



Essex County Fire
and Rescue Service

**THINK
SPRINKLER**

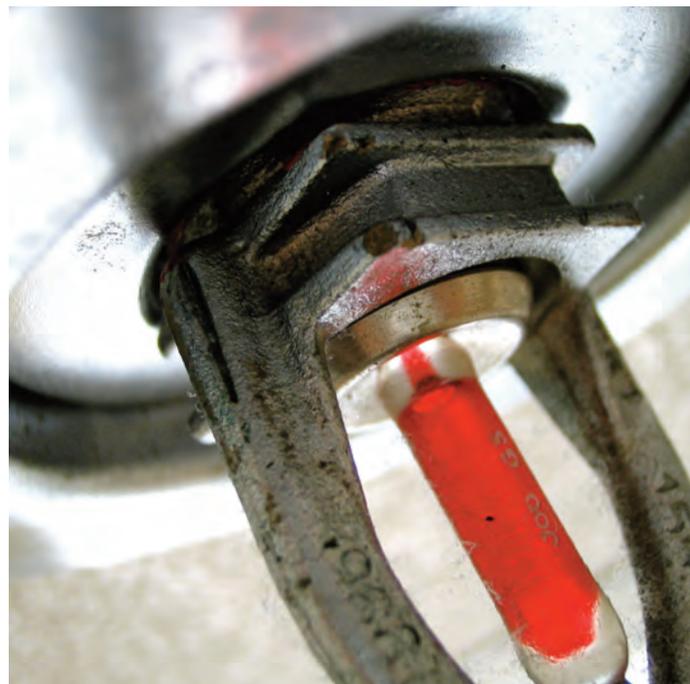


www.essex-fire.gov.uk



Sprinklers could keep you in business...

There is clear evidence that sprinklers can be effective in stopping fires spreading and extinguishing them. Essex County Fire & Rescue Service (ECFRS) is promoting a better understanding of the benefits of sprinklers as part of a core commitment to reducing the impact of fire on people, property and the environment in Essex.



Sprinklers can:

- Reduce death and injury from fire.
- Protect property and heritage.
- Reduce the effects of arson.
- Reduce the environmental impact of fire.
- Reduce fire costs and the disruption to the community and business.
- Permit design freedoms and encourage innovation.
- Reduce the risks to firefighters.



There has never been any multiple loss of life due to fire in a fully Sprinklered building.

How they work



A sprinkler head is usually mounted on the ceiling. However, wall mounted heads are available.

As the temperature from a fire increases, a glass bulb fractures allowing the flow of water, this temperature can be varied but is usually 68°C (154°F).

A deflector plate spreads the water into an effective spray which suppresses or extinguishes the fire.

Since their invention in 1812 sprinkler head design has moved along to the point where you may not even be aware they are fitted.



Ceiling Mounted

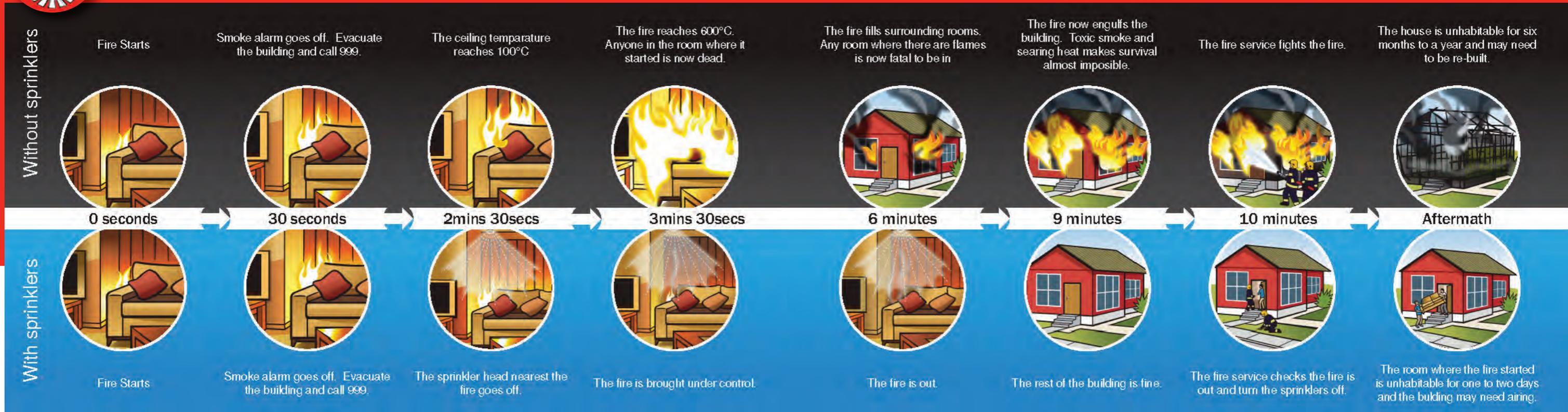
Sidewall Mounted

Sprinkler Head



The critical timeline

The timeline below illustrates the progression of a fire in a building both with and without a sprinkler system.



Sprinkler Myths & Facts

Myth: When there is a fire all of the sprinklers activate together.

Fact: Sprinkler heads go off independently and only when directly affected by the heat of a fire.

Myth: Water from sprinklers causes more damage than the fire.

Fact: As a sprinkler attacks the blaze directly and immediately when it is still small, it only needs to use a small amount of water to control the blaze.

Myth: A smoke detector/fire alarm will provide enough protection.

Fact: Smoke detectors and fire alarms save lives but do not extinguish a growing fire. A sprinkler system will not only stop a fire from spreading but in many cases will extinguish it altogether, limiting damage and reducing risk.

Myth: Sprinklers can go off accidentally.

Fact: Tests over the past 10 years show that the chances of a defective head are approximately 16 million to one; compared to a 455 to one chance of having a fire in the home.

Myth: Sprinklers are only designed to protect property, and are not effective for life safety.

Fact: Statistics show that there has never been any multiple loss of life in a fully sprinklered building.



Case Study: Sprinklered v. Non Sprinklered Schools



Ordsall School (Not Sprinklered):

- Fire service alerted 25 minutes from fire ignition.
- Arson – class furniture ignited.
- Damage – 18 rooms (1200m²), heat and smoke throughout, rooms completely destroyed.
- Eight appliances attended & 5 water jets used.
- School demolished & closed.



Houghton Mill (Sprinklered):

- Fire service alerted 10 minutes from fire ignition.
- Arson – toy box ignited.
- Damage – single room (1m²), heat and smoke damage.
- Two appliance attended – no fire fighting required.
- School opened next morning as usual.

Influence and Inform

ECFRS is working hard to influence and inform decision makers and the public about the use of sprinklers in a number of ways:

- Education – particularly at design and planning stages.
- Benefits – to all stakeholders from architect to end user.
- Business Continuity.
- Effects on the Community.
- Schools.
- Homes for life.
- Possible impact for Vulnerable Groups.
- Reduce environmental impact.
- Retro fitting of Suppression Systems.





Sprinkler installation

We work to encourage building owners and developers to install sprinklers when there is a risk-based case for doing so.



Residential care homes

Older people, people with mental health problems and those with mobility issues are groups that are most at risk from fire. ECFRS considers that all residential care homes should be fitted with sprinklers. In Scotland, there is already a requirement within Building Standards for all new build residential care buildings to have automatic fire suppression systems installed and we think that there should be the same level of protection in Essex.



Domestic properties

Fires in the home still account for the greatest number of fire deaths and injuries each year. While it would be ideal for all domestic properties to have sprinklers, it is recognised that this is not practical or realistic.

ECFRS advocates the fitting of sprinklers in the homes of people most at risk from fire – younger people, older people, people with mental health problems and those with mobility problems. ECFRS works in partnership with developers, residents and social housing landlords to encourage the installation of sprinklers in the homes of the most vulnerable people.



Schools

Hundreds of UK schools have a fire each year. The impact of these fires is significant, not just in financial terms but also in terms of the devastating effect on the communities they serve and the disruption to students, teachers and families.

The impact on a child's education is not limited to lost course work but often includes longer travel times, disrupted social groups and poorer facilities. If sprinklers were considered at the design stage of building a new school or when existing buildings are being refurbished, the costs can be kept to a minimum – in many cases as low as one per cent of build costs.



Commercial premises

There is a compelling case to be made for sprinklers in any commercial premises on the basis of loss of production or interruption to business and fire can be a real impediment to business continuity and productivity. 85 per cent of small and medium businesses that suffer a serious fire either never recover or cease trading within 18 months, so the installation of sprinklers makes good business sense.



Incentives and benefits to install suppression

Potential relaxation of building regulations

- Larger compartment sizes.
- Travel distances increased.
- More open spatial designs.
- Reducing exit door widths.
- Reduction in standard of smoke control.
- Reducing periods of fire resistance to elements of structure.
- Reducing constraints such as distances between buildings.

This is by no means a complete list, just some examples.

Potential incentives and benefits on buildings completion:

- Reduced insurance premiums.
- Reduced chance of life loss.
- Reduced property and stock damaged.
- Reduced down time.
- Reduced loss of earnings.

This list goes on and on...





Retro fit suppression

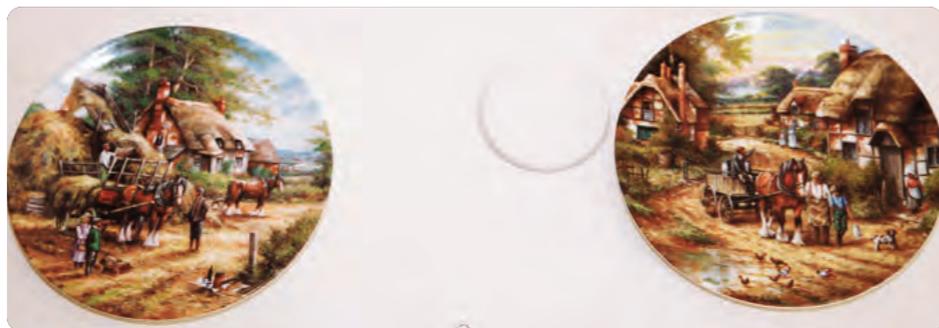
THE SHEFFIELD PILOT PROJECT (2011)
A high rise retrofit project – Callow Mount



Following the Lakanal House tower block fire on July 3, 2009 in Camberwell, London where 6 people were killed and at least 20 people were injured. The retrospective fitting of fire suppression systems was investigated and the Sheffield pilot project started.

The block is designated as 'sheltered housing', with warden cover being provided during weekday periods. The ground floor contains offices and communal rooms, with the 46 one-bedroom flats and 1 two-bedroom flat on the remaining 12 floors. It was agreed that the 47 residents would remain in occupation during the work progress.

High-rise housing presents a great many difficulties to firefighters, difficulties which could be solved simply by installing a sprinkler system. In the 12 months before this project nine people died and 12 people, including five firefighters, were injured in fires in similar flats.



- The installation commenced August 30, 2011 was successfully completed September 28, 2011.
- All 47 residence praised the installation company and the standard of completion.
- The only sprinkler heads and pipe work left in view was in Storage and service room areas.

Retro fit costs (Callow Mount):

Identified true and full costs for installing sprinklers into high rise blocks:

- Total Cost – £55,134
- Cost per flat – £1,148

Maintenance and full life costs:

- Maintenance costs £250 per annum (2011 prices).
- Lifetime costs based 30 year period on above are circa £60k.
- Equates to between £40 and £50 per year per flat.

All costs include fitting/maintenance of common areas and refuge stores.

Project Conclusion

A comprehensive report on the Sheffield pilot project shows that it is both cost-effective and practical to retrofit automatic fire sprinklers in occupied, high-rise social housing blocks of that period without disturbing residents.



Essex County Fire and Rescue Service

Kelvedon Park, Rivenhall, Witham, CM9 3HB.

