



Lift Safety



Recommendations to improve the safety of existing lifts

Lift & Escalator Industry Association

Lift Safety

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.

The majority of lifts in the UK 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 reasonably 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 fulfilling 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 to advise on any safety matters about which you should be aware.

The areas of risk identified in this guide are not exhaustive, and other, more current Standards may need to be consulted to ensure you have a compliant lift. They 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 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 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 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.

BS7255:2012 Code of Practice for Safe Working on Lifts encourages the owners of lifts, built before 1999, to undertake a programme of improvements in accordance with current standards.

Safety for users

Levelling Accuracy

No 3 on Safety Checklist

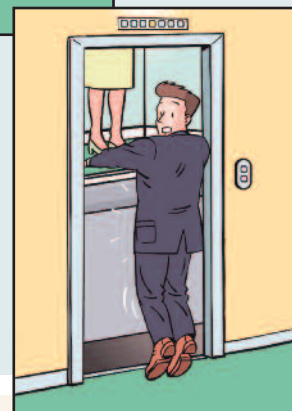
Inaccurate or inconsistent floor levelling is not merely an inconvenience, it is potentially hazardous, particularly for the infirm or partially sighted. In the case of wheelchair users, entering the lift backwards, this risk can be very serious. The levelling accuracy of many older lifts could be deemed unacceptable by today's standards. Modern technology can significantly reduce the risk of tripping and falling by greatly improving floor levelling.



Car Apron

No 39 on Safety Checklist

An apron is a simple fixed guard fitted to the lift car sill to protect any gaps which would otherwise appear when the lift car is not at floor level. This is particularly important during the release of trapped passengers where fatal accidents have occurred when passengers have fallen through the gap beneath the car and down the lift well.



Safety for maintainers

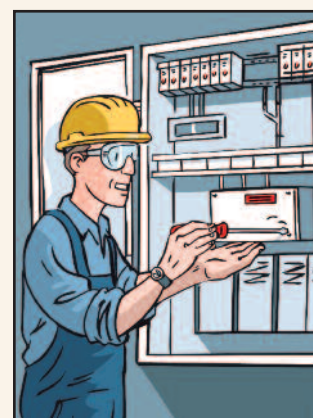
Safe Working Space No 14 on Safety Checklist

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 for lift engineers and inspectors. 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.



Electrical Protection Nos 66 & 68 on Safety Checklist

Older control equipment may not benefit from modern shielded terminals which are designed to prevent inadvertent contact. Upgrading to modern equipment greatly reduces the risk of electric shock during work. The main electrical isolator should be lockable to positively prevent the power being restored when work is in progress.

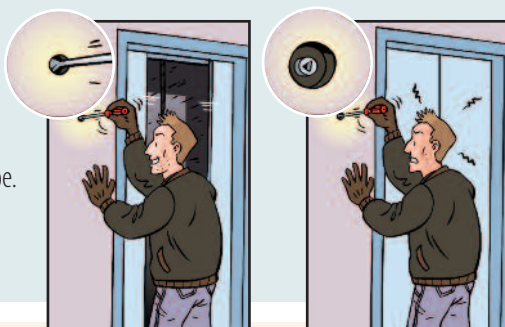


Lift Doors Nos 30, 31 & 32 on Safety Checklist

Technological advances mean that the risk of passengers being struck by closing lift doors can be hugely reduced by the fitting of non-contact safety edges which detect the presence of passengers and reverse the doors before striking them.

A special tool (key) for unlocking the landing doors in a rescue situation will normally form part of the supplied equipment on a modern lift. The owner must ensure this is kept safely and securely to prevent any unauthorised access.

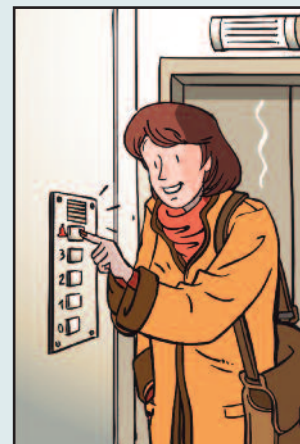
Older equipment, where the landing doors may be unlocked without a special tool, are susceptible to misuse and vandalism. Consideration should be given to upgrading the release to a modern type.



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.

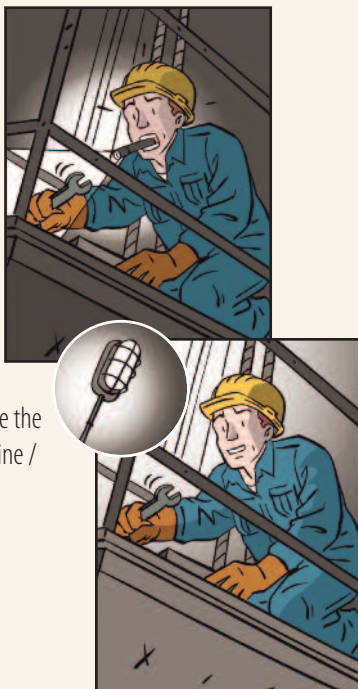
This provision is equally valid for older lifts and the ability to communicate with the outside world is now expected by all lift users.



Well lighting

No 17 on Safety Checklist

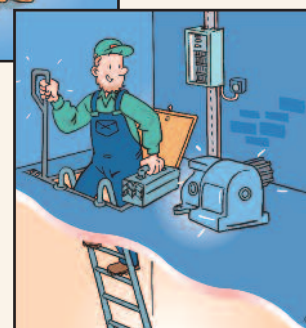
No longer is it considered sufficient to use hand-held or temporary lighting when working within an enclosed lift well. There now exist prescribed levels of lighting intensity sufficient to illuminate the work area especially the machine / pulley room and the shaft.



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. This is particularly challenging where access/ egress is by vertical ladder.



Voids

No 43 on Safety Checklist

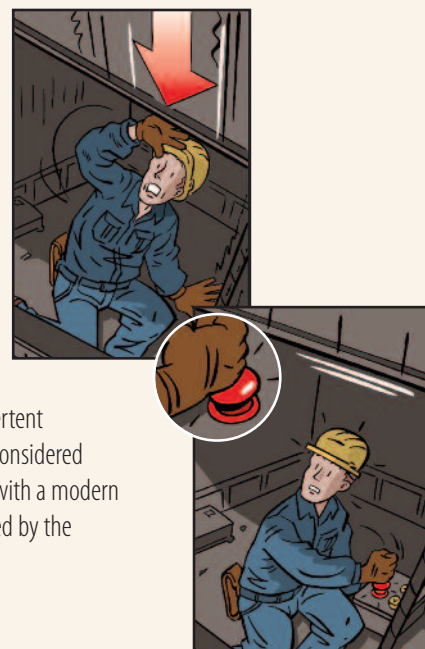
Many older lifts will have large gaps between the car and the wall of the lift well. These voids are hazardous whenever persons are working on the car top. The voids should be guarded to eliminate this risk. BS7255:2012 states that the precautions to be taken in order of preference are, vertical screens, horizontal extensions to the car top, balustrades on the car top. The use of personal equipment is likely to be problematic in this environment and should only be considered if the options already stated are not technically possible.



Inspection Control

No 70 on Safety Checklist

Work from the car top — a necessary part of maintenance — is a high risk activity particularly during car movements. Older inspection controls can be prone to inadvertent operation and serious and fatal accidents have occurred in this way. Modern inspection controls have design features which reduce the risk of inadvertent operation. Where existing controls are considered inadequate these should be upgraded with a modern type. 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.

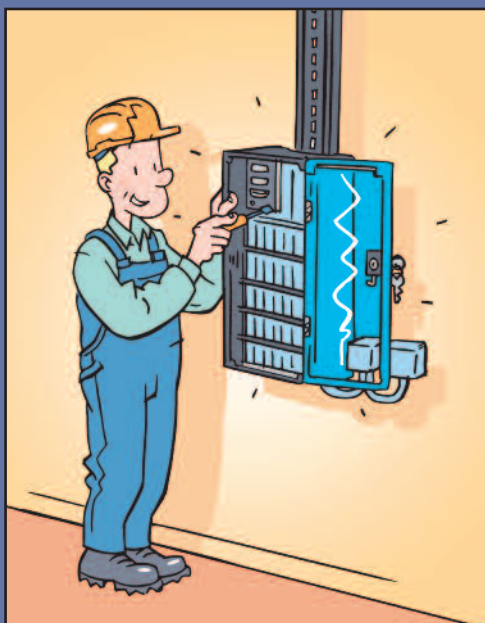
NO.	HAZARD/HAZARDOUS SITUATION	RELEVANT CLAUSES IN EN 81-80	PERSON AT RISK	NO.	HAZARD/HAZARDOUS SITUATION	RELEVANT CLAUSES IN EN 81-80	PERSON AT RISK
1	Presence of harmful materials	5.1.4	Worker/User	40	Car without doors	5.8.3	User/Worker
2	No or limited accessibility for disabled persons	5.2.1	User/Worker	41	Unsafe locking of car roof trap door	5.8.4	User/Worker
3	Drive system with poor stopping/levelling accuracy	5.2.2	User/Worker	42	Insufficient strength of car roof	5.8.5	Worker
4	No or inadequate vandal resistance	5.3	User/Worker	43	No or inadequate balustrade on car roof (voids)	5.8.6	Worker
5	No or inadequate control functions in case of fire	5.4	User/Worker	44	Insufficient ventilation in car	5.8.7	User
6	Well enclosures with perforate walls	5.5.1.1	User/Worker	45	Inadequate lighting in car	5.8.8.1	User/Worker
7	Partially enclosed well with too low enclosure	5.5.1.2	User/Worker	46	No or inadequate emergency lighting in car	5.8.8.2	User
8	Inadequate locking devices on access doors to well and pit	5.5.2	User/Worker	47	No or inadequate protection means on sheaves, pulleys and sprockets against injury	5.9.1	Worker
9	Inadequate vertical surface below landing door sills	5.5.3	Worker/User	48	No or inadequate protection against rope/chains leaving the sheaves, pulleys or sprockets	5.9.1	Worker/User
10	Counterweight/balancing weight without safety gear in case of accessible spaces below well	5.5.4	User	49	No or inadequate protection on sheaves, pulleys or sprockets against introduction of objects	5.9.1	Worker/User
11	No or inadequate partition of counterweight balancing weight travel path at the lowest terminal	5.5.5	Worker	50	No or inadequate safety gear and/or overspeed governor on electric lifts	5.9.2	User/Worker
12	No or inadequate pit screen for several lifts in the same well	5.5.6.1	Worker	51	No or inadequate slack rope switch for governor rope	5.9.3	Worker/User
13	No or inadequate partition for several lifts in the same well	5.5.6.2	Worker	52	No protection means against ascending car overspeed	5.9.4	User/Worker
14	Insufficient safety spaces in headroom and pit	5.5.7	Worker	53	Inadequate lift machine design for preventing uncontrolled up or down movement of the car whilst the doors are open	5.9.4 5.12.1	Worker/User
15	Unsafe pit access	5.5.8	Worker	54	No or inadequate protection against free fall, overspeed and creeping on hydraulic lifts	5.9.5	User/Worker
16	No or inadequate isolation devices in the pit or in the pulley room	5.5.9	Worker	55	Unsuitable guidance system for counterweight or balancing weight	5.10.1	User/Worker
17	No or inadequate lighting of the well	5.5.10	Worker	56	No or inadequate buffers	5.10.2	User/Worker
18	No alarm system in pit and on car roof	5.5.11	Worker	57	No or inadequate final limit switches	5.10.3	User/Worker
19	No or unsafe means of access to machine and pulley room	5.6.1	Worker	58	Large gap between car and wall facing the car entrance	5.11.1	User/Worker
20	Slippery floor in machine or pulley room	5.6.2	Worker	59	Excessive distance between car door and landing door	5.11.2	User/Worker
21	Insufficient clearances in machine room	5.6.3	Worker	60	No or inadequate emergency operation instruction manual for rescue of entrapped passengers	5.12.2	User/Worker
22	No or inadequate protection on different levels in machine room	5.6.4	Worker	61	No hydraulic shut-off valve	5.12.3	User/Worker
23	Inadequate lighting in machine or pulley room	5.6.5	Worker	62	No independent starting/stopping machine contactors	5.12.4	User/Worker
24	Inadequate means of handling equipment	5.6.6	Worker	63	No or inadequate slack rope/chain device	5.12.5	User/Worker
25	Perforate landing doors and car doors	5.7.1	Worker/User	64	No run-time limiter	5.12.6	User/Worker
26	Inadequate design of landing door fixings	5.7.2	User	65	No or inadequate low pressure device	5.12.7	User/Worker
27	Inappropriate glass in doors	5.7.3	User	66	Insufficient protection against electric shock and/or marking of electrical equipment	5.13.1	Worker/User
28	No or inadequate protection against dragging of fingers on sliding car or landing doors with glass	5.7.4	User	67	No or inadequate protection of lift machine electrical overload/temperature	5.13.2	User/Worker
29	No or inadequate lighting on landing	5.7.5	User/Worker	68	No lockable main switch	5.13.3	Worker/User
30	No or inadequate protective devices on power operated doors	5.7.6	User/Worker	69	No protection against phase reversal	5.14.1	User/Worker
31	Unsafe locking device of landing door	5.7.7	User/Worker	70	No or inadequate inspection control station and stopping device on car roof	5.14.2	Worker
32	Unlocking of landing door without a special tool	5.7.8.1	User	71	No or inadequate alarm device	5.14.3	User/Worker
33	Well enclosure with perforate walls near door locks	5.7.8.2	User/Worker	72	No or inadequate communication system between machine room and car (travel height $\geq 30\text{m}$)	5.14.4	Worker/User
34	No automatic closing device on sliding doors	5.7.9	User/Worker	73	No or inadequate load or overload control on car	5.14.5	User/Worker
35	Inadequate link between panels of landing doors	5.7.10	User/Worker	74	Missing notices, markings and operating instructions	5.15	User/Worker
36	Inadequate fire resistance of landing doors	5.7.11	User/Worker				
37	Car door moving with open landing door	5.7.12	User/Worker				
38	Large car area in relation to rated load	5.8.1	User				
39	Inadequate length of car apron	5.8.2	User/Worker				



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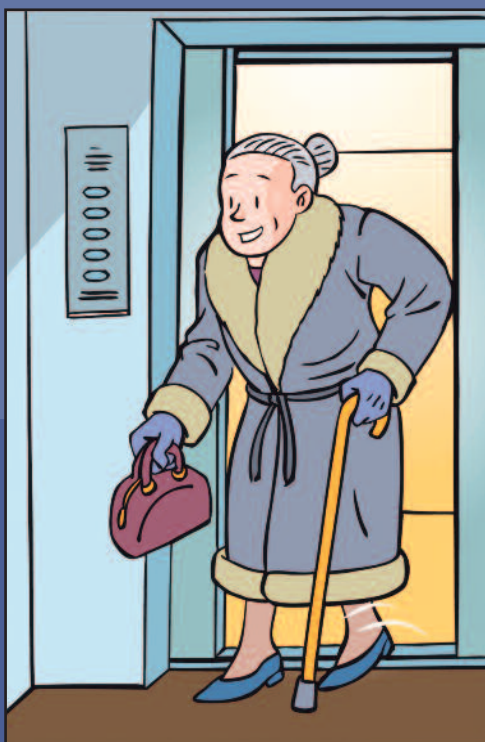
LEIA, the Lift and Escalator Industry Association, is the advisory body for the UK lift and escalator industry, drawing upon a wide range of expertise so as to ensure the provision of sound advice, in particular on health, safety and standards matters. Members include companies who manufacture, install, 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 ISO9001 (quality) and OHSAS18001 (health and safety) certification for its members, and to promote such standards wherever possible.

To this end, LEIA members commit to working safely and demonstrate their commitment by signing the LEIA Safety Charter:

- Protect themselves and others from falls and falling objects.
- Use and verify Stop and other devices when accessing, egressing and working on car tops and in lift and escalator pits to ensure total control of the equipment.
- Electrically isolate and lock off when power is not required and when working close to unguarded machinery.

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.