



Sprinklers

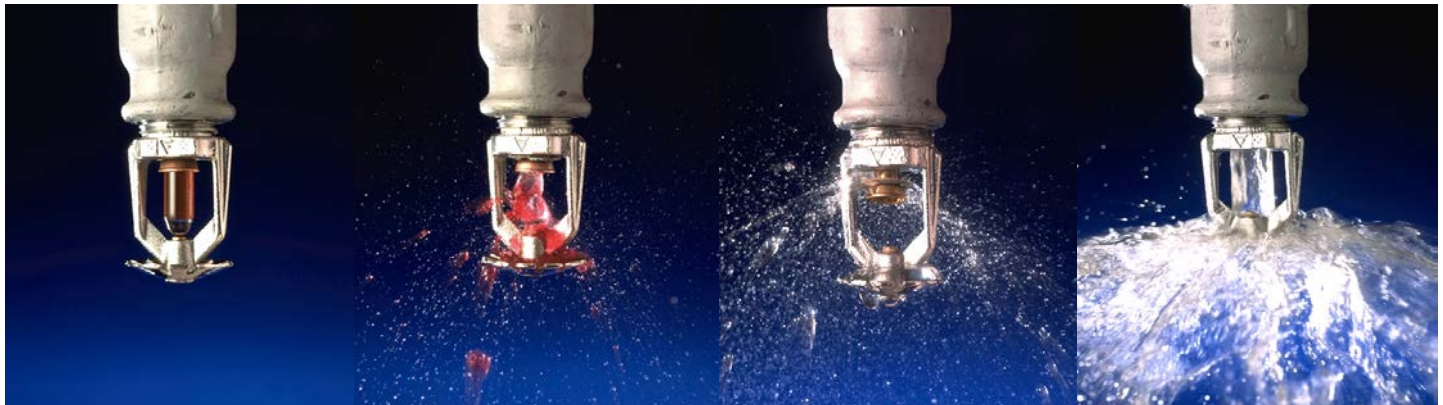
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Purpose of Sprinklers

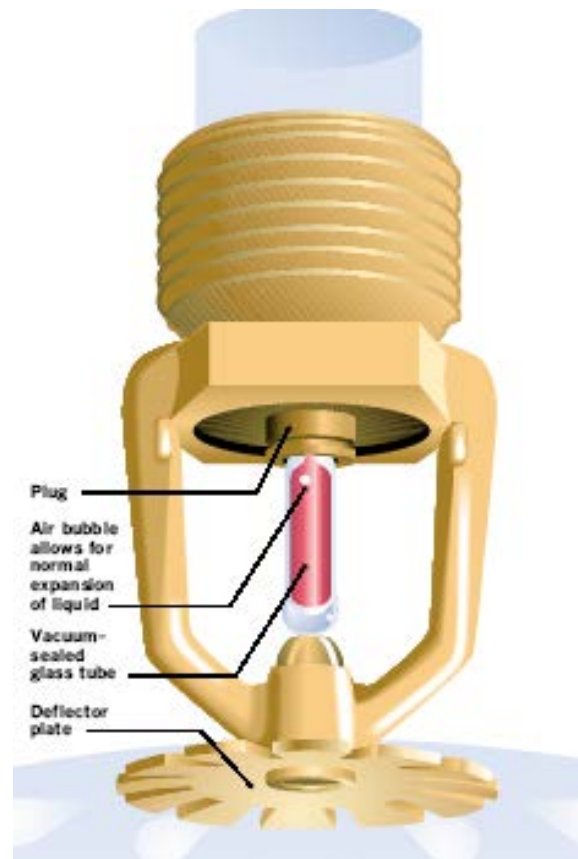
- Detect a fire
- Control (or extinguish) the fire
- Raise the alarm





How sprinklers work

1





2





3





The Problem

Every year in England and Wales:

- Approx 73,214 primary fires accounting for at least 253 deaths and over 7,160 non-fatal casualties
- Estimated cost of fire losses £1.3bn
- Business interruption claims £200m
- Number of fires ↓
Average cost of fires ↑





The Problem

Over 70% of businesses involved in a major fire either do not reopen or subsequently fail within 3 years of the fire.





The Solution

- Victorian ancestors invented sprinklers for commercial use
- Now being used in all types of premises
- Smoke detectors increase your survival chances by 47%. Smoke detectors together with a fixed water system increase them to 97% (NFPA)
- Sprinklers reduce property damage by 90% (BAFSA)





The Solution

- Where a fire in a sprinklered building was large enough to activate, sprinkler systems operated to control or extinguish fires in 93% of the cases
- In 7% of the cases where the sprinklers did not operate successfully:

System shut off at time of fire	66% (4.62%)
Manual intervention (at time of fire) defeated system	16% (1.12%)
Lack of maintenance	10% (0.7%)
Inappropriate system for fire	6% (0.42%)
Damaged component	2% (0.14%)

These are all due to some form of human action/inaction.





Domestic & Residential Case Study: Lower Ground Flat

- 5 Floors – Lower Ground, Ground + 3 upper floors
- 2 occupants placed some food on to cook and fell asleep
- They failed to respond to the smoke detector in the flat
- The premises have been subject to frequent false alarms but this time they were unable to reset the alarm
- Lower Ground neighbour started to smell smoke and went to investigate





Domestic & Residential Case Study: Lower Ground Flat

- He eventually roused one of the occupants, who answered the door and left the flat
- He managed to enter the flat and locate the second occupant, who he dragged from the premises
- A single sprinkler had extinguished a cooking fire in the kitchen
- No other flats were affected and remained occupied





Domestic & Residential: The UK so far...

- Scotland – all new care homes, residential homes, sheltered housing and blocks of flats over 18m to be fitted with sprinklers. In 2019 this was extended to HMOs used for care 24/7 or housing 10 or more residents and all flats.
- Wales – legislation requiring sprinklers in all new homes (from 1 January 2016)



Domestic & Residential: The UK so far...

- England – Blocks of flats over 30m high. Major changes undertaken following Grenfell will extend the requirements for sprinklers in domestic and residential premises to all new blocks over 11m high from 26 November 2020.



Myth-busting

MYTH:

When there is a fire all the heads go off at once

FACT:

Each head is independently triggered by heat. If it's not hot enough, it won't go off.





Myth-busting

MYTH:

The water damage from a sprinkler is worse than from the fire service

FACT:

Firefighting hose: 750 litres/min
approx. 5-10 mins after a fire starts

Sprinklers: 55 litres/min approx. 2½
mins after a fire starts





Myth-busting

MYTH:

Sprinklers can go off accidentally

FACT:

The chance of an accidental sprinkler activation is approximately 16 million to one.





Myth-busting

MYTH:

Sprinklers are ugly

FACT:

They don't have to be. Sprinklers can be hidden behind a heat-activated protective cover, being barely noticeable





Watermist

- Similar concept to sprinklers
 - Water delivered via heat activated heads
- Delivers water as a fine gaseous spray
 - Uses less water so needs less stored water
 - Prone to compartment size limitations and the effects of ventilation
 - Components more complex so system maybe more expensive





Personal Protection Systems (PPS)

- Portable system designed to protect a single room
 - usually watermist
- Comprises a small water tank and head:
 - Tank size depends on duration required, 10-30 mins
- Activated by double knock detection (usually multisensors) or flame detection





Personal Protection Systems (PPS)

- Useful where the risk is restricted to a single room due to:
 - Premises type (ie bedsit)
 - Occupant mobility (ie bed bound)





Personal Protection Systems (PPS)

- Loss Prevention Standard (LPS) 1655
 - Requirements and test methods for the LPCB approval and listing of personal protection watermist systems
- Currently only 1 product certified to this standard





Engaging With Residents

- 2 main reasons to install sprinklers:
 - To achieve a satisfactory standard of fire safety (life safety)
 - To provide additional protection to that required for life safety (life safety +)
- Achieving ‘buy-in’ from residents, especially where the works are not required, can be difficult





Engaging With Residents

- Factors to consider:
 - Ensure residents understand the fact and the fiction regarding sprinklers (myth-busting)
 - Ensure they understand why the system is being installed. What are the benefits for them?
 - Work with the installers to give the residents a clear expectation of what it will involve for them
 - Try to schedule the work with other maintenance/upgrade work to minimise the impact for the residents





Conclusion

- Sprinklers do not rely on changing human behaviour
- Sprinklers save lives
- Sprinklers save property
- Sprinklers can reduce insurance costs
- Sprinklers protect firefighters
- Sprinklers reduce the impact on the environment





THANK YOU

