



Introduction

Each year in the UK there are between 800 and 900 fires in premises providing care for older persons. Over the past 10 years more than 45 people have died in such fires and more than 1000 have been injured. On average five people die each year as a result of fire and a further 90 are injured.

While the statistics clearly demonstrate the extent of the fire problem in care homes, we can only guess at the true cost in pain, suffering and the impact on families and care workers.

Fires in Homes for the Elderly

Year	Number of Fires	Fatalities	Injuries
1998	1018	3	59
1999	1222	5	105
2000	495	0	49
2001	877	5	73
2002	899	2	80
2003	897	2	90
2004	886	20	103
2005	750	2	84

Source: Annual Fire Statistics CLG/ODP

These unfortunate statistics have already prompted action by government. In Scotland, Building Standards now demand that all new care homes are constructed with the installation of sprinkler systems. The Welsh assembly has also debated whether local legislation should be extended to require such levels of protection. In England and Wales, the 2006 version of Approved Document B of the Building Regulations (which came into effect on 6 April 2007) also demands additional fire protection measures.

Legal Obligations for Fire Safety in Care Homes

Whilst the way in which care homes are constructed is closely regulated, recent changes in the way fire safety is managed have created confusion in the care home sector. The inspection regime imposed by the Fire Precautions Act 1971 and Registered Homes Act 1984 (under which virtually all care homes were required to submit to regular inspections by their local fire authority) has gone. Instead, the owners and managers of homes now have to comply with the more complex impositions of the Regulatory Reform (Fire Safety Order) 2005 which came into force in October 2006.

The Fire Safety Order has wide-ranging implications for care home owners and managers many of whom still seem to be unaware of the legislation or their new obligations. This leaflet, issued by the British Automatic Fire Sprinkler Association (BAFSA) - aims to help provide solutions to these obligations, and suggests that the care home sector like many other occupancies may find that the inclusion of sprinklers (especially in new or refurbished premises) will provide increased cost-effective protection and greater measures of confidence in the levels of safety in care homes.

Wise Up to Fire

The leaflet, part of a series of publications which provide authoritative advice on the best use of fire suppression systems in all parts of industry, commerce and the public sector, forms part of an on-going campaign 'Wise Up to Fire'. Wise up to Fire was originally launched in 2006 to promote the wider use of sprinklers in schools. This whole campaign, part of an initiative with a range of fire organisations including the UK Fire and Rescue Service, was most successful and resulted in an announcement from the

Jail for care worker who set woman, 83, on fire

Home Staff

A care worker who killed an elderly dementia sufferer by setting fire to her bed has been jailed.

Leanne Devenny used a cigarette lighter to ignite 83-year-old Irene Watling's bed clothes while the pensioner slept at her residential home in July last year, Leicester Crown Court was told.

The defendant called the emergency services to tell them a smoke alarm had been activated — but failed to tell them that smoke had been seen coming from the victim's room.

Firefighters arrived within seven minutes but were too late to save Mrs Watling from suffering severe burns. She later died in hospital.

Soon after the fire crews arrived, staff at the Victoria Mews home in Coventry detected smoke in the room of another resident. This time, the flames were contained in a plastic bin.

Devenny, now 21, of Radford, Coventry, pleaded guilty to manslaughter on grounds of diminished responsibility, and arson. Sentencing her to an indeterminate prison sentence for the public protection, Judge Charles Wide, QC, said: "On July 9 last year

you set two fires at a care home you were working at in a position of trust.

"The elderly and very disabled people who lived in that home were entitled to look to you for care. Instead of that, you killed one of them, a helpless old lady."

Devenny, who broke down in tears as she heard her sentence, was told she must serve at least three years.

Mrs Watling was physically disabled



Irene Watling, who suffered severe burns and later died in hospital

and in the advanced stages of dementia when she died, the court was told.

In a statement, Mrs Watling's daughters, Julie Moores and Carolyn Thackeray, pointed out that no rescue attempt was made by staff before the emergency services arrived.

"As a result, for a period of ten minutes or more, our mother lay in her bed, alone, confused and in unimaginable pain, burning alive. Those images still haunt us daily."

Times newspaper 17th September 2007

Westminster government in May 2007 which means that virtually all new schools will be fitted with sprinklers.

Automatic Sprinkler Systems

Automatic fire sprinkler systems have been used effectively for the protection of property such as mills, factories, warehouse and department stores for well over 130 years. However, over recent years there has been a growing recognition of their effectiveness in improving levels of safety in other types of building.

Organisations such as hotel chains have recognised the benefits of comprehensive sprinkler protection not only for their buildings but also the occupants. Sprinklers are now also being widely installed in schools, hospitals, social and sheltered housing as well as many dwellings and other residential occupancies.

Why are Sprinklers so Successful ?

The success, in part, is due to the simplicity of the sprinkler system: there are no computers or wiring — so no false alarms. The cost of maintenance is extremely low — running to less than £500 per year for the average system. Sprinkler systems have a very long service life, 50 years is common and many systems today were originally installed in the 1920's. This is due to strict adherence to standards for components, design and installation. Systems in the UK are installed to either BS EN 12845 or, in the case of most care homes to BS 9251. Due to the strict standards for fire sprinklers and the third party certification which is required under BAFSA's rules for their members, the fire insurance industry will usually offer significant premium discounts and/or lower policy excesses for premises protected by automatic fire sprinklers.

Sprinklers in New or Refurbished Care Homes

Installation of sprinklers in new build premises is very simple and highly cost effective. The sprinkler pipework is routed through the building at the same time as the other building services and all the pipework can be concealed. Sprinkler heads can also be concealed if desired or required.

The fact that sprinklers are to be installed in a building is recognised under the Building Regulations/Scottish Building Standards and can result in a number of beneficial 'trade-offs'. These might include:

- ◆ Increasing compartment sizes
- ◆ Increasing acceptable travel distances
- ◆ Reductions in levels of fire protection both structural and compartmental
- ◆ Reduction in the number of smoke lobbies and doors
- ◆ Enabling two residents to reside in a single room
- ◆ Phased or delayed evacuation may be possible (subject to F&RS approval) this could be beneficial in relation to staffing levels especially at night

Retrofitting of Sprinkler Systems

Sprinklers can be retrofitted to existing premises — and many hundreds of installations of this kind take place every year. Installation can be phased over a period of time to minimise disruption and with careful planning and liaison can cause little impact on residents and operations. Sprinkler installations can be done most easily if other work such as rewiring or replumbing is taking place and should be completed before planned redecoration.

Pipework can be concealed in voids or ducts but can also be surface run and later boxed in if required.

CPVC Pipework

With the introduction of LPCB approved CPVC plastic pipework, many retrofit sprinkler systems are made easier to install because of the clean and lightweight nature of the product. CPVC is easy to handle and can be installed with the minimum disruption to residents and without the need for noisy plant such as screwing machines etc. or hot work such as welding or brazing.



This picture shows the very limited fire damage after a single sprinkler head extinguished a fire. The fire was started by a dishwasher catching fire.



This picture shows the dramatic consequences a fire can have on both life and property.

Causes of Fires in Care Homes

Primary causes of fires in care homes are;

- ◆ Faulty electrical appliances or wiring
- ◆ Cooking
- ◆ Smoking materials
- ◆ Misuse of equipment
- ◆ Deliberate fire setting

Sprinklers will tackle all of the fire types which can affect a care home, including fires in kitchen ranges and deep fat fryers and fires in electrical equipment.

How Do Sprinklers Work?

It is essential that water supplies to automatic systems are reliable and guaranteed. This means that water should be supplied from the service (towns) main or other dedicated sources of water as specified within BS 9251. Very large care homes may be more appropriately protected under BS EN 12845.

If there is an adequate supply of water from the service mains (from the local water company) then it is normally possible to supply the sprinkler system directly from this. Should the pressure or flow be inadequate for a sprinkler system then it will be necessary to provide a booster pump and possibly a tank. An important design consideration is the space availability for pumps and tanks should they be required.

The sprinkler heads are positioned throughout the premises with at least one in all rooms and large cupboards including residents' rooms, corridors, and service areas. These heads are connected to the water supply via a network of hydraulically-balanced supply pipes which are distributed throughout the premises utilising the most unobtrusive route possible.

Each sprinkler head has its own heat detector and operates at a predetermined temperature, normally 68°C. Once this temperature has been reached, the sprinkler head operates and a fine spray of water is discharged on to the fire.

A common myth about automatic sprinklers is that all the heads operate simultaneously; this is completely untrue. Only the sprinkler heads closest to the fire will operate, thus minimising the water damage. It is estimated by the FPA that 80% of fires are controlled with 4 sprinkler heads or fewer.

Once the sprinkler installation has been activated, virtually all fires will be extinguished or controlled – in the case study mentioned below, a single sprinkler head was sufficient to control a fire in a dishwasher so preventing its spread and when the fire and rescue service arrived they dealt with the residual fire with a single portable fire extinguisher. Sprinkler systems can also operate local alarms to aid evacuation and alert the fire and rescue service to the fact that there is a fire on the premises. (Unlike fire detection systems sprinklers cannot cause a false fire alarm).

Water Damage

In the past, uninformed people have said that the water damage caused by automatic fire sprinklers will be worse than the fire, this is of course untrue. Only the sprinklers closest to the seat of the fire will operate and in most cases only one or two sprinklers will actually activate. The water discharged by these few sprinklers is invariably less than the water used by the fire brigade. The FPA have said that in virtually all situations sprinklers will only discharge 10% of the amount of water needed by the fire brigade. Over 70 million sprinklers are installed each year worldwide and every single sprinkler is pressure tested prior to leaving the factory. US, Australian and UK research suggest that fewer than 1 sprinkler in 5 million will fail by discharging water other than in a fire.

What Sprinklers will do:

- Detect a fire
- Extinguish or control the fire
- Raise the alarm locally
- IMMEDIATELY PROTECT Life and Property
- And do so 24 hours a day, 365 days a year.

Conclusions—Finally a few facts:

1. There have been no multiple fatality fires in the UK in buildings with a working sprinkler system.
2. US experience shows that 98% of all fires in sprinklered dwellings are extinguished with only one sprinkler head operating.
3. Only the sprinkler heads in the immediate vicinity of the fire actually operate.
4. Sprinkler heads can be completely concealed.
5. Sprinkler systems do not need pumps or tanks if mains pressure is adequate.
6. Sprinklered buildings prevent fire fighter deaths.
7. Sprinklers do not 'false alarm' they will only operate if there is an actual fire.
8. For a small additional cost an alarm switch can be built-in to the system to call the fire brigade automatically should the sprinklers operate.
9. Maintenance costs for sprinklers are very low - amounting to no more than around £500 a year.
10. Sprinklers save lives - and property - and are the only devices which can detect a fire, sound the alarm, call the fire brigade and extinguish or control the fire.
11. Finally, despite preconceptions, sprinklers are not difficult, unsightly or expensive to install in homes. There will be very few new or refurbished care homes which cannot be fully protected for less than the cost of a medium quality carpet.

Costs of Sprinkler Protection

Sprinklers are highly cost effective and have a very long service life and this, together with low annual maintenance costs, means the whole life cost of sprinklers is very low.

Whilst it is difficult to generalise, it is likely that in most care home projects sprinklers can be installed for around 2 – 3% of the project cost. In retrofit situations, especially if a pump and tank are required then this range of costs could be increased to 3 – 4%.

Annual maintenance costs are rarely likely to exceed £500 and a service life of more than 30 years, without any major additional costs, can be anticipated. (There are sprinkler systems in use today, which remain largely unaltered since their installation in the 1930's)

Under certain circumstances it is possible that installing sprinklers may result in significant savings in the design and building of the home. Reductions in the need for fire rated doors, reductions in fire compartments and other fire systems can reduce the cost of the project significantly. In one well-documented case, a former care home in Leeds which was converted into a residential building for asylum seekers, the fact that the property had sprinklers allowed the building control department to approve a reduction of some 55 fire doors and the project cost less to build with the sprinkler system than without it. These design freedoms have however been approved by the fire service and building control department prior to implementation.

Additional benefits include the fact that sprinklers are so highly regarded by insurers that most will allow substantial discounts against the fire insurance premiums for the building.

Quality and Certification

The high reliability and effectiveness of these systems has come about over the years by strict adherence to the sprinkler rules and design standards. It would be wise to select a contractor who is not only capable and competent but who also has an established track record and who can offer proof of compliance with an established quality assurance system.

For example, all Installer members of the British Automatic Fire Sprinkler Association can provide documentary proof of compliance with international quality assurance standards and all also hold an approval from a third party certification service which itself is accredited by a Government-approved body, the United Kingdom Accreditation Service (UKAS). Our associate installers who do not hold certification are encouraged and assisted to achieve this and are all pledged to only undertake work for which they are competent.

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bafsa

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