

# BUILDING STANDARDS DIVISION

BUILDING SCOTLAND  
REGULATIONS 2004

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## Automatic Fire Suppression Systems

# Automatic Fire Suppression Systems

- Current Functional Standards where systems are considered.
- 2.1 Compartmentation.
- 2.6 Spread to neighbouring buildings.
- 2.15 Automatic Life Safety fire suppression systems.
- Alternative Approaches

## 2.15 Automatic life safety fire suppression systems

- Every *building* must be designed and *constructed* in such a way that, in the event of an outbreak of fire within the *building*, fire and smoke will be inhibited from spreading through the *building* by the operation of an automatic life safety fire suppression system.

## 2.15 Automatic life safety fire suppression systems



- Limitation
- This standard applies only to a *building* which:
  - (a) is an enclosed shopping centre;
  - (b) is a *residential care building*;
  - (c) forms the whole or part of a *sheltered housing complex* or
  - (d) is a *high rise domestic building*;

# Residential care building – 2.15

Definition:-

a building used or to be used for the  
provision of :

- a care home service ; or
- a school accommodation service

as defined in the Regulation of Care (Scotland)  
Act 2001

# Sheltered housing complex- 2.15



Definition:-

two or more dwellings in the same building or two or more dwellings on adjacent sites – designed and constructed for the purposes of providing residential accommodation who are to receive a “support service”

support service – defined in the Regulation of Care (Scotland) Act 2001

# High rise domestic building– 2.15

Definition:-

“a domestic building with any storey at a height of more than 18 meters above ground”

## 2.15 : Background research

Two and half year ODPM research project to evaluate the effectiveness of residential sprinklers:-

- BRE commissioned
- Steering Group established

## 2.15: Background research



- Pilot study
- Benchmark tests
- Experimental programme
- Cost benefit analysis
- Conclusions

# Research project conclusions

- sprinklers are not cost effective for most dwelling types
  
- probably cost effective for;
  - high rise blocks of flats
  - residential care buildings

## 2.15 : Process 1

- Significant Ministerial interest
- sound evidence base to determine policy
- BSAC fire committee reconvened
- Consultation on new standard 2.15 in April 2004
- Over 40 responses received

## 2.15 : Process 2

- widespread stakeholders support for the new standard
- “standard did not go far enough” e.g. hospitals, schools and other vulnerable groups
- SBD on behalf of Scottish Ministers
  - continuously monitor innovation and standards
  - next Section 2: Fire review
- Standard 2.15 laid in Parliament September 2004

# Standards BS 9251



## Domestic

- Minimum flow rate (for at least 10 minutes)
  - 60 litres per minute through any single sprinkler
  - 42 litres per minute through 3 heads operating simultaneously
  
- Quick response type heads
  - Response Time index (RTI)  $< 50$
  - Conductivity factor  $< 1$

# Standard BS 9251

## Non-Domestic

- Minimum flow rate (for at least 30 minutes)
  - 60 litres per minute through any single sprinkler
  - 42 litres per minute through 4 heads operating simultaneously
  
- Quick response type heads
  - Response Time index (RTI)  $< 50$
  - Conductivity factor  $< 1$

# Other research

- Rosepark Care Home fire –BSD commissioned further research deemed in the public interest
- Concealed and recessed pattern sprinkler heads (CLG)

# Other research

- Rosepark Fire
- In the interest of public safety the Executive commissioned further research into sprinkler systems in residential care buildings.
- This to build on the previous research conducted by the BRE.
- Two further fatal fires occurred in residential care homes. One in South Wales, One in Cornwall.

# Other research

- Concealed sprinkler heads are fitted flush into the ceiling.
- Recessed pattern sprinkler heads are partially recessed into the ceiling.
- Both designs effect the speed of operation.

# Other research

- The research will provide valuable evidence as to whether current building design practice requires to be reviewed.
- It is hoped that it will also assist in giving an indication to possible alternative design strategies to buildings fitted with life safety fire suppression systems.

# Innovative systems

Other systems on the market:-

- Water mist, water spray, fog or deluge systems
- Appropriate test evidence needed for use in domestic market, however, at the discretion of the LA verifier

# Alternative Approaches

- Heritage Buildings.
- Open plan flat layouts.
- Town Houses.
- Fire engineered solutions.

# Future Proposals

- **NON DOMESTIC**
- New functional standard 2.16 Automatic fire suppression systems.
- Every school must be designed and *constructed* in such a way that in the event of an outbreak of fire within the *building*, fire and smoke will be inhibited from spreading through the *building* by the operation of an automatic fire suppression system.

# Future Proposals

- **NON DOMESTIC**
- 2.16 Automatic fire suppression systems
- 2.16 Functional standard
- 2.16.0 Introduction
- 2.16.1 Fire suppression systems
- 2.16.2 Hazard classification
- 2.16.3 Design criteria
- 2.16.4 Continuing requirement

# QUESTIONS?

