“Fire Safety in HMOs - Automatic Fire Sprinklers”

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Protecting people, property and the environment
The Problem

This fire in a seven-unit HMO in Birmingham was caused by an occupant not paying attention to cooking. It caused severe damage to the top floor flat and destroyed part of the roof. The heat and flames also caused damage along the corridors leading to the other flats. Although no occupants were injured in the blaze, the house was left uninhabitable throughout for a period of at least 6 months. The occupants had to relocate and the landlord lost rental income in addition to having to cover the repairs. No sprinklers were fitted in the premises.
Brunswick Place Hove - HMO
0235hrs on 9th Nov 2012

- Building of 5 Floors – ‘Vulnerable People’
- Residents ignored the fire alarm
- One sprinkler head activated
If one sprinkler head goes off, they all go off.

**BUT IN FACT:** Sprinkler heads are designed to react to temperatures in each room individually. Normally, only the sprinkler over the fire will activate. Data shows that in residential scenarios, usually one sprinkler will control a developing fire; in commercial buildings, as few as three sprinklers will do the job.

*They cause water damage!*

**BUT IN FACT:** Tests have shown that damage caused by water on a sprinkler extinguished fire is substantially less than damage caused by water from a fire brigades hose in an identical unsprinklered fire, and don’t forget that sprinklers can reduce fire damage by up to 80%
Common Myths Exposed

Sprinkler may go off accidentally!

BUT IN FACT: Research shows that the probability of a sprinkler discharging accidentally due to a manufacturing defect is only 1 in 16 million. You have a better chance of winning the lottery!

Sprinklers heads will leak!

BUT IN FACT: Sprinkler systems are under the same pressure as the plumbing system but are tested at 2-3 times higher pressure during installation.
Over the past 130 years sprinklers have had a better than 95% success rate in controlling fires around the world.

This recent study reveals the ‘performance effectiveness’ of sprinkler systems across all building types as 99% in situations where sprinklers could have been expected to operate.

The research also indicates that the operational reliability of the systems studied was 94% across all building types where sprinklers could have been expected to operate.
Sprinkler Facts

Cost effective:
Sprinklers are NOT expensive; normally costing around 1-2% of the cost of construction of a new building. The use of sprinklers will usually allow design freedoms as well, which can reduce construction costs and improve usability of the building.

Dependable:
Fire alarms and smoke detectors can only warn of a fire starting and depend on someone calling the Fire Brigade. Fire Sprinklers not only warn of a fire, they also act swiftly to control it - even if no one is present. In fact the sprinkler system will probably have gained control of the fire long before the Fire Brigade is even notified.
The Domestic Fire Safety (Wales) Measure 2011

- The Measure requires the provision of automatic fire suppression systems (such as a fire sprinkler system) compulsory in all new and converted ‘residential’ properties and enables Welsh Ministers to introduce regulations setting out the requirements for such systems.
Assumptions:

- Cost of installing sprinklers £3,075 per house, and £879 per flat. Annual maintenance costs £96 per house/flat

- However, this assumes that a stored water supply will be necessary i.e. a tank and pump

But this may not always be the case – especially for ‘new build’ properties!
Callow Mount Project, Sheffield

- 13 storey tower block managed as sheltered housing
- Ground floor – caretakers office, services, communal room and 4 external bin stores
- Other 12 floors have four flats
- Floors have a common lobby containing two lift shafts
- Two means of escape staircases
Outcomes

- Identified true and full costs for installing sprinklers
  - Total Cost - £55,134
  - Cost per flat £1148 per flat

- 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
Manchester Rd Audenshaw
March 2014

Fatal fire in sprinklered building

However, after further investigation:

- Fire occurred in a half-way house for rehabilitating offenders
- The deceased was not pulled from the flat as indicated in the newspaper report but left in situ for FRIS investigation
- The deceased has been subjected to an assault prior to the fire which was a deliberate act.
- The sprinkler head operated as designed and contained the fire to the room of origin.
- All other occupants escaped on activation of the smoke alarms
- The offender was caught and given a 30 year sentence
Beware of ‘New Inventions’

- The growing interest in domestic fire suppression has spawned another generation of inventors
- However, such products are not always as inexpensive as they appear
- And they might not work!
Other Benefits

The Problem of hoarding

• “The demonstration fire experiment showed that a sprinkler system [BS 9251] is likely to be effective in controlling and suppressing a fire in a room involving typical ‘hoarding’ materials”

• “However, the fire did grow again when the water supply was stopped at 10 minutes”
Mobility Scooters

Growing problem

Effective solution
How to select a competent contractor?

- LPS 1048 (commercial & industrial systems)
- LPS 1301 (residential & domestic systems)
- FIRAS (mainly residential & domestic systems) **NB Watermist scheme!**
- IFC Certification Ltd

Certificate of Conformity
BAFSA suggests that the review takes fully into account changes to RISK e.g.:
- Ageing population – home care etc
- Modern methods of construction – ‘timber frame’ in particular
- ‘Open-plan’ living/flexible design
- Building on smaller footprints but higher
- F&RS ‘call challenging’ policies and changes to attendances!

Sprinklers can be the solution to many of our fire safety problems
British Automatic Fire Sprinkler Association

Questions

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