,250 homes and 477,100 beds. Around 95% of their beds are provided by the independent sector (both for-profit and charitable providers). In 2018 over 6700 audits were completed by UK fire and rescue services, with 2167 audits proving unsatisfactory. However, in London more than half of 177 in-depth inspections carried out by London Fire Brigade identified serious fire safety failures.

Within the UK fire and rescue services and fire safety professionals generally, recognise that sprinklers can provide enhanced protection from fire and give those caring for people with mobility or other issues a greater chance of escape. They can also limit fire damage within a property as they will stop the fire from spreading through the building. Insurance statistics suggest that premises with sprinkler protection suffer 90% less damage than unprotected buildings.

Is it unreasonable for a person in the latter years of their life to expect to be looked after in a caring, safe environment, particularly when the care is being delivered at a relatively expensive cost?

WHY FIT AUTOMATIC FIRE SPRINKLERS IN CARE HOMES?

Residential care premises present a series of unique challenges with respect to fire safety. The needs of the occupants and the resources required to undertake an evacuation in these types of premises require careful consideration both in the design and ongoing operation of such buildings, to ensure that an appropriate level of fire safety is provided.

BAFSA members offer specialist experience and knowledge of two forms of water based suppression systems :

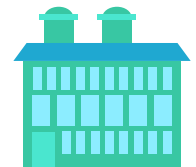
AUTOMATIC FIRE SUPPRESSION SYSTEMS (AFSS)

AFSS, such as sprinklers and water mist systems, are the kind we all imagine when we think of sprinklers. They react to heat, and when the temperature in a room fitted with a sprinkler reaches 60 – 70 degrees the sprinkler will spray water across the room and suppress the fire causing the rise in temperature.

PERSONAL PROTECTION WATER MIST SYSTEMS

A self-contained water mist system is essentially a sprinkler system in one room of a building, for one person. These systems are designed for people who spend most of their time confined to a specific area of their home. Water mist systems use a spray of fine water droplets that can suppress a fire by cooling, wetting and displacing oxygen.

The diminished senses that result from the ageing process may ultimately result in the occupants of residential care premises having a slower reaction time to raise an alarm, and due to the residents' reduced physical capabilities, a slower response time to an alarm, which may result in an increased evacuation time. All of the above-mentioned factors combine to increase the risk of injury or fatality in a fire, especially where assistance from carers may be restricted at night.



12,250

CARE HOMES
IN THE UK (2019)

2167

UNSATISFACTORY
FIRE &
RESCUE AUDITS IN
CARE HOMES (2018)

90%

LESS DAMAGE TO PROPERTIES
WITH SPRINKLER
PROTECTION

Post incident trauma can be directly linked to the exposure of residents, staff and management to injury, death and damage resulting from fire and therefore it is considered that the primary objective in reducing trauma should be to reduce the impact of a fire (by reducing the size of the fire and resultant damage).

Notable benefits include :

- where residents require assistance, it is likely that the evacuation process will take longer, and sprinklers provide significant benefits to address this risk
- research undertaken in the USA concludes that sprinklers are considered to be the single most effective fire protection feature and it notes that there has never been a multiple death fire in a properly sprinklered care home fire
- fire and smoke modelling show that the temperatures within the corridors and all rooms beyond the room of fire origin remained safe for escape in terms of visibility and a breathable atmosphere where sprinklers are provided. This was clearly not the case where they were not provided
- if fire suppression systems are provided in residential care premises, they can assist in reducing the risks from fire, particular if other fire safety measures have been bypassed or fail to operate as intended
- the adoption of an automatic fire suppression system within the building is considered a cost- effective means of providing an adequate level of safety and can be used to compensate for other areas of the design when all relevant factors are considered
- the provision of sprinklers within residential care premises will reduce the risk of loss or damage to the contents and fabric of the building by controlling the growth of the fire
- sprinklers in residential care premises will not only provide robust protection for the attending firefighters but could also have the following benefits: 1 a reduced number of fire service pumps could be sent to an incident; 2 upon attendance of the fire service the attendance period may be reduced as the fire service would be able to deal with a smaller fire more quickly; 3 in the event of small fires the fire may be extinguished by the time the fire service has responded to the call
- premises with fire suppression will very quickly be able to be re-occupied minimising costs and the impact on frail residents

The potential for providing alternative solutions through the use of sprinklers is considered to be a key factor in determining whether or not the provision of sprinklers within residential care premises are cost effective and it is considered that these should have been accounted for in the decision made by the Regulatory Impact Assessment.

This report has reviewed the risks associated with residential care premises within the UK and has considered the impact that a fire can have on the residents, the building fabric, staff and resident's family. It identifies the need to provide appropriate fire protection measures within these types of premises that suitably reduce the perceived risks and concluded that sprinklers are effective in controlling a fire and will provide improved conditions to the residents of the building, particularly beyond the room of fire origin.



STANDARDS

For care homes an automatic life safety fire systems should be designed and installed in accordance with the recommendations contained in the appropriate British Standard :

- BS 9251: cover sprinkler in residential care and similar premises
- BS EN 12845 together with the Loss Prevention Council (LPC) Rules for Automatic Sprinkler Installations covers sprinklers in healthcare premises
- BS 8458 covers the design and installation of water mist systems in sheltered housing and residential care and similar premises
- BS 8489 covers the design and installation of water mist systems in healthcare premises

All system components should comply with the appropriate British or European standard and should be certificated for such use by a reputable testing laboratory. In the UK this is BRE Certification/LPCB.

In Scotland and Wales where the fitting of automatic fire sprinklers is mandatory in all new build and converted care homes, care should be taken to comply with the legislative requirements together with the British Standard.

By using a BAFSA Member for the installation of your system, you are ensuring that the system is third party certificated, as this is a requirement for all BAFSA Members.

Like all fire protection systems sprinklers require an ongoing maintenance programme to ensure compliance with the Regulatory Reform (Fire Safety Order) 2005 or Fire Safety (Scotland) Regulations 2006. BAFSA recommend that any maintenance work is carried out by companies holding third party certification for such work.

Guidance on the design and installation of new sprinkler systems and the maintenance of all systems is given in the BS documents listed above.

RETROFITTING OF EXISTING CARE HOMES

Automatic fire sprinklers can be easily and readily retrofitted into existing care homes. In many cases the fitting of sprinklers will provide an economic and safe method of overcoming existing design or building faults.

Installation of systems in existing care homes can be carried out with the minimum of disruption and at a reasonable cost. In many cases this can be a cost-effective long-term way of complying with a risk assessment of the premises.

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/