TOWER BLOCK FIRE SAFETY

The tragic events of the early hours of Wednesday 14th June 2017 which saw The Grenfell Tower Block destroyed by fire is likely to be one of the worst fire related incidents that this country has experienced. There has been much speculation in the media about the cause of the fire and reliable conclusions will only become clear following detailed forensic investigation. Nevertheless, owners, landlords, managing agents and not least tenants or occupiers of tower blocks will understandably be concerned about fire safety and this technical briefing seeks to provide guidance on tower block fire safety.

Tower blocks began to be built in Great Britain after the Second World War and in many cases were seen as a 'quick-fix' to cure problems caused by crumbling and unsanitary 19th-century dwellings or to replace buildings destroyed by German aerial bombing.

Construction of tower blocks was typically on a concrete frame with concrete floors, external concrete walls and internal brick walls. Buildings were designed so that each individual flat was a fire resisting 'box' capable of withstanding fire for a pre-determined period, usually 30 to 60 minutes.

Based on the non-combustible construction of tower blocks, with each flat an inherently designed fire resisting compartment, fire brigades have historically recommended 'stay put' policies in the event of fire.

The 'stay put' policy involves the following approach:

- When a fire occurs *within a flat*, the occupants alert others in the flat, make their way out of the building and summon the fire and rescue service;
- If a fire starts in the common parts, anyone in these areas makes their way out of the building and summons the fire and rescue service;
- All other residents not directly affected by the fire would be expected to 'stay put' and remain in their flat unless directed to leave by the fire and rescue service;

The principal has been demonstrably successful in the past: out of a total of 714 fires in tower blocks (buildings with ten or more storeys)

during the period April 2016 to March 2017 only 56 fires spread further than the room of origin [1].

However, building modifications, refurbishment and improvements to tower blocks such as installation of central heating, new kitchens and bathrooms, fire detection and replacement windows while raising the standard of the property can have a detrimental effect on the building's performance in the event of a fire and could readily compromise the safety of the building's occupiers, and may render the stay put policy ineffective.

Fire Risk Assessment

The introduction of fire safety legislation in Great Britain and Northern Ireland has imposed responsibilities and duties on persons with regards to fire safety. In general, the legislation seeks to ensure the safety, in the event of fire, of persons (whether they are employees, residents, visitors or others) by setting out "general fire precautions/fire safety measures" and other fire safety duties which are needed to protect "relevant persons" in case of fire in and around most "premises". In Scotland, domestic properties and their common areas are not considered at law to be 'relevant properties', although owners, landlords, managing agents and factors have legal responsibilities for maintenance and upkeep, and a duty of care towards their tenants and others using their properties. A fire risk assessment is considered best practice and morally appropriate to identify fire hazards, persons at risk and to implement suitable and sufficient controls to ensure the safety of tenants and others including the fire and rescue service.

[1] Source: Fires in purpose-built flats, England, April 2009 to March 2017 published by the Home Office 27th June 2017

Essentially anyone who has control to any extent of premises will have some responsibilities for ensuring that those occupying the premises are safe from harm caused by fire. The Regulatory Reform (Fire Safety) Order 2005 (England and Wales) the fire safety order or FSO and, the Part 3 of the Fire and Rescue Services (Northern Ireland) Order 2006 and the Fire Safety Regulations (Northern Ireland) 2010 and best practice in Scotland require the responsible person(s) for the building to:

- Undertake a Fire Safety Risk Assessment (with regards to purpose built blocks of flats including tower blocks, the scope of the fire risk assessment is the common parts, however, it is essential that the fire resistance between the flats and the common parts is considered);
- Identify the Fire Safety measures required;
- Implement the required Fire Safety measures identified using risk reduction principles;
- Put in place Fire Safety arrangements for the ongoing control and review of the Fire Safety measures;
- Comply additionally with the specific requirements of the Fire Safety regulations;
- Keeping the Fire Safety Risk Assessment and outcome under review;
- Retain records.

In summary the fire risk assessment must consider the 'general fire precautions' which are defined in the fire safety legislation, of these, the principal ones for purpose built flats are: measures to reduce the risk of fire and the risk of spread of fire; means of escape, measures to ensure that escape routes can be safely and effectively used; an emergency plan, including procedures for residents in the event of fire; and, measures to mitigate the effects of fire. The findings of the risk assessment should be recorded and the fire risk assessment will need to be periodically and regularly reviewed.

Managing Fire Risk – reducing the risk of fire and fire spread

While it is not always possible to prevent fires, there are steps you can take to reduce the risk of a fire occurring. While fires in flats can potentially be self-contained, those in communal areas such as stairwells can spread quickly and therefore are particularly dangerous. Suitable controls should be put in place to:

- Prevent people smoking in the common parts which is the main source of ignition in accidental fires in dwellings. Smoking materials such as cigarettes, cigars or pipe tobacco were the source of ignition in 7% of accidental fires in dwellings and 9% of dwelling fire non-fatal casualties in 2015/16. Further to this, smoking materials were the cause in 36% of fatalities in accidental dwelling fires in 2015/16 - by far the largest ignition category[2].
- Remove opportunities for arson, through denial of fuel, good security.
- Ensure good housekeeping in the common parts. What is the policy? Completely sterile and zero tolerance or managed use?
- Fixed electrical installations should be subject to periodic inspection and test at intervals determined by a competent person, no greater than every five years in the case of the common parts and every ten years for installations within each flat.
- Heating and ventilation systems should be maintained regularly, particularly where they serve the common parts or are common to more than one flat.
- Any lightning protection systems should be subject to regular maintenance.
- Remove or prevent the use of waste chutes by sealing the hatches, ensure suitable alternative arrangements are in place for the removal of waste from tenants' flats, avoiding the build-up of waste in common parts and fire escape routes.

[2] Home Office Fire Statistics: England April 2015 to March 2016

Managing Fire Risk – fire protection

- Benchmarks should be used to assess the standard of fire protection in a block of flats. These are not prescriptive, and the aim should be to use them to determine a reasonable approach to improving fire safety where the fire protection measures have been found to be inadequate. For example, following fire risk assessment or enforcing authority visit. Initially, these benchmarks might be those that were in place when the block was built, rather than those that currently apply. However, upgrading existing buildings to meet current benchmarks may be appropriate in situations in which the original standards are far removed from what is acceptable today, and, as a result, there is unacceptable risk.
- While the appropriate solution might be to restore what was originally in place, upgrading to achieve current benchmarks should take place when the opportunity arises, such as through the normal process of refurbishment.
- When upgrading fire precautions, fire protection products and services should be fit for purpose and properly installed. Third party certification schemes are available for many such products and services.
- Effective compartmentation is fundamental to ensuring adequate fire safety in blocks of flats. It is therefore vital that floors and walls are in good condition and that there are no openings that would permit uncontrolled spread of fire and smoke.
- Particular attention should be given to the potential for fire-spread through common ventilation ducts.
- Emergency escape routes from flats in some older blocks may involve forms of alternative exit, such as linking balconies and pass doors that are no longer recommended. Alternative measures may need to be provided where this is the case.
- Excessive travel distance and other departures from current benchmark design guidance may need to be accepted. Alternative measures may again be required in some cases.
- Original flat entrance doors in many older blocks will not meet current standards. In some situations, it will be appropriate to accept the door as it is; in others, upgrading or replacement of the doors will be necessary. This will depend on the risk.
- The fitting of suitable self-closing devices to flat entrance doors is an essential short-term measure.
- While fire exit signs will not often be required in blocks of flats, particularly those with a single stairway, they are required wherever there are alternative exit routes, secondary exits (for example using external stairs), across a flat roof or anywhere where there is potential for confusion.
- Emergency escape lighting is required in all but the smallest of blocks.
- All flats should be provided with smoke alarms installed in accordance with BS 5839-6. Fires where a smoke alarm was not present accounted for 28% of all dwelling fire non-casualties and 33% of all dwelling fire fatalities in 2015-16[3].
- Where, on rare occasions, fire alarm systems are installed in the common parts, these systems should comply with BS 5839-1. Use of smoke alarms in the common parts is inappropriate.
- Provision of fire extinguishers or hose reels is not normally considered necessary, other than in plant rooms, community facilities, staff and common rooms.
- In mixed use buildings, the risks presented by other occupancies, and the way these risks can impact on the safety of the residents of flats, need to be taken into account.

[3] Home Office Fire Statistics: England April 2015 to March 2016

- The limitations of the residents of sheltered housing schemes should be taken into account when determining suitable fire safety measures. However, the principles of a 'stay put' policy apply equally to such schemes.
- Fire-fighting facilities provided in existing blocks of flats should at least meet the standard of the day the block was built and should be maintained in efficient working order.
- Restrictions apply to the nature and construction of external cladding systems and to the materials used for façades. This is in order to limit the potential for external fire-spread, particularly in high-rise blocks.

Management of the Fire Risk – Ongoing control

Arrangements for managing fire safety in blocks of flats should include the following:

- Development of a fire policy and appointing someone in the organisation to take overall responsibility for fire safety.
- Making sure someone is designated to provide guidance on fire safety measures required by the FSO and supporting this person with help from specialists, where necessary.
- Coordinating and cooperating with other occupiers, particularly on issues such as fire procedures.
- Using residents' handbooks, websites and other media to engage with residents and communicate vital fire safety messages.
- Providing generic training to ensure housing officers and others visiting blocks of flats have sufficient fire safety awareness.
- Preparing relevant fire procedures and making everyone aware of them.
- Managing the risk from building works, including adopting a 'hot work' permit system.
- Putting in place programmes for routine inspection, testing, servicing and maintenance of fire safety systems and equipment.
- Arranging similar programmes to monitor the condition of other fire safety measures, such as fire-resisting doors.
- Monitoring the common parts through formal inspections, and as part of day-to-day activities by staff.
- Carrying out fire risk assessment reviews to monitor standards.
- Putting in place processes for scrutinising planned alterations in order to consider their impact on fire safety.
- Maintaining suitable records.
- Liaising with the fire and rescue service and encouraging residents to take up the offer of home fire-safety checks.

Occupancy

Tower blocks may be inherently more prone to casualties from a fire because people living on higher floors cannot escape fires easily and the fire brigade cannot reach the higher floors quickly. In any tenanted building, ensuring that every single resident acts responsibly to minimize fire risk is difficult, there is no control over the appliances tenants install, furnishings used, smoking, the use of candles, storage of combustibles or other items which may block or obstruct escape routes. Waste chutes were common in the earlier high rise tower blocks, each floor would have access to the chute which directed waste to a ground floor bin store. With no control over what tenants place in the chute, they often become blocked, creating a source of fuel for fires.

Tenants may make alterations or adjustments to or within their demise, electrical wiring or the drilling of holes in walls for television or satellite aerials, pipes or other cables which may compromise the fire resistant qualities of their flat.

Periodic inspections of the common parts should be undertaken by building management to ensure fire preventative and protective measures remain in place and are serviceable and fire escape routes are clear.

Remove or prevent the use of waste chutes by sealing the hatches, ensure suitable alternative arrangements are in place for the removal of waste from tenants' flats, avoiding the build-up of waste in common parts and fire escape routes.

Key points of High Rise Flats

- People living in flats experience more fires than people living in houses. However, a fire in a flat should be no more dangerous than a fire in a house; in fact, due to the fire resisting construction of purpose built flats, they may be considered inherently safer.
- To keep fire risk to a minimum, it is just as important to prevent fires as to provide measures to protect people when fire occurs.
- The most significant influences on fire risk are social and lifestyle factors and advanced age, not the type of dwelling in which people live.
- All dwellings should have working smoke alarms.
- In blocks of flats, each flat is designed to be a fire-resisting 'box'. It is important to maintain the integrity of this compartment, particularly when building work and alterations take place.
- It is important to ensure that fires cannot start in the common parts or common facilities.

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