

# Fire Safety Management

## Fire Risk Assessments

Fire safety in residential premises is of paramount importance, and it is essential that adequate levels of fire safety are provided and maintained for the safety of all residents and anyone else in or around the buildings.

Housing providers, owners, landlords and agents have a duty under the Housing Act to ensure appropriate levels of safety. Under the Regulatory Reform (Fire Safety) Order 2005 they are obliged to carry out appropriate fire-risk assessments on their properties. The order applies to all workplaces and other non-domestic premises in England, Wales and Northern Ireland. Equivalent legislation, known as the Fire (Scotland) Act 2005, came into force at the same time in Scotland. Both pieces of legislation focus on fire prevention and mitigation, with responsibility for fire safety resting with a 'responsible person'.

The legislation establishes an approach to fire safety that is risk-assessment based and consistent with other health and safety legislation. This requires the implementation of fire precautions that will ensure, so far as is reasonably practicable, the safety of all relevant people. This includes all those who have access to the premises, including employees, contractors and visitors.

A responsible person should be appointed, together with other competent people, to assist in: compliance with relevant legislation, the provision of information to employees and, where appropriate, co-operation with other responsible people – in shared premises, for example.

The employer/responsible person must ensure that the fire-risk assessment is carried out by a competent person. To be regarded as competent, a person must have sufficient training, knowledge, equipment, experience and other qualities to take into account the size of the premises and the specific hazards involved. The existing fire-safety measures may well be adequate.

Appropriate records should be kept of assessments and of the maintenance and testing of all fire detection and protection equipment.

The requirement relates directly to the communal parts of a building. Although, to gain a full appreciation of the condition of the premises, consideration of how the private areas of such housing will impact on these communal/circulation areas is essential. The level of fire safety within the individual dwelling is controlled under the Housing Act via the Housing Health & Safety Rating System.

Issues for consideration with a risk assessment include:

- **Means of warning:** fire detection is required within private dwellings and, in certain cases, within communal or non-private areas. Hard-wired automatic fire detection is recommended for all dwellings with a suitable selection of smoke/heat detection as appropriate to the risk. Consideration could be given to the linking of these individual detection units to an off-site monitoring station, subject to risk assessment, in more complex developments – such as high-rise and sheltered housing/supported-living schemes, to assist alerting appropriate emergency services and alerting other occupants as necessary. It is recommended that where the latter is to be considered, consultation should take place with key stakeholders, including the local fire authority and insurers.
- **Fire separation:** rigorous assessments are required in terms of the standard of fire separation, the completeness of such provision, the likely fire performance and the condition of these elements.

Fire separation between flats, maisonettes or dwellings, and between the accommodation and communal areas, is more commonly referred to as 'fire compartmentation'. Such fire compartmentation is a critical element in terms of an effective fire strategy for these buildings. Where breaches in compartmentation exist, these present potential routes for the rapid spread of fire, gases and smoke, all of which present significant risks in terms of both fire safety and property protection.



- **Walls** between dwellings, e.g. flats, maisonettes and houses, should be imperforate to fire, and where penetrations exist between these, appropriate means of maintaining the required level of fire resistance are essential.
- **Floors** form an integral element in terms of fire separation, and are deemed an 'element of structure' requiring appropriate levels of fire resistance. It may initially be considered that these require little consideration in terms of the fire-risk assessment, although this is not always the case. Either the floor itself can provide the fire resistance, or the protection can be provided by a fire-resisting ceiling beneath. In either case, caution should be exercised during refurbishment works, or even small-scale repair works, to ensure the integrity of this fire resistance is not breached.
- **Service penetrations** created as part of the original construction or as part of subsequent refurbishment schemes should maintain the degree of fire resistance provided by the floor. This is typically anything from 30-90 minutes, depending on the height of the building and the original design standards. Proprietary fire collars, or other means of fire stopping, should be checked for condition, integrity and damage. A key aspect to note is the restraint or fixing of the fire-stopping material or product. It is not uncommon for this to become damaged or dislodged, either through impact or as a result of gravity – given that it is horizontal. Within some larger riser ducts, fire dampers may be installed that are operated via fusible links (operated when the temperature reaches a pre-determined level) or via smoke detection located within the immediate vicinity. Such equipment should be subject to a maintenance and inspection regime by a competent person to ensure its integrity, condition and operation.
- **Ceilings** can provide essential means of fire protection to the structure of the building. However, this is not always the case, and specialist advice should be sought as to whether a ceiling provides fire resistance for the supporting structure of the building. Even when this is not the case, the ceiling forms an internal lining to the building, and should resist the development and spread of fire.

Ceiling linings should resist fire spread and therefore timber-based linings are not normally considered acceptable, unless suitably treated to resist flame spread. Where such treatment has been used in the past, caution should be exercised – re-treatment is usually required throughout the life of the building. Additionally, such treatments can normally only be applied from the exposed side of the ceiling. The upper face (within the void) generally remains untreated and therefore has the potential to aid the spread of fire.

Penetrations for services such as ventilation grilles and light fittings again present weaknesses in terms of fire resistance. It is generally the case that such penetrations are only allowed where the ceiling is not considered to provide fire resistance to the elements of structure (i.e. the structural integrity of the building is not dependent on it for fire resistance) or for fire compartmentation purposes. Access panels within ceilings should also provide equal fire resistance to that provided by the ceiling itself, and in some cases require the incorporation of intumescent strips and smoke seals.

- **Fire Doors:** fire-resisting doors within accommodation blocks are critical in maintaining an effective fire strategy, both to safeguard the lives of the occupants and to protect the property. Entrance doors to flats should offer appropriate levels of fire resistance, commonly a minimum of 30 minutes (FD30S fire doors). This would also apply to other doors within the fire-resisting compartment wall, which may include storeroom doors, service access doors or secondary means of escape. Elements such as letter boxes and cat flaps require special consideration so as not to breach the fire integrity of the door.

Fire doors within communal areas are considered one of the most critical elements within multistorey and high-rise blocks for limiting fire spread throughout a building. They are commonly subject to hard and continual use. This brings about the pressing need for regular maintenance and repair.

Regular inspection regimes should be introduced, with suitable recording and action procedures implemented.



Key issues in terms of fire-door failure include:

- **Wedging open of self-closing doors by tenants**
  - **Damage to, or removal of, self-closing devices (typically over-head closers)**
  - **Damage to the integrity of the door leaf – typically mechanical or malicious damage**
  - **Removal of fire-resistant glazing**
  - **Straining of hinges, preventing closure of the door**
  - **Movement/misalignment of the door frame, preventing door closure**
  - **Removal/damage to intumescent strips and smoke seals**
- **Escape Routes:** Careful management of escape routes remains a key issue throughout the life of a building, regardless of the nature of occupancy. Within residential occupancies, however, the risk is considered greater because of the sleeping risks.
- Whilst there may be existing 'stay put' arrangements in place for individual units, a full evacuation of any block must be possible. Escape routes must therefore be available at all times and be maintained so as to allow the safe evacuation of occupants. Escape routes must not be obstructed and should not be used for storage or contain combustibles. It may be necessary to provide signage to this effect and to introduce a robust inspection procedure to ensure these routes remain available at all times.
- **Emergency Lighting:** further to the guidance relating to escape routes, there are situations requiring the provision of emergency lighting for escape routes in the event of a power failure. Each building should be considered independently in terms of the level of provision, as well as the type and positioning of the lighting units. Checks should be carried out to ensure that the lighting illuminates the escape routes adequately, taking into account changes in direction, possible obstructions and changes in levels and staircases. The positioning of the fittings is a key factor – to avoid shadowing created by those persons evacuating.

As with other safety features, these systems require meticulous inspection regimes to ensure their correct operation and condition.

- **Signage:** the need for appropriate fire-related signage must be considered carefully in order to highlight issues such as escape routes, the status and operation of fire doors, refuse-chute access, the lack of storage allowed, dry/wet-riser location, etc. Additionally, it is recommended that bespoke fire-action notices are consistent in format, are maintained and are included within checklists that form part of any inspection regime.
- **Refuse storage/chutes:** the issue of refuse disposal remains a key concern in high-rise blocks, particularly where refuse chutes are in use. Access points or waste hoppers are subject to heavy and continual use and often become damaged. And access covers are sometimes removed entirely. These chutes, by the very nature of their construction and position, create a flue rising throughout much of the building, introducing an undesirable route for fire to spread.

The integrity of these chutes must be maintained at all times, and where lobby enclosures are provided, particular attention should be paid to the condition and operation of fire doors. Storage of larger items near refuse chutes introduces serious risks in terms of presenting a significant fire load within the communal areas. Careful management of the receptacle area at the base of chutes is also essential. Access to these areas must be managed appropriately.

Where drencher-type systems have been installed within these areas, they should be maintained in an operational condition.



## Refurbishments

Where refurbishment programmes are planned, detailed specifications should be established that take into account appropriate fire-protection measures. Such works may be subject to building regulations approval, although the extent of the refurbishment scheme will determine the need for such approvals.

Regardless of the need to gain building regulations approval, specifiers should be briefed to consider the impact of any works on the overall fire performance of the building, rather than purely the element being considered.

Curtain walling, cladding and external finishing systems are not uncommon elements of refurbishment programmes. Careful selection of such systems and products is essential to ensure acceptable fire performance is achieved. The provision of fire barriers and appropriate fire separation must be considered in order to limit and control the potential for external fire spread. Where such works may be planned, the proposals should be discussed with Zurich Municipal's risk-engineering team in order to establish the likely impact on the fire performance of the building.

Similarly, window-replacement schemes should be the subject of careful consideration to ensure that any required fire resistance is maintained, etc.

Re-wiring projects should consider the existing fire-alarm provision and, where necessary, the provision should be reviewed and updated.

Where works include the installation of new kitchens and/or bathrooms, works to the associated services may impact on the service risers and ducts that are routed through the buildings. Specifiers should ensure that appropriate fire-protection measures are included.

## Maintenance

Effective and robust maintenance procedures are essential in ensuring acceptable levels of fire safety within premises. In order to establish the maintenance needs of different accommodation blocks, detailed assessments are required to determine the life-cycle issues of various fire-protection components. For example, accommodation blocks where fire doors are subject to hard use and vandalism will require more regular maintenance programmes than those where the doors suffer little damage and are used far less.

Aspects of a building's services may not be readily apparent. But fire dampers within service ducts or fire suppression/drencher systems over waste receptacles are important and must also be considered. Appropriate checks need to be put in place to establish if these features exist.

## Awareness and procedures

In order to manage fire safety within premises, suitable procedures should be established and communicated to residents, staff and other building users regarding the actions to be followed. These can include actions residents should take if discovering a fire; the means of raising the alarm; the available exit routes, etc. It is recommended that the communication of these procedures and instructions is repeated on a regular basis and that appropriate formats are used to address tenants' specific requirements; particularly those tenants who may be vulnerable.

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