



NOTTINGHAMSHIRE
Fire & Rescue Service
Creating Safer Communities

Nottinghamshire and City of Nottingham
Fire and Rescue Authority
Community Safety Committee

SPRINKLERS

Report of the Chief Fire Officer

Agenda Item No:

Date: 20 January 2012

Purpose of Report:

To seek approval from Members for the adoption of a position statement on sprinklers.

CONTACT OFFICER

Name : John Buckley
Assistant Chief Fire Officer

Tel : 0115 967 0880

Email : john.buckley@notts-fire.gov.uk

Media Enquiries Contact : Elisabeth Reeson
(0115) 967 5889 elisabeth.reeson@notts-fire.gov.uk

1. BACKGROUND

- 1.1 The sprinkler as a device to detect and control a fire is generally well-known although there are some popular misconceptions as to their operation, particularly with respect to the number of heads that operate.
- 1.2 Sprinklers have been incorporated in buildings for some considerable time and were originally seen and developed as a means of reducing fire losses to property and contents. Over recent years there has been a growing recognition of their use as a means to contributing to life safety which is recognised in current UK guidance to the Building Regulations.
- 1.3 The recognition of their contribution to life safety can be largely attributed to their good record in detecting, suppressing and controlling a fire to a much smaller size than would otherwise be the case without sprinklers. This advantage is first seen in increasing life safety outside-the room or compartment of origin. Now, with fast response sprinklers, there is evidence that even in the room or compartment of origin, persons are better protected with a sprinkler system.
- 1.4 A number of comparisons of fire damage with and without sprinklers have been made as a result of accidental ignition and malicious fire-setting. In general the extent of fire damage has been markedly reduced in sprinklered premises often to the extent that business can be continued the following day whereas the unprotected premises have been out of action for considerable periods or even permanently.
- 1.5 In Australian fire tests on a redundant sprinklered office building, it was found necessary to turn off the sprinkler system in order to allow the fire to develop in order to conduct the experiment. Even with the resulting increased fire development, the system extinguished the fire when it was turned on.
- 1.6 Similarly fire tests carried out by Greater Manchester Fire Brigade, which were recorded on video, demonstrated the dramatic effect of sprinklers in detecting and quenching fires.
- 1.7 The fire in the First Interstate Bank, Philadelphia USA, spread internally and externally from floor to floor until it reached a sprinklered floor. At that point, the operation of the concealed sprinklers stopped further fire spread. The advantage to fire fighters of having sprinklers in tall buildings was well, demonstrated by this incident.
- 1.8 Real fire data collected by the National Fire Protection Association (NFPA) for 1999 showed that across all types of premises protected with a wet pipe sprinkler system:
 - 62.3% of reported fires were controlled by a single sprinkler head.
 - 96.3% of reported fires were controlled by 10 or fewer sprinkler heads.

- 1.9 A report published in 2005 by the NFPA based on the most recent data concluded – "... when sprinklers are present, the chances of dying in a fire are reduced by one-half to three quarters and the average property loss per fire is cut by one-half to two-thirds, compared to fires where sprinklers are not present ..."
- 1.10 Sprinkler systems have demonstrated their value in protecting life and property in industrial and commercial buildings for many years. The developments of sprinklers that operate at an earlier stage in the development of a fire have led to the introduction of residential systems designed for domestic dwellings.
- 1.11 Residential sprinklers can offer a broad package of fire protection for householders, which protects not only lives, but has the added advantage of reducing property and contents damage. Sprinklers can help to reduce the overall expenditure on fire, by minimising the cost of 'after care' for fire victims provided by Health Authorities and Social Services and achieve this by adding to the quality of protection the Fire Service provides.

2. REPORT

- 2.1 This report recognises the change in the recognition of such systems and the direct promotion of such systems at Ministerial level and more recently, within the legislature with the passing of the Legislative Competence Order by the Welsh Assembly which requires sprinklers to be fitted in all new residential accommodation.
- 2.2 It is recognised that in some circumstances a regulatory approach to the installation of sprinklers is prudent in order to protect certain types of building to ensure the safety of occupants. It also recognises the important role Nottinghamshire fire and Rescue Service has to play in proactively supporting the benefits of sprinklers within the community.
- 2.3 Residential sprinklers are individually heat-activated. They are connected to a network of piping which in turn is filled with water under pressure. When the heat of a fire raises the sprinkler to its operating temperature, usually between 57°C-79°C, a fusible link or glass bulb will activate only that sprinkler over the fire, thereby releasing water over the source of heat and walls, reducing the fire-size temperatures and levels of toxic gases within the room of origin.
- 2.4 The result is to keep a fire from reaching potentially dangerous and life-threatening proportions and giving early detection. Residential sprinklers operate automatically in the event of a fire, even if the householder is not home, releasing water directly over the source of heat and sounding the alarm.
- 2.5 They help to extinguish a fire, but should this not happen the system will control the fire and slow its growth and reduce smoke and toxic fumes. This means that the fire service will be faced with a less severe fire and much less

damage caused to the property. Most importantly the householder will have had time to escape.

- 2.6 The Service, through its Fire Protection Team, uses every opportunity to encourage the installation of such systems by designers, developers and building owners where there are clear benefits to life safety in the event of a fire. This is because sprinklers can significantly help to:
- Reduce death and injury from fire;
 - Reduce the risks to fire-fighters;
 - 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 innovative, inclusive and sustainable architecture
- 2.7 It is important that NFRS dispel and challenge the myths which have grown up around sprinkler systems over the years through various routes, for example:
- Myth – all heads go off together;
 - Fact – only the sprinkler head(s) directly affected by the fire is triggered.

 - Myth: - water from the sprinkler causes more damage than the fire;
 - Fact – sprinklers attack the fire quickly and directly so less water is needed. As they also they operate the fire alarm, the flow can be quickly turned off when the fire is out.

 - Myth: - a smoke detector will always provide enough protection;
 - Fact: - operational smoke detectors do save lives, however they do nothing to extinguish a growing fire.

 - Myth: - sprinklers go off accidentally;
 - Fact: - the odds of winning the Lottery are greater than the 16 million to one chance of a sprinkler malfunction.
- 2.8 This report supports the adoption of a position statement by Nottinghamshire Fire and Rescue Service, the Nottinghamshire and City of Nottingham Fire and Rescue Authority.
- 2.9 The purpose of providing a sprinkler position statement is to ensure that a consistent message is delivered from across all levels of the Service to internal and external stakeholders.
- 2.10 The general intent is to champion the wider use and installation of sprinklers in buildings and in particular where deemed appropriate in residential properties.

PROPOSED POSITION STATEMENT

- 2.11 Nottinghamshire Fire and Rescue Service consider that the installation of sprinklers, or other automatic water suppression systems, in buildings, whether commercial or residential, will have a significant impact on the reduction of deaths and injuries from fire.**
- 2.12 That sprinklers contribute significantly to the reduction of building, stock and equipment loss and business disruption as a consequence of fire.**
- 2.13 In particular for high-risk groups of the community residential sprinklers may be the single most significant means to achieve the reduction in accidental fire deaths and casualties in dwellings.**
- 2.14 That the Service encourages designers and companies to consider the installation of sprinkler systems and continues to work in partnership with other agencies to identify those persons or groups at high risk and to recommend, where appropriate, residential sprinkler systems.**
- 2.15 That the Service encourage designers and developers to identify and adopt the design freedoms which may be available through the installation of sprinkler systems which ensure an equivalent or higher level of safety for the occupiers.**
- 2.16 That the Service positively promotes and encourages the provision of residential sprinklers in new build private and public housing and commercial installations in commercial premises or public buildings**
- 2.17 That the Service continues to work in partnership with other bodies such as the National Fire Sprinkler Network, Residential Sprinkler Association and British Automatic Sprinkler Association to research and promote the use of residential sprinklers, seeking to influence their inclusion in appropriate legislative changes.**

3. FINANCIAL IMPLICATIONS

There are no direct financial implications arising from this report, however by supporting the recommendations Officers will actively pursue the spirit of the position statement which may create financial implications. Any future implications will be subject to a future report.

4. HUMAN RESOURCES AND LEARNING AND DEVELOPMENT IMPLICATIONS

There are no human resources or learning and development implications arising from this report.

5. EQUALITY IMPACT ASSESSMENT

An equality impact assessment has not been undertaken because this is not a function, policy or service. However, if the Service actively pursues the spirit of the position statement an equality impact assessment will be required. It should be noted that equalities considerations may form part of the criteria for the installation of residential sprinklers.

6. CRIME AND DISORDER IMPLICATIONS

There are no crime and disorder implications arising from this report

7. LEGAL IMPLICATIONS

Fire Authority legal obligations in relation to statutory fire safety enforcement are well understood and outlined within the Fire and Rescue Services Act 2004 and the Fire Safety Order (2005).

8. RISK MANAGEMENT IMPLICATIONS

- 8.1 The recommendations contained in this report are consistent with the duties of the Fire Authority under Section 6 of the Fire and Rescue Services Act 2004 to make provision for the promotion of fire safety.
- 8.2 Section 6(2) requires the Authority, to the extent it considers reasonable to do so, make arrangements for:
- (a) The provision of information, publicity and encouragement in respect of the steps to be taken to prevent fires and death or injury by fire; and
 - (b) The giving of advice, on request about:
 - (i) How to prevent fires and restrict fire spread in buildings and other property,
 - (ii) The means of escape from buildings and other property in case of fire.

9. RECOMMENDATIONS

That Members support the adoption of the Nottinghamshire Fire and Rescue Service sprinkler position statement and agree to receive future reports on developments in this area.

10. BACKGROUND PAPERS FOR INSPECTION (OTHER THAN PUBLISHED DOCUMENTS)

None.

Frank Swann
CHIEF FIRE OFFICER