Passive Fire Protection Surveys

Introduction

The inspection of Passive Fire Protection (PFP) forms part of (or is an extension of) a fire risk assessment under appropriate fire safety legislation:

- Regulatory Reform (Fire Safety) Order 2005 (England & Wales) (FSO)
- Fire (Scotland) Act 2005

The most important consideration is the verification that the PFP supporting means of escape is adequate. In addition, the legislation referred to above is designed to save lives in the event of a fire but does not necessarily cover the issue of property protection. Building owners or insurers wishing to ensure that the building is capable of withstanding the spread of fire for a period longer than that necessary to evacuate its occupants should contact a qualified Fire Engineer for further guidance.

Background

PFP features are those 'built-in' to the fabric of a building to restrict the growth and spread of fire and smoke. They do this by:

- controlling the flammability of wall and ceiling linings;
- dividing the building into fire-resisting compartments;
- providing protection to the structure of the building to prevent its collapse; and
- providing protective routes for escape.

PFP products include: fire doors, fire-resisting walls, floors and ceilings, fire-resisting ducts and dampers, fire-stopping, and fire protection to structural components.

The supporting guidance documents to the Building Regulations make reference to the PFP in buildings. In the United Kingdom and Ireland the PFP measures that need to be considered are detailed in the following documents:

- England & Wales – Approved Document B 2006 (AD-B)
- Scotland – Technical Handbook B 2010
- Northern Ireland – Technical Booklet E 2005
- Ireland – Technical Guidance Document B 2006

Much of the PFP included in the supporting guidance is designed to ensure that in the event of fire:

- the occupants can escape from a building;
- fire will not spread easily within it or to other buildings;
- the fire and rescue service can attend safely; and
- the building will not collapse prematurely.

As part of undertaking a fire risk assessment, fire risk assessors will need to undertake an evaluation of PFP in a building.
In practice, smoke is one of the major causes of deaths in fire and consequently a competent risk assessor should concentrate on passive fire protection measures that restrict the spread of smoke within the building.

Scope

For the purposes of a fire risk assessment under legislation in the UK or Ireland, the main aim is to reduce the likelihood of a fire occurring to as near zero as is practical and for the occupants to be able to escape if a fire occurs. Consequently, when considering PFP, such a fire risk assessment only needs to verify that those measures supporting means of escape are satisfactory and do not compromise life safety. The assessment would typically consider the operation and condition of any fire doors and an evaluation of the condition of escape route walls and ceilings protecting escape routes, including any penetrating services. For example, such an assessment would include evaluating the fire-resisting construction in roof spaces, but would not normally include a detailed survey of the fire protection to the structural steelwork of a building.

Whlst a full investigation of all PFP is the ideal, it is generally not required as part of a general fire risk assessment under the current legislation. However, the various guidance documents available to indicate when more detailed PFP investigations would be required. For example, in relation to purpose built blocks of flats, the available guidance does identify when more invasive PFP surveys are appropriate.

Surveys

When completing PFP surveys, the following matters would be considered:

Lining materials for wall and ceilings on escape routes:

- Extensive over-painting.
- Addition of carpets and other significant wall hangings.
- Wall-coverings.

Fire doors**:**

- Is the door a fire door?
- The importance of correct fitting of the door in the frame including door gaps.
- The importance of suitable fire tested ironmongery e.g. self-closing devices, latches etc.
- The need for intumescent protection.
- The provision and condition of any smoke seals.
- The ability to self-close.
- Release of self-closing device.
- Emergency/panic escape doors.
- Air transfer grilles in fire doors.

Construction of fire-resisting walls, ceilings and floors forming escape routes**:**

- Existing construction.
- Layout.

- Types of new construction.
- Hidden spaces.

Penetrating services in walls ceilings and floors forming escape routes:

- Cables and pipes.
- Ducts and dampers.
- Support for penetrating services.
- Fire protection to the structure of the building.
- Cavity barriers.
- External fire spread.
- Sandwich panel construction.

Special Note re Residential Properties

Following a fire risk assessment of a residential property, it may be necessary to carry out a more invasive passive survey of the standards of compartmentation. In the situation, the passive survey is referred to any of the following 3 fire risk assessment types (as defined by the Purpose-Built Block of Flats Guide produced by the Local Government Group):

(Type 1 FRA – normal non-destructive residential fire risk assessment).

Type 2 – Common parts only (destructive survey)
The scope and objectives of a Type 2 fire risk assessment are generally similar to those of a Type 1 fire risk assessment, except that there is a degree of destructive inspection, carried out on a sampling basis. This will usually necessitate the presence of a contractor for the purpose of opening up construction and making good after the inspection.

In order to check the integrity of separating construction, the areas in which destructive inspection is carried out might sometimes include a sample of flats. However, because of the nature of the work, this can often only be carried out in vacant flats.

A Type 2 fire risk assessment is usually a one-off exercise, which is carried out only if there is good reason to suspect serious structural deficiencies that could lead to spread of fire beyond the flat of fire origin. The age of the block alone is not generally sufficient to warrant a Type 2 inspection. The need for a Type 2 fire risk assessment may sometimes be identified in a Type 1 fire risk assessment, but should not simply be recommended as a matter of course.

Type 3 – Common parts and flats (non-destructive survey)
A Type 3 fire risk assessment includes the work involved in a Type 1 fire risk assessment, but goes beyond the scope of the FSO (though not the scope of the Housing Act). This risk assessment considers the arrangements for means of escape and fire detection (i.e. smoke alarms) within at least a sample of the flats. Within the flats, the inspection is non-destructive, but the fire resistance of doors to rooms is considered.

Measures to prevent fire are not considered unless (e.g. in the case of maintenance of the electrical and heating installations) the measures are within the control of, for example, the landlord.

A Type 3 fire risk assessment may sometimes be appropriate for rented flats if there is reason to suspect serious risk to residents in the event of a fire in their flats. (This might be, for example, because of the age of the block or reason for suspicion of widespread, unauthorised material alterations). This type of fire risk assessment will not be possible in the case of long leasehold flats, as there is normally no right of access for freeholders.

Type 4 – Common parts and flats (destructive survey)

A Type 4 fire risk assessment has the same scope of work as a Type 3 fire risk assessment, except that there is a degree of destructive inspection, in both the common parts and the flats, carried out on a sampling basis. This will usually necessitate the presence of a contractor for the purpose of opening up construction and making good after the inspection. However, the nature of the work is such that, often, destructive inspection within flats can only be carried out in those that are vacant.
This is the most comprehensive fire risk assessment, but will only be appropriate in limited circumstances – such as when a new landlord takes over a block of flats in which the history of works carried out is unknown and there is reason to suspect serious risk to residents from both a fire in their own flats and a fire in neighbours' flats.

Note: Before destructive inspection is to be carried out, the risk of disturbing asbestos should be considered (e.g. by examination of the asbestos register).