The Institute of Healthcare Engineering and Estate Management

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No 2. FIRE DOOR PPM

FIRE SAFETY TECHNICAL PLATFORM (FSTP)- LIBRARY OF TECHNICAL GUIDANCE

Introduction

The FSTP has at its core, to act as the focus for technical matters concerning Fire Safety, creating relevant IHEEM policies, advising on relevant issues to the Technology Platform Committee and managing the Institute's relevant technical responses and activities. The main work activities include creating technical guidance documents on fire safety matters with an emphasis on maintenance. This document covers Fire Doors, especially the requirement for planned periodic maintenance (PPM).

Effective fire compartmentation, including fire doors is intended to preserve life and property, paramount in healthcare premises due to the dependent nature of some of the occupants. Effective fire doors in fire resisting walls and compartments plays a critical role in containing a fire at its source, thereby reducing its effect on the primary building structure.

The rate of spread is controlled by creating fire-resisting compartments (and sub-compartments) which subdivide the building. It is therefore essential that all openings and gaps in these compartments are fire rated to restrict lateral fire spread and to achieve the required degree of containment. Failure to do so may allow fire and/or smoke to spread uninhibited.

Fire doors are the most frequently used and often abused element in a fire compartment. This note sets out an example of a risk-based approach to the PPM of fire doors, which is designed to meet the requirements of Article 17 of the Regulatory Reform (Fire Safety) Order 2005 (the Order).

Scope

This document contains guidance on matters to be considered when producing a risk based maintenance program which is designed to meet the requirements of Article 17 of the Order in a healthcare environment "a suitable system of maintenance, maintained in an efficient state, in efficient working order and good repair". It should not be quoted as if it is a specification.

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ALARP

A key concept in fire safety is defined in the Communities and Local Government Guides to fire Risk assessment “a concept where risks should continue to be reduced until you reach a point where the cost and effort to reduce the risk further would be grossly disproportionate to the benefit achieved”

General

Guidance on the frequency of inspecting of fire doors can be found in HTM 05-03 part K, BS9999 and BS8214.

HTM
“Monthly tests and checks”
5.143
Check that all fire doors are in good working order and closing correctly and that the frames and seals are intact

“Annual tests and checks”
5.145 All structural fire protection and elements of fire compartmentation should be inspected, and any remedial action carried out.”

The practicality of inspecting all fire doors in a large hospital monthly by estates and facilities staff make this task very difficult to achieve and beyond the remit of ALARP. A basic check of fire doors may be undertaken locally by fire wardens monthly, if this is coupled with a risk-based approach to more extensive checks, this may give a satisfactory level of confidence in compliance with legislative requirements in the Order.

Provision of plans indicating full inventory of fire compartmentation and location of fire doors and door schedules

It should be ensured that there is in place a full set of plans showing the location of all fire compartmentation, the rating of that compartmentation and the location of all fire doors. This inventory should be in line with guidance on fire safety protocols in HTM 05-01 appendix E. https://www.gov.uk/government/publications/managing-healthcare-fire-safety “Maintenance of fire precautions and systems”. All fire door leaf’s should have a unique identifying number. Fire door schedules should where possible include the door manufacturer and technical data sheet.

Monthly Fire Door Checks

Fire wardens are “the eyes and ears within the local area” (HTM 05-01 7.30), they may be responsible for checking door release mechanisms (HTM 05-02, appendix C page 74) and should have a routine checklist (HTM 05-03 part K, exemplar fire risk assessment 3.5.5 page 14). Part of their checklist may be to perform a basic monthly check on fire doors to check that they are in good working order. There should be a record kept of completion of the monthly checklist (appendix 1) and a clear system for reporting any deficiencies, for instance to the facilities help desk.

It should be ensured that fire doors in all areas are checked by fire wardens monthly, this will require a clear delineation of the responsibility of fire wardens.

Reactive Maintenance

As part of fire safety training it should be ensured that all staff are made aware of the importance of fire doors, including how to report any obvious failings. In order to support this, it is important that there is an effective reactive maintenance regime, ideally incorporating a helpdesk function.

Fire Door Planned Periodic Maintenance (ppm) Inspection Frequency

The following risk assessment matrix is an example of a risk-based PPM designed in line with requirements in Article 17 of The Order and ALARP.

Risk Assessment Matrix

There are three main factors which affect the frequency of ppm inspection of fire doors

Criticality

How important the fire door is to the occupants? In this risk assessment these will be in line with HTM 05 series and aligned to the dependency of the patients in the area of, or immediately adjacent to the door(s).

Occupant dependency: the categorisation of occupants on the basis of their likely need for assistance to affect their safe evacuation in an emergency. The following categories are referred to in the Health Technical Memorandum:

- Independent: occupants will be defined as being independent:
  - if their mobility is not impaired in any way and they are able to physically leave the premises without staff assistance; or
  - if they experience some mobility impairment and rely on another person to offer minimal assistance. This would include being sufficiently able to negotiate stairs unaided or with minimal assistance, as well as being able to comprehend the emergency wayfinding signage around the facility.
- Dependent: all occupants except those classified as “independent” or “very high dependency”.
- Very high dependency: those whose clinical treatment and/or condition creates a high dependency on staff. This will include those in critical care areas, operating theatres, coronary care etc. and those for whom evacuation would prove potentially life-threatening.

In addition to the above, there will be parts of the hospital which are critical in terms of maintaining business continuity, for example an MRI scanner or an imaging department. Although not necessarily critical for immediate life safety, the loss of such equipment and resources may be prejudicial to diagnosis or treatment such as to pose a risk to the lives of patients. Any such areas should be identified (this may be provided by the emergency planning officer) and the appropriate level of criticality utilised.

Frequency of use

Doors which are used frequently are more likely to be susceptible to damage or wear. There are three levels of usage in this risk assessment, however this may be varied where manufacturer's guidance is available, or robustness of door is established:

High Ward entrances, cross corridor doors and doors likely to be opened more than 200 times per day (24 hours)

Med Ward kitchens, doors likely to be opened 80 and 200 times per day (24 hours)

Low Doors likely to be opened less than 80 times per day (24 hours)

Impact damage

Doors which are frequently used for access by beds, trollies, bins, cylinder carts etc. are more likely to suffer damage. Doors identified with a high likelihood of impact damage will be moved up an inspection frequency, doors identified with a low likelihood of impact damage (doors on hold open devices) will be moved down an inspection frequency.

PPM Frequency matrix

	Low (daily) Usage <80x in 24hr	Med (daily) Usage 80-200x in 24hr	High (daily) Usage >200x in 24hr
Independent	12 monthly	12 monthly	6 monthly
Dependent	12 monthly	6 monthly	3 monthly
Very High Dependency	6 monthly	3 monthly	Monthly

N.B.

1) Doors which have a high likelihood and history of impact damage from beds, trollies, bins etc. increase frequency to next highest frequency.
2) Doors which have a low likelihood of impact damage due to the provision of hold open devices, reduce frequency to next lowest.
3) If in doubt, go for highest rating e.g. hospital street section between ITU and medical ward = Very High Dependency.
4) Doors to areas with a critical business continuity risk should be assessed accordingly.

Examples:

- Riser door in ITU, Very High Dependency, low usage = 6 monthly ppm
- Clinical waste store in medical ward, Dependent, medium usage = 6 monthly, adjusted for impact damage in 1 above = 3 monthly ppm
- Linen cupboard in medical ward, Dependent, low usage = 12 monthly ppm
- Cross corridor doors in corridor adjacent to ITU on magnetic hold open device, Very High dependency, high usage = monthly, adjusted as in 2 above = 3 monthly ppm
- Plant room on roof, Independent, low usage = 12 monthly ppm
- Main entrance to A&E Resus, very High Dependency, high usage = 1-month ppm

Practical application

To have inspectors complete the PPM at different time intervals in the same part of the hospital can lead to confusion. This can be minimised by:

- Having a colour coded system so that doors with one colour sticker are checked monthly, another colour 3 monthly and so on.
- Where possible, group doors together which are being inspected e.g. main entrance to wards/departments off the hospital street to have the same inspection frequency.

PPM Standards

It should be ensured that PPM is completed by competent persons to manufacturer's specifications. Records should be kept of the training and qualifications of persons completing the PPM. HTM 05-02, 1.28 page 5 states "independent schemes of certification and accreditation of installers and maintenance firms can offer confidence in the standard of workmanship provided." Use of UKAS third party certificated staff should be considered.

It is important that records are kept of the standard of PPM, a check list should be utilised (appendix 2).

During the door PPM any doors held open on magnetic hold open devices and which may be used unescorted by patients or members of the public who may be frail or infirm should have the rate of closure checked to ensure it is towards the upper end of the recommended

maximum closing time of 3- 25 seconds. This is in line with Dept. of Health, Estates and Facilities Alert 2015/006

Remedial work

If during the PPM it is discovered that remedial action is required and that the fire door is unlikely to fulfil its rated fire resistance, and for any reason cannot be remediated immediately or in a short time, the fire safety manager or advisor and local manager should be informed and the fire risk assessment may be reviewed.

Discussions should take place with the fire safety manager to ascertain the level of degradation of the fire precautions. This may require the information to be passed on and the fire risk assessment to be reviewed.

Where possible, minor remedial work such as replacement of intumescent strips and cold smoke seals should be completed at the time of the PPM inspection and/or as soon as reasonably practicable.

Appendix 1 - Example Fire Warden checklist

Fire Warden Monthly Checklist

Name of area inspected	
Specific location	
Name:	
date	

Means of Escape	Yes	No	N/A
Do Fire Exit doors open freely without the need for a key or key code (unless mag-locked)?	☐	☐	☐
Are fire exit signs to alternative exits in place and visible ?	☐	☐	☐
Are escape routes free from obstruction?	☐	☐	☐

Comments:

Fire Doors	Yes	No	N/A
Are fire doors undamaged in good working order and effectively self-closing or kept locked shut?	☐	☐	☐
Are fire door frames undamaged and in good order?	☐	☐	☐
Are fire door intumescent strips and cold smoke seals present and in good order?	☐	☐	☐
Where fire doors are fitted with a magnetic hold open device, does pressing the release button to the device permit the door to close fully?	☐	☐	☐

Comments:

Fire Extinguishers	Yes	No	N/A
Are fire extinguishers provided and hanging on brackets or in holders and in good order?	☐	☐	☐
Are security tags in place and unbroken?	☐	☐	☐

Comments:

Kitchen/Staff Room	Yes	No	N/A

Is there a fire blanket on the wall in the kitchen?	☐	☐	☐
Is the microwave oven clear of combustible materials?	☐	☐	☐
Is the kitchen/staff room door free from being wedged open, especially when unoccupied?	☐	☐	☐
Is the toaster used only in the kitchen or pantry?	☐	☐	☐

Comments:

Fire Prevention	Yes	No	N/A
Is the area clear of accumulated waste?	☐	☐	☐
Are waste bins in public areas fire retardant with self-closing lids?	☐	☐	☐
Are large waste bins kept locked?	☐	☐	☐
Is all upholstered furniture in good condition and free of rips or tears?	☐	☐	☐

Comments:

General	Yes	No	N/A
Is the area clear of multi-socket electrical adaptors or extension leads?	☐	☐	☐
Are work practices, procedures and building layout unchanged in the last 6 months?	☐	☐	☐
Are hazardous substances used and stored safely?	☐	☐	☐
Are cylinders stored and used safely and their numbers kept to a minimum?	☐	☐	☐

Comments:

Defects and Deficiencies

Defects and Deficiencies are to be reported to the Facilities Help Desk ext._____ and details entered below:

Defect description	date	number

Appendix 2 - Example Fire Door PPM checklist

1- Door Leaf

Has the fire door got a Fire Door Certification Scheme label or plug? If not is it apparently a fire door (suitable thickness/solid)?	
Does the door leaf sit flush within the frame/against the door stop and is it free of excessive distortion?	
If the door is veneered or lipped, is the glue still holding these products firmly in place?	
Is the door free from damage that would compromise the integrity of the door including dents, chip, holes and cracked or split panels?	
Is there a consistent gap under the door that allows it to swing without touching floor covering?	
If a smoke control door, is the gap between the door and threshold consistently 3mm or less?	

2- Door Frame

Is the door frame firmly attached to the wall?	
If a door rebate (door stop) is present, is it firmly attached?	
Is the frame to door leaf gap consistently 3mm (tolerance +/- 1mm) or within manufacturers specification?	
In the case of a double door is the gap between the leafs 3mm (tolerance +/-1mm) or to manufacturers specification?	

3- Intumescent Strips and Smoke Seals

Are all strips and seals in place?	
Are all smoke seals free from paint or varnish?	
Are all the strips/seals well attached inside the groove in the frame or door leaf?	
Are all the seals free from damage and breakage?	
Are all the seals continuous around the frame or door leaf (other than where there is ironmongery)?	

4- Hinges

Is there a minimum of 3 hinges with all the screws fitted?	

Are the hinges free of metal fragments and oil leakage, which are signs of wear?	

5- Door Closers

Does the door close from fully open? Open the door to 5 degrees or 75mm. Does it close and engage with the latch?	
Is the closer correctly attached to the door and frame, if on a magnetic détente or dorguard do these release correctly?	
Is the closer free from damage and not leaking?	
If unlatched, does the closer hold the door in line with the frame and intumescent seal?	
If hung in pairs, do they close in line if both opened and released together, does the selector (where fitted) operate correctly??	
Does the door close towards the upper range of the design parameters of 3 to 25 seconds?	
If the door is likely to be used unaided by a person with a disability, would it be possible for them to easily open the door?	

6- Lock and Latch

Does the lock/latch hold the door firmly in place?	

7- Glazing and Glass

Is the glass secure, the intumescent seal continuous and attached to the glass and bead?	
Are the glazing beads well attached to the door and free from damage?	
Is the glass free from damage and cracking?	
Is the glass fire rated and safety glass?	

8- Signage

Is the circular disc denoting the fire resistance of the door in place on all leafs?	
Does each leaf have a unique door reference number in place?	
Is the appropriate standard signage “Fire Door Keep Shut, Fire Door Keep Locked or Automatic Fire Door Keep Clear” fitted to all leaves at eye level?	