

Firecode – fire safety in the NHS
Health Technical Memorandum
05-03: Operational provisions

Part E: Escape lifts in healthcare premises



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Firecode – fire safety in the NHS

Health Technical Memorandum

05-03: Operational provisions

Part E: Escape lifts in healthcare premises

This document replaces Fire Practice Note 3



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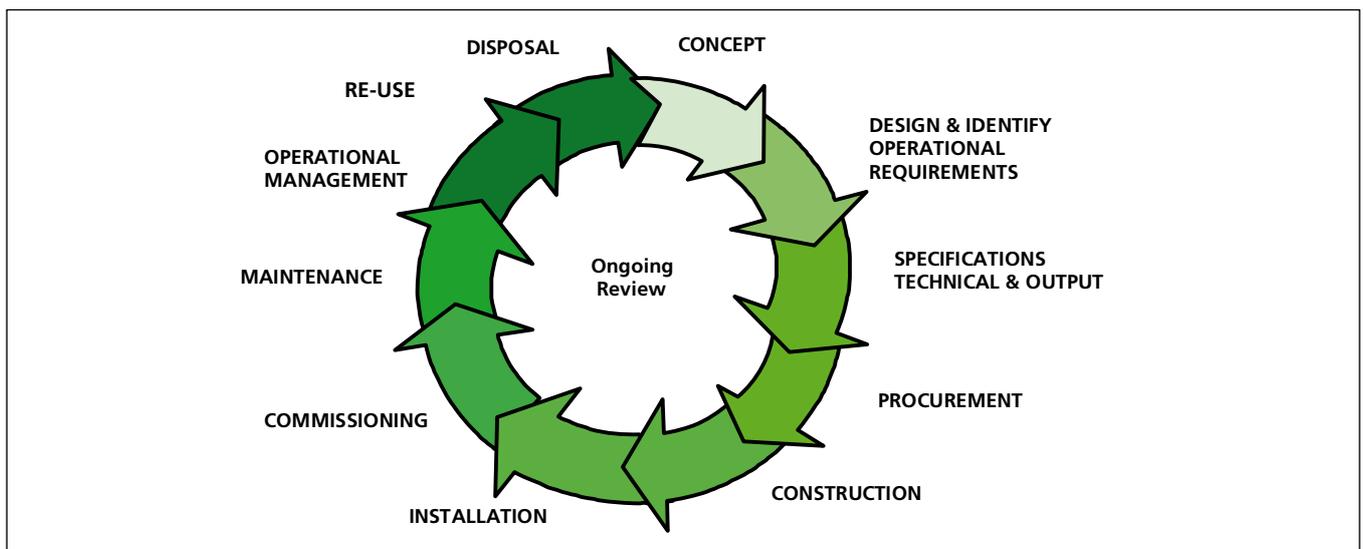
Preface

About Health Technical Memoranda

Engineering Health Technical Memoranda (HTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

The focus of HTM guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle:

Figure 1 Healthcare building life-cycle



Healthcare providers have a duty of care to ensure that appropriate engineering governance arrangements are in place and are managed effectively. The Engineering Health Technical Memorandum series provides best practice engineering standards and policy to enable management of this duty of care.

It is not the intention within this suite of documents to unnecessarily repeat international or European standards, industry standards or UK Government legislation. Where appropriate, these will be referenced.

Healthcare-specific technical engineering guidance is a vital tool in the safe and efficient operation of healthcare facilities. Health Technical Memorandum guidance is the

main source of specific healthcare-related guidance for estates and facilities professionals.

The core suite of nine subject areas provides access to guidance which:

- is more streamlined and accessible;
- encapsulates the latest standards and best practice in healthcare engineering;
- provides a structured reference for healthcare engineering.

Structure of the Health Technical Memorandum suite

The series of engineering-specific guidance contains a suite of nine core subjects:

- Health Technical Memorandum 00
Policies and principles (applicable to all Health Technical Memoranda in this series)
- Health Technical Memorandum 01
Disinfection and sterilization
- Health Technical Memorandum 02
Medical gases

Health Technical Memorandum 03
Ventilation systems

Health Technical Memorandum 04
Water systems

Health Technical Memorandum 05
Fire safety

Health Technical Memorandum 06
Electrical services

Health Technical Memorandum 07
Environment and sustainability

Health Technical Memorandum 08
Specialist services

Some subject areas may be further developed into topics shown as -01, -02 etc and further referenced into Parts A, B etc.

Example: Health Technical Memorandum 06-02 Part A will represent:

Electrical Services – Safety – Low Voltage

In a similar way Health Technical Memorandum 07-02 will simply represent:

Environment and Sustainability – EnCO₂de.

All Health Technical Memoranda are supported by the initial document Health Technical Memorandum 00 which embraces the management and operational policies from previous documents and explores risk management issues.

Some variation in style and structure is reflected by the topic and approach of the different review working groups.

DH Estates and Facilities Division wishes to acknowledge the contribution made by professional bodies, engineering consultants, healthcare specialists and NHS staff who have contributed to the review.

Figure 2 Engineering guidance



Executive summary

Preamble

This Health Technical Memorandum provides technical details for the design and use of escape lifts in healthcare buildings.

It also provides guidance on managerial and organisational issues that need to be considered to ensure that escape lifts are used safely and effectively in case of fire as part of an integrated fire safety strategy.

This guidance supersedes Fire Practice Note 3 – ‘Escape bed lifts’.

Using lifts during a fire emergency

For many years, the public has been trained to avoid using lifts during fire emergencies, with warning signs telling people not to use the lifts during fire evacuations. The dangers of using lifts during fire are well known and accepted by both lay persons and experts.

However, assuming that there are no insurmountable technological hurdles, there are good reasons for using lifts during a fire emergency:

- lifts could be used to evacuate persons who for clinical reasons, or physical disabilities, would be unable to descend stairs without assistance or significant risk of additional injury;
- lifts, used in conjunction with stairs, would reduce the amount of time needed to evacuate large buildings;
- even for persons without disabilities, descending many flights of stairs is an onerous task in very tall buildings;

- fire-fighters could use fire-safe lifts to move personnel and equipment over long vertical distances with greatly enhanced safety and reliability;
- where it is not possible to practice evacuation by stairs sufficiently often to ensure competence.

Standards and guidance

There are no specific standards for the use of lifts for the evacuation of buildings; however, the following standards provide valuable guidance for some of the issues that need to be addressed in the development of the fire evacuation strategy:

- BS 5588-5 ‘Fire precautions in the design, construction and the use of buildings. Code of practice for fire-fighting stairs and lifts’ (provides specific guidance for fire-fighting that needs to be considered as part of the overall strategy);
- BS 5588-8 ‘Fire precautions in the design, construction and use of buildings. Code of practice for means of escape for disabled people’;
- BS EN 81-73 ‘Safety rules for the construction and installation of lifts. Particular applications for passenger and goods passenger lifts. Behaviour of lifts in the event of fire’.

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1 Introduction

- 1.1 This Health Technical Memorandum provides technical details for the design and use of escape lifts in healthcare buildings. It should be read in conjunction with other documents intended to give guidance on the necessary means of escape and maintenance systems applicable to the premises. It also provides guidance on managerial and organisational issues that need to be considered to ensure that escape lifts are used safely and effectively in case of fire as part of an integrated fire safety strategy.
- 1.2 It assumes that the structural fire protection and means of escape of the hospital, and the provision of escape lifts, is in accordance with Firecode, the Building Regulations, relevant British Standards and any other applicable guidance.
- 1.3 For the purpose of this Health Technical Memorandum, escape lifts are passenger lifts conforming to:
 - the relevant parts of BS 5655 and other relevant DH guidance;
 - the appropriate British Standards and Regulations; and
 - the additional safeguards and facilities described in this Health Technical Memorandum to ensure that the lift can be used safely and effectively for evacuation.
- 1.4 The additional features required include a specially protected electrical power supply with additional protected stand-by power supply arrangements and special lift control and communication systems.
- 1.5 This guidance document requires that some communication and control facilities that are not normally provided by lift suppliers should form part of the overall fire safety strategy wherever lift evacuation is required.
- 1.6 It recommends the appointment of lift wardens to take control of the escape lifts in a fire emergency and supervise and assist the evacuation of occupants. Members of staff who have had the appropriate training will be assigned the roles of lift wardens.
- 1.7 This guidance also incorporates issues related to the use of lifts as part of the evacuation strategy for disabled people in accordance with BS5588-8: 1999.

2 Definitions

2.1 Terms used throughout the Firecode series and this Health Technical Memorandum have the same meaning.

2.2 The following additional terms are defined for the purposes of this Health Technical Memorandum.

Car control station: The push button in the car for the use of passengers/lift warden (car).

Dependent department: A fire compartment on a storey that is not a ground storey.

Emergency plan: A predetermined plan of action to be taken in the event of a given emergency.

Escape lift: A passenger lift protected in accordance with this Health Technical Memorandum to enable it to be used to safely transport occupants to the ground storey in the event of fire.

Evacuation control point: The point from which the evacuation of occupants using an escape lift is controlled.

Evacuation control switch: A switch to bring the escape lift under immediate evacuation service control.

Evacuation service: The operation of a selected escape lift under an agreed system of management and control for the evacuation of occupants in the case of fire.

Exit storey: A storey of the building from which suitable direct access to a place of safety outside the building is provided.

Healthcare building: A building used primarily for medical diagnosis, treatment or care.

Healthcare premises: A building, or part thereof, used primarily for medical diagnosis, treatment or care.

Lift warden: A person nominated to undertake duties in relation to the evacuation of occupants in case of fire by means of an escape lift installation. There are three types of lift warden each having separate duties, namely lift wardens (floor), lift wardens (control), and lift wardens (car). Their duties are explained in [Chapter 7](#).

Landing: The lobby or section of the hospital street from which the lift is entered.

Machine: The unit, including the motor or pump, which drives and stops the lift.

Occupant: Staff, patient or visitor.

Place of safety: A place where persons are in no danger from fire.

Reception floor: The floor within the building to which the escape lift is taken to unload its occupants. There may be more than one reception floor at any time; the decision as to which reception floor is appropriate will depend on a number of factors including the continued care of patients.

Refuge: A place of temporary safety within a building, protected by suitable means as to provide an area capable of holding all those threatened and from which there is potential for further escape.

Registered call: A call made on a car control station or from a landing push button which is accepted by the lift control equipment. (Note that when a lift is operating under evacuation service, any attempted call on a landing push button is not registered.)

3 Considerations that will influence the provision of escape lifts

Objectives of escape lift provisions

- 3.1 While escape lifts are beneficial in the vertical evacuation of building occupants unable to make use of the escape stairs unaided, those involved in the specification, design and provision of escape lifts should understand fully both the potential merits and the implications of lift evacuation during a fire.
- 3.2 Those involved in the decision to provide escape lifts should set clear objectives for such provision. Any objectives for the provision of escape lifts should be both realistic and robust, and their careful examination should ensure their validity.
- 3.3 It is unrealistic to believe that the total evacuation of occupants from upper floors of multi-storey buildings can be achieved solely by the use of lifts. Therefore, escape stairs will always be necessary.
- 3.4 Escape lifts may provide an acceptable solution to a specific evacuation need, such as providing additional vertical escape capacity where insufficient stair capacity exists. In such a situation, the objective of the planned escape lift provision can be clearly stated with reference to the vertical evacuation capacity to be achieved.
- 3.5 While it is important to set clear objectives for any escape lift provision, it is equally important to ensure that such provision is fully integral to the fire strategy for the building in which the provision is made.

Fire safety strategies utilising escape lifts

- 3.6 Having set the objectives for the provision of escape lifts, it is necessary to develop a detailed strategy for their use. The way in which escape lifts are to be used in practice will greatly influence their design and the design of building fire precautions and infrastructure necessary to support their use.
- 3.7 Because each healthcare building is unique in design, no single strategy for the use of escape lifts

can be derived to suit all applications. Indeed, a number of possible strategies may exist for escape lift use in any building. Furthermore, the diverse circumstances within any building may result in different strategies being adopted for each floor or specific occupant group requiring escape lift evacuation.

- 3.8 This degree of diversity and potential flexibility in design solution and subsequent operation means that each application of escape lifts and the strategies for their use will be bespoke for the building and the occupants for which they are intended.
- 3.9 The guidance for the development of strategies in this document will apply primarily to new buildings or extensive retrofits in which escape lift provision is being considered as part of the evacuation strategy. However, the guidance provided in this Health Technical Memorandum should be considered during the periodic review of fire policies and procedures for those organisations that may utilise existing escape lift provision.

Assumptions

- 3.10 The guidance provided in this Health Technical Memorandum assumes that the building has been designed in accordance with current healthcare building standards, and that the development of fire evacuation strategies and the management of risk have been part of that design process.
- 3.11 The assumptions include:
 - exit routes, including stair capacity, meet requirements of modern building regulations, Firecode and other relevant guidance;
 - the building fire protection system (that is, compartmentation, sprinklers etc) will retard the growth and spread of fire sufficiently to permit an orderly evacuation for all anticipated fires;
 - lift lobbies will always be accessible to persons unable to descend stairs, that is, no steps between wards, departments and lift lobbies;

- if a group of lifts is not involved in the fire or in the primary path of smoke flow, its lift lobby will provide an area of safety for a sufficient period of time to permit its occupants to be evacuated by lifts;
- the lift system has been designed to resist water from sprinklers and fire-fighting; consequently, run-off water will not prevent lift operation;
- lifts have been designed with reliable and suitably protected electrical supply and control systems;
- the building is designed and built with features intended to retard the effects of fire on the structure for a period of time sufficient to maintain the building's structural stability, allowing evacuation to other safe areas as part of the overall evacuation strategy;
- the building is designed and built with features intended to retard the vertical spread of fire for a period of time sufficient to protect occupants on floors located above the fire, allowing evacuation to other safe areas as part of the overall evacuation strategy;
- the potential impact of arson has been considered in the building design and operation;
- evacuation strategies for occupants will account for the needs of fire-fighters, and neither will impede the other.

Considerations

- 3.12 There is no single strategy that will work for all the occupants in a multi-storey healthcare building. Escape lift evacuation requires dynamic management with proactive decision-making as an integral part of the escape lift control function. The ability of those in control during the escape lift evacuation to make appropriate decisions will be greatly enhanced by the provision of a strategy for evacuation by the escape lift(s) provided.
- 3.13 However, the circumstances of any fire incident cannot be comprehensively predicted, and the fire strategy developed for the use of escape lifts should provide sufficient flexibility to support adaptation during the evacuation process.
- 3.14 When developing a fire evacuation strategy that incorporates the use of escape lifts, the factors outlined in paragraphs 3.15–3.52 should be considered.

Priority of use

Building occupancy

- 3.15 Occupants unable to descend stairs should, wherever possible, be evacuated using the escape lifts provided. Initially, occupants will be evacuated progressively on the same floor level to the compartment next to the lift lobby, then a number at a time into the lift lobby where they will be evacuated using lifts.
- 3.16 Occupants who are able to use the stairs should be allowed to use the escape lifts so long as such use does not hinder the safe evacuation of all occupants unable to use the stairs.
- 3.17 While evacuating occupants unable to use stairs is the most obvious reason for using lifts in a fire emergency, an emergency plan might call for lift evacuation for some occupants who are able to use stairs.
- 3.18 The primary reasons are to:
- make full use of all available egress capacity and thereby complete the evacuation more quickly;
 - help make stairways more available to fire-fighters; and
 - avoid burdensome descents using stairs in very tall buildings.
- 3.19 Those occupants with a greater dependency on staff, and particularly those with a critical dependency, should generally be given priority in the use of escape lifts for their evacuation.

Occupant location

- 3.20 Those located on the floor of the fire should be given priority to use the escape lifts provided. The second priority should be given to those on floors above the fire. Those occupying floors below the level of the fire are generally a lower priority for lift evacuation.

Capacity

- 3.21 The overall capacity of the escape lift will determine the constraints within which the lift can be used. Generally, a larger capacity will allow greater flexibility over the use of the lifts.
- 3.22 The lift provision capacity will also determine how the occupants on the floor of the fire and those on the floors above and immediately below the fire can be safely accommodated. Generally, the larger the

lift provision capacity, the less time occupants will require to be accommodated on the floor of the fire or floors likely to be affected.

- 3.23 When determining lift capacity, consideration should be given to the number of lifts to be designated as fire-fighting lifts (if any). Such use will increase the ability of the fire-fighters to move both equipment and personnel rapidly for effective deployment, but will as a consequence reduce the potential capacity for occupant evacuation.

Refuge

- 3.24 Since the capacity of any escape lift provision will not be enough to accommodate all occupants requiring evacuation by lift at any one time, sufficient areas of safe refuge should be provided to accommodate those that may be required to wait for the availability of the escape lift.
- 3.25 Any refuge provision should take into account:
- the number of occupants likely to be awaiting evacuation by lift;
 - the number of occupants reaching escape lifts through progressive horizontal evacuation; and
 - the capacity of the escape lift provision at that point.
- 3.26 Generally, occupants will take refuge in the compartment adjacent to the protected lift lobby or section of hospital street adjacent to the lift. Sufficient space should be provided by the lift lobby, or section of hospital street, to accommodate all occupants and associated equipment intended to be transported during the next lift travel.

Time taken to evacuate by lift

- 3.27 The evacuation flow is not continuous for those evacuating a building using lifts. There will be points during the evacuation process at which building occupants will be required to wait before continuing the next phase of their evacuation. While waiting, occupants are not making progress to a place of relative or ultimate safety. Hence, the entire evacuation process is likely to be extended.
- 3.28 Consideration should be given to the amount of time taken to successfully evacuate using any escape lift provision when determining the overall fire strategy.
- 3.29 The phases of evacuation outlined in paragraphs 3.31–3.43 are unique to evacuation by lifts.

Phase 1 – initial lift service

- 3.30 This phase of the lift evacuation incorporates the time taken for the initial lift response to the actuation of the fire detection and alarm system plus the time to bring the lift into evacuation service.
- 3.31 The length of this phase is dependent on a number of factors:
- **the location of the lift at the time the fire detection and alarm system is actuated.** This will determine the time taken for the lift to ascend/ descend to the reception floor to allow occupants of the lift to evacuate safely;
 - **the location of nominated personnel required to release passengers trapped in an escape lift.** This will determine the time taken for those nominated to confirm their availability at an appropriate location to assist in the release of any passengers that may become trapped in the escape lift;
 - **the location of the lift warden (control) and the lift warden (car).** This will determine the time taken for the wardens to reach the lift car and control points, actuate the controls to bring the lift into evacuation service, and send the lift to the appropriate floor level;
 - **the location of the lift warden (floor).** This will determine the time taken for the warden to reach the lift lobby and signal a request for evacuation service;
 - **the time for the lift to travel between the reception floor and the appropriate floor for evacuation service.** The time will take into account the fact that the lift will not stop at any floors on its journey to the evacuation floor, and should be empty.
- 3.32 Some of these activities will occur simultaneously in response to an alarm condition; however, consideration should be given to potential failures, since all of the above activities are required to complete phase 1 of the lift evacuation process.

Phase 2 – loading the escape lift

- 3.33 This phase incorporates the time taken to load the lift with the occupants and associated equipment intended to travel in the escape lift. This may include periods during which the lift is held at the evacuation floor awaiting passengers.
- 3.34 The time for this action will be largely determined by the capacity of the lift, the mix of occupants and

equipment, and the agility and ability of the support staff to respond to a lift evacuation. It also assumes that the lift lobby is clear and free of other occupants. If evacuation of other occupants via a stairway adjacent to the escape lift impinges on keeping the lift lobby clear, the use of an alternative staircase should be evaluated.

Phase 3 – lift travel

- 3.35 This phase incorporates the time taken for the lift to travel between the evacuation floor and the reception floor.
- 3.36 Although this phase will be relatively short, it will be largely dependent on the lift performance and the number of floors through which the lift travels.
- 3.37 During the development of the evacuation strategy, consideration should be given to the benefits of reducing lift travel time, by electing to evacuate to a level below the fire, against the benefits of evacuating to a level from which a place of ultimate safety outside the building can be readily reached.

Phase 4 – unloading the escape lift

- 3.38 This phase incorporates the time taken to unload the escape lift at the reception floor.
- 3.39 Consideration should be given to the management of any potential congestion that may extend this evacuation phase.
- 3.40 The unloading plan should take into account the clinical priorities of the lift occupants to ensure they can move to a safe place without increasing risk to their well-being. The development of the fire strategy should resolve any potential issues of this type.

Phase 5 – lift return travel

- 3.41 This phase incorporates the time taken for the lift's return travel between the reception floor and the evacuation floor.
- 3.42 The length of this phase will be largely determined by the same factors as phase 3.
- 3.43 Phases 2 to 5 are repeated through each cycle of the escape lift operation, and will be the determining activities in the length of time taken to evacuate those occupants as appropriate from a particular floor level. In reality, it is possible that priorities may change during the evacuation process, which will mean that requests for evacuation may be serviced from more than one floor at a time by

providing lift evacuation to one floor, then the other.

Capacity of the reception floor

- 3.44 The larger the capacity of the lift provision, the greater the potential for congestion at the reception floor. As occupants evacuated by lift reach the reception floor, sufficient provisions should be made to ensure their timely movement away from the escape lift in order to reduce potential congestion and the time taken to successfully unload the escape lift.

Alternative provisions if lift evacuation is not viable

- 3.45 There may be occasions when escape lifts are not available for evacuation service, for example during periods of maintenance. There may also be occasions when the proximity of a fire incident to the escape lift is such as to threaten the safety of those using the escape lift.
- 3.46 In these circumstances, sufficient alternative provisions must be available. These may include escape stairs and the means to effect the appropriate staff-assisted evacuation. Alternatively, additional escape lift provision remote from the first lift may be sufficient to facilitate the evacuation of occupants unable to use the stairs.
- 3.47 Any escape lift provision must ensure that sufficient capacity remains even when one or more of the lifts that may reasonably be affected at any one time are unavailable.

Stairs and lifts are limited resources

- 3.48 Occupants on upper floors must use stairways or lifts, or a combination of both, to descend or ascend either to a floor where there is a safe area designated as a refuge, or to an exit to the outside.
- 3.49 At some time following the start of the evacuation, fire-fighters must use stairways or lifts, or a combination of both, to ascend or descend to the "bridgehead" and fire floors from which fire-fighting activities will be conducted.
- 3.50 Careful consideration should be given to ensuring that the use of facilities provided for the access and use of fire-fighting personnel does not interfere with the provisions required for the safe evacuation of building occupants.

Coordinating and directing the evacuation

- 3.51 During a fire incident, decisions may need to be taken about which floors will be evacuated and in which order. In a large building, this information may not be readily available. It will be necessary to have in place effective communication systems to relay information about conditions elsewhere in the building. Anticipating these needs for data and information will be vital to the development of the best possible decision protocols, task descriptions (needed to select and train team members) and human–machine interfaces.
- 3.52 Specific decisions and information needs will vary from building to building. Some of the commonly required information can be anticipated. Certainly, a building's particular characteristics and fire safety features should be considered.

4 Physical requirements for escape lifts

Escape lift provision

- 4.1 Sufficient escape lifts should be provided and sited appropriately to accord with the organisation's fire evacuation strategy developed with full consideration of the issues outlined in [Chapter 3](#).
- 4.2 Where an escape lift is one of a group of lifts in one protected enclosure, all the lifts in the group should be escape lifts in accordance with this Health Technical Memorandum.
- 4.3 As a minimum, sufficient escape lifts should be provided appropriately remote from each other such that should a fire affect one escape lift, sufficient alternative escape lifts will remain available for use to facilitate the implementation of the organisation's fire evacuation strategy and procedures.

Construction

- 4.4 The structural layout and constructional details of the escape lift installation should be as described in this Health Technical Memorandum, BS 5588-5:2004 and BS EN 81-72:2003.
- 4.5 The enclosure to the escape lift, or group of lifts, should be constructed as a protected shaft providing a minimum period of fire resistance from adjacent risks of not less than two hours.
- 4.6 If not from the hospital street, access to the escape lift, or group of lifts, should be provided via a protected lobby appropriately sized to facilitate the fire evacuation strategy and protect the lift shaft(s) from potential smoke ingress.

Machine room construction

- 4.7 The machine (or pump) room, and any power transmission circuit (for example, cabling or hydraulic circuit) between it and the lift should be contained within the same protected shaft as the lift. Failing this, it should be protected against the action of fire for a period not less than that

required for the structural fire protection to the lift enclosure.

Escape lift cars

- 4.8 The car of an escape lift should comply with the relevant requirements of BS 5622:1986, BS 5655-2:1988, BS EN 81-1:1998, BS EN 81-2:1998 and BS 5588-8:1999, with the following additional recommendations:
- 4.9 Where the escape lift is intended to evacuate patients on beds, the internal dimensions of the car should be not less than that required to carry the occupied bed and its ancillary equipment, an attendant, and a lift warden. The types of bed to be considered may vary. Some standard car sizes to accommodate standard King's Fund beds are given in the ergonomic data sheets for bed passenger lifts in Health Building Note 40 Volume 2 – 'Recurring public, social and circulatory spaces'.
- 4.10 The capacity of each lift in respect of the number of beds, cots, wheelchairs, occupants etc will depend on the requirements of the fire safety strategy in addition to normal operational requirements.
- 4.11 The rated speed of the lift should be capable of meeting the requirements of the organisation's fire safety strategy, and as a minimum it will run its full travel in not more than one minute when fully loaded.
- 4.12 The car should be clearly and conspicuously marked with a notice complying with the fire-safety sign requirements of BS 5499-1 stating "ESCAPE LIFT: DO NOT USE FOR GOODS OR REFUSE".

Evacuation control point

- 4.13 Each escape lift, or group of lifts, should have associated with it an evacuation control point from where a lift warden (control) can bring the lift(s) under evacuation service control and organise the vertical evacuation of occupants. The evacuation

control point, which will normally be in the exit storey lift landing, must be located in a protected lobby, hospital street or protected escape route.

Note

The lift may be used for light goods necessary for the day-to-day running of the ward (for example, trolleys containing medical supplies, a library or meals-on-wheels service) provided that such use will have no adverse affect on the implementation of the fire safety strategy and ultimately any evacuation process. In no circumstances should it be used for transporting heavy goods.

5 Services required for escape lifts

Electrical supplies

- 5.1 Any healthcare organisation's electrical substation, stand-by generator, installation distribution equipment, cabling, or other apparatus supplying the machinery and controls for an escape lift should be protected from the action of fire for a period of not less than that specified for the enclosure to the lift installation.
- 5.2 The electrical supply to each escape lift should be from a circuit dedicated to the lift and separate from any other building services as defined by BS 5655-6:2002, BS 5588-5:2004 and other relevant standards.
- 5.3 Where more than one escape lift is provided in the same protected shaft, they may be fed from the same circuit, provided that it is adequate for this purpose and that a fault occurring in any one lift system will not affect in any way the operation of any other.
- 5.4 All switchgear controlling supplies to escape lifts should be secured against unauthorised operation and clearly labelled "ESCAPE LIFT: DO NOT SWITCH OFF".

Communications systems

- 5.5 In addition to the emergency alarm devices defined in BS 5655-1:1986, a vandal-resistant intercom system or similar device should be provided for two-way speech. This will enable communication between the evacuation control point and each lift landing, the lift car, and the machine room, while the lift is under the control of the evacuation switch. All communication should be through the evacuation control point; that is, lift landings, the lift car and the machine room should not be able to communicate directly with each other.
- 5.6 Careful consideration should be given to the type of communication system provided, for example the ability to select individual communication paths to each of the landings individually or as a group. This will be determined by the fire safety strategy.
- 5.7 In some circumstances, there is the potential for confusion where an intercom system, described above, is the only means of communication between the lift landings and the evacuation control point. For example, in a tall building with a large number of dependent departments, an additional system such as a signalling and indicator system should be provided to indicate to supervisory staff that occupants are awaiting the evacuation service, and at which landings they are waiting. This should comprise a manually operated signalling device at each landing served by the lift and an indicator panel at the evacuation control point.
- 5.8 Consideration should be given to providing a direct communication link between the evacuation control points of escape lifts. At times of high demand, such links could prove valuable in transferring occupants horizontally between lifts to relieve congestion, utilise spare capacity and manage expectations.
- 5.9 Each escape lift should be provided with an indicator system that shows, at each lift landing served by that lift, the availability of that lift for escape purposes.
- 5.10 On activation of the fire detection and alarm system, and in accordance with the predetermined strategy for operation, the lifts serving those areas near the location of the incident would normally be required to travel to a predetermined floor and remain there until brought under evacuation control. During this period, the indication at each lift landing served by the lift should signal that the lift is not available for evacuation purposes.
- 5.11 Once the escape lift has been brought under evacuation control, the indication at each lift landing served by the lift should signal that the lift is available for evacuation purposes.

- 5.12 Should the risk to the lift operation increase to an unacceptable level, or should the lift fail during operation, it should be possible to control the indication system from the lift control point such that the indication at each lift landing served by the lift signals that the lift is not available for evacuation purposes.
- 5.13 Where parties other than the lift system provider are responsible for providing the above facilities, the specification should clearly define the extent of each party's responsibilities. Careful consideration should be given to the coordination and interfacing of all the various facilities associated with the escape lift, ensuring that collectively they form a robust, coherent fire safety system.

Fire detection and alarm system

- 5.14 The arrangement of alarm devices at or near the evacuation control point, lift landings and machine room should facilitate the use of the communication systems provided. Consideration should be given to the provision of low-level sound devices and/or visual alarms as necessary.
- 5.15 Each evacuation control point should be provided with the means to receive information regarding the detection of fire spread. Such information may prove invaluable in assessing the ongoing viability of the safe operation of the escape lift(s).
- 5.16 Information regarding the detected spread of fire should be clearly and unambiguously displayed at each control point.
- 5.17 The display of fire detection information may be achieved by the provision of a fire detection repeat panel together with an outline plan detailing floor plan layouts, compartment boundaries and lift locations. Sufficient information should be provided by the fire detection repeat panel to clearly identify the location of a detected fire when related to the outline plan.
- 5.18 Where a repeat panel is provided for the purpose of displaying information, the internal sounder should sound for a period of two seconds on each newly detected event. Following this, the buzzer should sound for a period of 0.5 seconds every 15 seconds until the fire detection and alarm system is reset.

Lighting

- 5.19 Lighting of lift cars, landing, machine and pulley rooms should be in accordance with BS 5655-1

and BS 5655-2 together with the requirements of BS EN 81-1 and BS EN 81-2.

Ventilation

- 5.20 Ventilation to the lift car, lift well, and machine room should be in accordance with BS 5655-1 and BS 5655-2 together with the requirements of BS EN 81-1 and BS EN 81-2.

Smoke control

- 5.21 Smoke ventilation of, or pressurisation to, the lift landings should be provided in accordance with BS 5588-5.

Evacuation control switch

- 5.22 The escape lift should be provided with an evacuation control switch to enable the lift wardens to obtain immediate control of the lift, as and when a fire alert is raised as defined by the fire safety strategy. The switch should be positioned at the evacuation control point and clearly marked "ESCAPE LIFT". The switch should be enclosed in a "break glass" box. The operation positions of the switch should be clearly marked "ON" and "OFF". An exposed key switch should not be used because of the risk of vandalism which could render the key switch inoperable.
- 5.23 Where two or more escape lifts are installed together in one protected shaft, one evacuation control switch should be provided which should cause all the lifts in the shaft to respond as required by this Health Technical Memorandum and the organisation's fire safety strategy.
- 5.24 On operation of the evacuation control switch, all lift controls and safety devices should remain operative except as specifically recommended to the contrary in this Health Technical Memorandum. In particular, the evacuation control switch should not override the inspection control or stop switch on the car top; nor should it override the stop switches in the pit or the machine room or the pulley room.
- 5.25 Operation of the evacuation control switch should ensure the following:
- unless this has already occurred, the associated escape lift(s) travels without stopping to the exit storey or to the level of the evacuation control point if different;
 - all landing call buttons and any group collective control system are rendered inoperative;

- all car preference switches are rendered inoperative;
- the evacuation communication systems are operative.

5.26 After the lift has parked, with doors open, operation of the evacuation control switch should vest sole control of the lift via the lift car control station.

Lift car control station

5.27 The following should be ensured:

- it should be possible to register a call to any selected landing. Registration of a call should cause the doors to close and the lift car to travel to, and stop with the doors remaining closed at, the required landing;
- if the car is in motion, it should be possible to register further calls from within the car. The car should stop at the nearest landing in its current direction of travel for which a call is registered. When the car stops, all calls so registered should be automatically cancelled and the car should not depart until a fresh call is registered;
- it becomes possible to control the opening of the car doors only by the application of constant pressure on the “door open” button or switch. If the button or switch is released before the doors

are fully open, the doors should automatically reclose. Once fully open, the doors should remain open until a fresh call is registered on the car control station;

- it should be possible to override automatic door mechanisms, provided to prevent the lift doors closing during normal operation while obstructed, by the application of constant pressure on the “door close” button or switch for a period of not less than 10 seconds or more than 15 seconds. If the button or switch is released before the doors are fully closed, the doors should automatically re-open. Once fully closed, the doors should remain closed until constant pressure is applied to the “door open” button or switch, or the car stops at the landing selected by a fresh call registered on the car control station.

5.28 Effective means should be provided:

- within the lift car to indicate the confirmation of all calls registered on the car control station; and
- both in the car and at the evacuation control point to show the position of the car at any time, whether the car is in motion or at rest.

5.29 If the escape lift is also designated a fire-fighters’ lift, additional controls in accordance with BS 5588-5 should be provided that are only operable by fire authority personnel.

6 Installation and commissioning

- 6.1 Lifts should be installed to the general requirements of Health Technical Memorandum 2024 – ‘Lifts’ and BS 5655-6 as supplemented by this Health Technical Memorandum. Commissioning should be in accordance with the recommendations of BS 5655-10.
- 6.2 As well as the normal commissioning checks for lifts, the additional facilities required by this Health Technical Memorandum should be thoroughly checked. In particular, it should be demonstrated that the evacuation control switch, and

communication systems, function as required by this Health Technical Memorandum. The tests given in Appendix C of BS 5588-5:2004 provide an example of the type and range of tests required.

Reliability and maintenance

- 6.3 It is essential that all lifts used as part of the fire safety strategy be maintained in optimum condition. Health Technical Memorandum 2024 – ‘Lifts’ provides guidance on this issue.

7 Operating escape lifts

Evacuation procedure

- 7.1 The procedure to be used for the safe operation of escape lifts will be determined from the fire evacuation strategy formulated and developed from the design of the escape lift provision and/or procedural review of the evacuation strategy using existing lift provisions.
- 7.2 As stated in previous sections of this Health Technical Memorandum, the complex nature and diversity of healthcare buildings in which escape lifts may be provided means that no single strategy for the use of escape lifts can be derived to suit all applications. It is therefore not possible in a guidance document such as this to provide a generic operating procedure for the use of escape lifts.
- 7.3 An escape lift should be designed to the standards described in this Health Technical Memorandum, operated under the direction and control of lift wardens using an agreed evacuation procedure.
- 7.4 A sufficient number of lift wardens capable of carrying out the necessary duties should be appointed and trained to assist in the management of any fire evacuation. A procedure should be laid down for ensuring that sufficient lift wardens for the various duties are always available.
- 7.5 The duties of the lift wardens during an evacuation should be determined to suit the needs of the organisation and will be defined by the development of the fire safety strategy.
- 7.6 Examples are as follows:
- **lift wardens (floor)** – within each dependent department, their duties are to organise the horizontal evacuation of occupants and to assess the need for vertical evacuation. Their duties will also include making sure that the lift warden at the evacuation control point of the appropriate lift(s) knows that the evacuation service will be required (by using the communication systems);
 - **lift wardens (control)** – their duties are to manage the evacuation control point of each escape lift, or bank of lifts, to operate the evacuation control switch, and to organise orderly vertical evacuation via that lift, or bank of lifts, using the communication system;
 - **lift wardens (car)** – where deemed necessary, their duties are to manage each escape lift car and to control the lift car from the car control station in response to instructions from the lift warden at the evacuation control point;
 - a procedure should be laid down for ensuring that sufficient qualified staff who are authorised for dealing with failed lifts are always available.
- 7.7 The evacuation procedure should include contingency plans for the failure of a lift or group of lifts under evacuation service.
- 7.8 Fire procedures should not include the isolation of electrical circuits supplying the escape lifts or associated facilities.

8 Out-of-service arrangements

- 8.1 Any escape lift that is out of service due to breakdown or maintenance is not then available for evacuation. A risk assessment should be undertaken by the Fire Safety Adviser (see Health Technical Memorandum 05-01 – ‘Managing healthcare fire safety’ for definitions of key personnel) and a strategy prepared and put into action in order to minimise the hazard during such non-availability and establish alternative means by which to evacuate occupants.
- 8.2 The strategy should form part of an organisation’s emergency plan. It should include warnings to all staff, explaining the situation and raising awareness of the need for scrupulous fire precautions and extra vigilance to prevent fires and other hazards.
- 8.4 If an escape lift failed during an evacuation, the release of the lift passengers should be undertaken as a matter of urgency in accordance with the organisation’s fire safety strategy and other risk management procedures. A sufficient number of authorised and trained personnel should always be available to carry out manual or emergency electrical operation of the lifts. Appropriate management procedures should be in place to ensure that any failure can be remedied quickly and effectively at minimum risk.

Release of passengers from failed escape lifts

- 8.3 The provision for emergency operation of failed lifts and the procedures for releasing passengers should be based on BS 7255 “Code of practice for safe working on lifts”, using risk management and manual handling assessments to define the appropriate methods according to the need of the occupants.
- 8.5 Fire drills and training should be undertaken at regular intervals as required, and should include the use of the lifts, control and communication systems that would be employed in the event of an evacuation.
- 8.6 Fire drills should include scenarios where lifts are unavailable or become unavailable during the course of the evacuation. At such times the procedures for releasing occupants trapped in failed lifts should be practised.

Fire drills

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