

PREVENTING PROTECTING RESPONDING



TYNE AND WEAR FIRE AND RESCUE AUTHORITY
"Creating the Safest Community"

[SPRINKLER SYSTEMS]

It is the policy of Tyne and Wear Fire and Rescue Service to recommend the fitting of automatic sprinkler systems where appropriate. Sprinkler systems have been in use for over 100 years, below we have answered some frequently asked questions and dispel some of the myths surrounding their use.

Are automatic sprinklers a recent invention? No. The oldest recorded use of automatic sprinklers was in the Theatre Royal, Drury Lane in 1812. The updated version is still in use today.

Are they likely to go off by mistake? No. The likelihood of a sprinkler operating accidentally is 1 in 500,000 (per year of service) about the same as being struck by lightning in a given year.

Do all the heads operate at once? No. Each sprinkler head is effectively a self-contained heat detector and is designed to operate when the predetermined temperature at which it is set to operate is reached. In normal operation sprinklers are set to operate at 68°C, and only the head in the vicinity of a fire will operate. This is why they will not false alarm, unlike smoke detectors that may operate if you burn toast.

Do sprinklers create more water damage than the fire service? No. Depending on the type of system and the type of premises it is designed to protect, each sprinkler head discharges between 50 -100 litres of water per minute. Typically the discharge begins about 10 -30 seconds after the fire produces enough heat to operate the sprinkler. This is in contrast to the 1,000 - 2,000 litres per minute of water that is likely to be used by the fire service, due the time taken to respond to the incident. Even if you have automatic fire detection, the time taken for the fire service to respond will be greater than that for a sprinkler to operate.

If a sprinkler false alarms, won't it create a lot of damage? Sprinkler systems cannot false alarm as they only operate if the air surrounding the head reaches the pre-determined temperature. They do not respond to smoke, steam, dust or sprays from aerosols.

How does a sprinkler work? A sprinkler head is a temperature-controlled valve that operates, to release a spray of water, when the heat sensitive element reaches a pre-determined temperature. The majority of sprinklers installed in the U.K. are of the 'glass bulb type'. This bulb is filled with a coloured liquid and a small bubble of vapour.

As the bulb heats to its operating temperature the vapour expands, until the glass bulb is fractured allowing the water in the pipe behind the head to escape. The sprinkler head is designed to operate at 30°C above the highest anticipated ambient temperature. Under normal conditions, in temperate climates, a rating of 68°C or 74°C will be suitable. However, sprinkler heads with a operating range from 57°C to 230°C are available as needed.

Is there a risk of vandalism to the system? Regardless of the type of fire protection system used there is always the chance of vandalism. However, this is extremely rare and the vandal would get very wet and be easily identifiable. All sprinkler systems should be fitted with water flow alarms that provide an alert when a head operates. This alarm can be connected to an alarm receiving centre that will alert the fire service to the activation. It is worth noting that deliberate damage to any part of a sprinkler system would constitute a criminal offence.

Is there a risk of Legionnaire’s disease from sprinklers? Research carried out by the Fire Protection Association and the Loss Prevention Council has shown that there is no realistic chance of a member of the public contacting *Legionella pestis* from a sprinkler system when it operates. There may be a small risk to engineering and maintenance staff; this can be entirely eliminated by proper maintenance of the system. There has been no recorded case of Legionnaire’s Disease being contracted from any fire protection system anywhere in the world.

Are sprinklers expensive to maintain? Unlike other fire protection systems that rely on electronics sprinkler systems need only very basic maintenance. Usually only two maintenance visits per year are required to keep the system in good working order. Weekly and monthly checks of pumps, pressure gauges and valve settings can be carried by suitably trained staff.

Further information regarding the use of sprinklers can be found at the British Automatic Fire Sprinkler Association, www.bafsa.org.uk