LEIA

Recommendations to improve the safety of existing lifts

Lift safety

Lift & Escalator Industry Association

Lift Safety
an introduction

...over 40% of lifts are between 20 - 40 years old...

Lifts are amongst the very few modes of transport available for continuous unsupervised use and by all persons, ranging from the very young to the elderly and infirm. They are one of the safest forms of transport, being designed to strict and comprehensive standards. However, standards change to reflect developing technology and social trends.

Over 40% of lifts are between 20 and 40 years old

This is most significant when compared with technological advancement over such a time span and raised personal expectations of safety levels. In addition to this is the need to provide for growing life expectancy and an increasing elderly population.

Owner commitments and responsibilities

From an owner/manager viewpoint, you no doubt plan for your future needs and financial commitments. Where your lift installation is concerned, such plans will have regard for life expectancy and improvements to service as well as taking into account legislative requirements.

You will also be conscious of your responsibilities for control of the building, which impose a duty of care to ensure the premises are safe and free from risks to health, so far as is practicable.

Lift contractors' responsibilities

Lift contractors have duties as employers to ensure that those within their employment are not exposed to health and safety risks from their business activities. This is something that cannot always be fulfilled in isolation when working on equipment belonging to others. In this regard your help and co-operation is essential.

Safety Checklist

This guide will serve as a pointer and checklist towards fulfiling our mutual obligations where the safety and comfort of passengers are concerned, whilst at the same time providing a better quality of service from your installation and extending the life of the equipment.

The next step...

Your lift maintenance company will be pleased to undertake a risk assessment of your lift installation as called for under The Management of Health and Safety at Work Regulations 1999 and advise on any safety matters about which you should be aware.

The areas of risk identified in this guide are not exhaustive, but have been selected for the reason that technological advancement can now significantly reduce the risk of injury. There is no order of priority - this will vary according to circumstances. The objective is improved safety for all those who use and work on lifts.

Improved Safety through Risk Assessment

Lifts remain in service for longer periods than most products - this prompted the European Parliament's concern when considering new legislation. Parliament made certain recommendations as long ago as 1995 and these are now covered more comprehensively in a new European Standard published in 2004 and entitled 'Rules for the improvement of safety of existing passenger and goods passenger lifts' (BS EN 81-80).

Based on established risk assessment principles, the Standard identifies where hazards can occur and, from a risk analysis viewpoint, illustrates these in high, medium and low priority with proposed corrective actions.

The Standard recognises circumstances will vary between countries and from one lift to another. It provides a comprehensive check-list of such hazards even though relatively few might require attention in the case of any individual lift installation.

This guide lists all the hazards as they appear in the Standard and gives them the same priority listing in a simplified format for ease of identification. Ten have been selected which, though high risk areas, are not intended to reflect any specific order of priority. The aim is to give illustrations reflecting some of the areas where experience has shown there to be cause for particular concern.

Many European countries have now embodied, within their law, safety provisions reflecting certain of the content of the new Standard. Traditionally, UK legislation is not prescriptive for individual products but relies upon an overall obligation towards maintaining health and safety. Nevertheless, what other countries aim to achieve through specific legislation has no less significance under UK law.

Levelling Accuracy

No. 3 on Safety Checklist

Inaccurate or inconsistent floor levelling is not merely an inconvenience, it is potentially hazardous, particularly for the infirm or partially sighted. It is doubted if the levelling accuracy of many older lifts would be deemed acceptable by today's standards. Modern technology can significantly reduce the risk of tripping by greatly improving floor levelling.

Communication

No. 71 on Safety Checklist

In order to ensure that passengers who may become trapped in the lift car have contact with the outside world, the law, since 1999, has required that for new lifts the lift car be fitted with a (24 hour) two-way means of communication allowing permanent contact with a rescue service. This provision is equally valid for older lifts.

Car Apron

No. 39 on Safety Checklist

For the safe release of passengers in an emergency, and in order to ensure against the risk of falling into the lift well when the car and landing doors have been opened, the car sill should be fitted with an apron.

Lift Doors

No. 30 on Safety Checklist

Incidents occur due to passengers being struck by closing doors when entering or leaving the lift car. Whilst standards set down criteria to minimise the effect technological advancement provides the means to further reduce the risk. Modern electronic protective devices are available which can remove this risk altogether.

Safe Working Space

No. 14 on Safety Checklist

With the enforcement of the Lifts Regulations since 1999 it has become essential for new lifts to provide a working space at the top and bottom of the lift well in order to create a safe refuge. Where such space is not available, or a safe system of work cannot be put in place, a full maintenance/ inspection may not be possible. The particular emphasis on this issue results from a number of fatal accidents.

Well lighting

No. 17 on Safety Checklist

No longer is it considered sufficient to use hand-held or temporary lighting when working within an enclosed lift well. There now exist prescribed levels of lighting intensity sufficient to illuminate the work area.

Access to Machinery Room

No. 19 on Safety Checklist

Safe means of access (and egress) to the lift machine and pulley rooms is essential not only for maintenance/inspection but also the release of passengers who may become trapped in the lift car. Access should ideally be via a permanent staircase. Where this is not possible alternative routes must be safe, unobstructed and well lit.

Voids

No. 43 on Safety Checklist

Current requirements call for the fitting of a balustrade on the car roof as protection against the risk of falling into the lift well. This was not always a requirement even though with many existing lifts there are large gaps between the car and the wall of the well which present a risk of falling. A guard is strongly recommended in BS7255 'Safe working on Lifts'.

Electrical Protection

Nos. 66 & 68 on Safety Checklist

To avoid the risk of electric shock live terminals should be shielded and all high voltage terminals clearly marked. In most cases there should be a warning to indicate that voltage may be present even when the supply is switched off. The main switch shall be capable of being locked-off.

Inspection Control

No. 70 on Safety Checklist

Strict procedures need to be in place when working on the top of a lift car, particularly when the car is to be moved, which is often necessary for maintenance/ inspection. This is a high risk area and inadequate provisions have resulted in serious injury and death. It is for this reason BS7255 'Safe Working on Lifts' strongly recommends that on existing lifts there shall be provided an appropriate control. This is a recommendation endorsed by the Health and Safety Executive.

74-point Lift Safety Checklist - points in **bold** are explained in greater detail overleaf.

1 Presence of harmful materials
2 No or limited accessibility for disabled persons
3 **Drive system with poor stopping/levelling accuracy**
4 No or inadequate vandal resistance
5 No or inadequate control functions in case of fire
6 Well enclosures with perforated walls
7 Partially enclosed well with too low enclosure
8 Inadequate locking devices on access doors to well and pit
9 Inadequate vertical surface below landing door sills
10 Counterweight/balancing weight without safety gear in case of accessible spaces below well
11 No or inadequate partition of counterweight/balancing weight travel path at the lowest terminal
12 No or inadequate pit screen for several lifts in the same well
13 No or inadequate partition for several lifts in the same well
14 **Insufficient safety spaces in headroom and pit**
15 Unsafe pit access
16 No or inadequate stopping devices in the pit or in the pulley room
17 **No or inadequate lighting of the well**
18 No alarm system in pit and on car roof
19 **No or unsafe means of access to machine and pulley room**
20 Slippery floor in machine or pulley room
21 Insufficient clearances in machine room
22 No or inadequate protection on different levels in machine room
23 Inadequate lighting in machine or pulley room
24 Inadequate means of handling equipment
25 Perforate landing doors and/or car doors
26 Inadequate design of landing door fixings
27 Inappropriate glass in doors
28 No or inadequate protection against dragging of fingers on sliding car or landing doors with glass
29 No or inadequate lighting on landing
30 **No or inadequate protective devices on power operated doors**
31 Unsafe locking device of landing door
32 Unlocking of landing door without a special tool
33 Well enclosure with perforate walls near door locks
34 No automatic closing device on sliding doors
35 Inadequate link between panels of landing doors
36 Inadequate fire resistance of landing doors
37 Car door moving with open landing door
38 Large car area in relation to rated load
39 **Inadequate length of car apron**
40 Car without doors
41 Unsafe locking of car roof trap door
42 Insufficient strength of car roof
43 **No or inadequate balustrade on car roof**
44 Insufficient ventilation in car
45 Inadequate lighting in car
46 No or inadequate emergency lighting in car
47 No or inadequate protection on sheaves, pulleys and sprockets against injury
48 No or inadequate protection against ropes/chains leaving the sheaves, pulleys or sprockets
49 No or inadequate protection on sheaves, pulleys or sprockets against introduction of objects
50 No or inadequate safety gear and/or over speed governor on electric lifts
51 No or inadequate slack rope switch for governor rope
52 No protection against ascending car over speed
53 Inadequate lift machine design for preventing uncontrolled up or down movement of the car whilst the doors are open
54 No or inadequate protection against free fall, over speed and creeping on hydraulic lifts
55 Unsuitable guidance system for counterweight or balancing weight
56 No or inadequate buffers
57 No or inadequate final limit switches
58 Large gap between car and wall facing the car entrance
59 Excessive distance between car door and landing door
60 No or inadequate emergency operation system
61 No hydraulic shut off valve
62 No independent starting contactors
63 No or inadequate slack rope/chain device
64 No run-time limiter
65 No or inadequate low pressure device
66 **Insufficient protection against electric shock and/or marking of electrical equipment**
67 No or inadequate protection of lift machine
68 **No lockable main switch**
69 No protection against phase reversal
70 **No or inadequate inspection control station and stopping device on car roof**
71 **No or inadequate alarm device**
72 No or inadequate communication system between machine room and car (travel height ≥ 30m)
73 No or inadequate load control on car
74 Missing notices, markings and operating instructions

Key to priority levels: = Low = Medium = High

LEIA

LEIA, the Lift and Escalator Industry Association, was formed in January 1997 by the merging of two long standing associations, the British Lift Association and the National Association of Lift Makers. Members include companies who manufacture, install, maintain and repair lifts and escalators and those who supply component parts for such equipment.

LEIA seeks to establish high standards through the application of good practice, compliance with British Standards and ISO9000 certification and to promote such standards wherever possible.

LEIA is the advisory body for the lift and escalator industry, drawing upon a wide range of expertise so as to ensure the provision of sound advice, in particular on health, safety and standards matters. The Association maintains close contacts with other interests including government departments and the institutions of the European Union.

Our Objectives

- To ensure the provision of sound advice on Health, Safety and Standards matters
- To determine skills requirements and promote education and training
- To promote co-operation within the Sector and between the Sector and its customers and suppliers
- To maintain the best standards of quality and workmanship.

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