

A Building to prEN81-

The Lifts Regulations 1997 came into full effect on the 1st July 1999. The regulations set basic safety standards for all 'new' lifts installed within the UK after that date.

The continued debate in Europe regarding the improvement of safety standards on 'existing lifts' has resulted in a new standard prEN81-80 - "Rules for the improvement of safety of existing passenger and goods passenger lifts". The standard, which is due for publication later this year, provides clear guidance to 'lift owners' regarding their responsibilities.

Employers have a general duty under section 2 of the Health & Safety at Work etc Act 1974 to ensure; so far as is reasonably practicable, the health, safety and welfare of their employees at work. People in control of non-domestic premises have a duty under section 4 of the Act towards people who are not their employees but use their premises.

"Reasonably practicable" is defined as follows: "In deciding what is reasonably practicable the seriousness of the risk to injury should be weighted against the difficulty and cost of removing or reducing that risk. In considering the cost, no allowance should be made for the size, nature or profitability of the business concerned. Where the difficulty and costs are high and a careful assessment of the risk shows it to be comparatively unimportant, action may not need to be taken. On the other hand where the risk is high, action should be taken at whatever cost".

This article explains the content of the standard and the 'lift owners' responsibility to take steps to improve the safety of lifts installed before 1st July 1999. The standard is not a 'modernisation standard'; it is a 'safety standard' that aims to assist all parties in the identification of risks associated with lifts installed before the above date.



prEN81-80

Owner's Guide

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prEN81-80 will shortly become a European Standard; prepared by CEN/TC10/WG10, which comprised of representatives from the Industry, Notified Bodies and Consumers.

The 'working group' identified a list of 74 hazardous situations that could be present on an existing lift; the list was based on accidents and incidents that had occurred throughout Europe, wherever records have been kept, unless found to be specific to a single country. The working group carried out a Risk Analysis for each hazardous situation; the standard was then drafted based upon the Risk Assessment results.

The objective of the standard is to raise the level of safety on older lifts to match that of new lifts. Building owners will benefit from the reduction in the likelihood of accident claims; coupled with enhanced lettability of existing buildings.

The standard enables each lift to be audited and safety measures identified and implemented in a 'step by step' and selective fashion according to the frequency and severity of any single risk. The safety standard lists the high, medium and low risks which can be complied with in separate steps. This enables 'lift owners' to plan their budgetary provision for safety improvements.

The UK Lift Industry is keen to raise the level of safety for both those that use the lifts and those that work on the lifts. Your lift maintenance contractor should be able to provide you with advice on the requirements of prEN81-80, as it applies to your particular lift portfolio. Why not ask them to carry out an Audit and provide you with a report?

It is the 'lift owners' responsibility to ensure the following:

- a) the lift is safe for users and authorised lift persons;

- b) the lift is properly maintained;
- c) significant hazards (as detailed in the standard) are addressed;
- d) an assessment of the risks to health and safety should be carried out on the lift installation and the relevant protection methods put in place.

This article only considers the "high" priority items and excludes any reference to the "medium" and "low" priority items. This does not mean that in practice the "medium" and "low" priority items should be ignored.

1. Drive systems should be capable of ensuring that the step between the car and landing floors are within +/- 10mm and the levelling accuracy is within +/- 20mm of floor level.

Risk Assessment Objective





- To prevent users from tripping on the step between the car and landing floor levels when entering or leaving the lift.

2. In situations where adjacent lifts are installed within a common lift well, the installation should have a partition in the pit in accordance with EN 81-1/2, 5.6.2.1.

Risk Assessment Objective

- To prevent maintenance/inspection personnel coming into contact with the moving parts of adjacent lifts.

3. In situations where the lift well contains several lifts, and the horizontal distance between the edge of the car roof and a moving part of an adjacent lift is greater than 500mm, a partition for the full height of the

lift well should be fitted in accordance with EN 81-1/2, 5.6.2.2.

Risk Assessment Objective

- To prevent maintenance/inspection personnel coming into contact with the moving parts of adjacent lifts.

4. The walls of the lift shaft should generally be imperforate; or be in accordance with the requirements of EN294, 4.5.2.

Risk Assessment Objective

- To prevent persons outside the lift shaft from coming into contact with moving equipment.

5. In situations where the lift well is partially enclosed, the enclosure should be in accordance with EN81-1/2.

Risk Assessment Objective

- To prevent persons outside the lift shaft from coming into contact with moving equipment.

6. The pit shall have a suitable access, egress and a protection against falling according to EN81-1/2.

Risk Assessment Objective

- To prevent maintenance/inspection personnel sustaining serious injury due to falling when entering or leaving the pit.

7. In situations where the pit and/or pulley room are found not to have the appropriate stopping device, a device in accordance with EN81-1, 5.7.3.4 and 6.4.5 or EN81-2, 5.7.2.5 and 6.4.5 should be installed.

Risk Assessment Objective

- To prevent maintenance/inspection personnel





coming into contact with moving parts due to uncontrolled movement of the lift.

8. Any doors providing access to the lift well and pit should be suitably locked and fitted with a safety contact in accordance with EN81-1/2, 5.2.2.

Risk Assessment Objective

- To prevent non-authorized persons from entering the pit/well and sustaining injury or death from moving parts.

9. In situations where the top and/or bottom clearances are found not to be in accordance with EN81-1, 5.7.1, 5.7.2 and 5.7.3.3 for electric lifts; or EN81-2, 5.7.1 and 5.7.2 for hydraulic lifts, the relevant requirements of prEN81-21 shall apply.

Risk Assessment Objective

- To prevent maintenance/inspection personnel from being crushed whilst travelling on top of the lift car or working within the pit when the lift car overruns.

10. Lift wells should incorporate a lighting system in accordance with EN81-1/2.

Risk Assessment Objective

- To prevent maintenance/inspection personnel from sustaining serious injury or death due to tripping or coming into contact with moving parts.

11. There should be a safe means of access to the machine/pulley rooms in accordance with EN81-1/2, 6.2.

Risk Assessment Objective

- To prevent authorised personnel from sustaining

serious injury due to falling whilst entering or leaving the machine room.

12. Different levels in the machine/pulley room should be protected in accordance with EN81-1/2, 6.3.2.4 and 6.3.2.5.

Risk Assessment Objective

- To prevent authorised personnel from sustaining serious injury due to falling whilst moving around the machine room.

13. The machine/pulley room should incorporate electrical lighting and/or socket outlets in accordance with EN81-1/2, 6.3.6 and 6.4.7.

Risk Assessment Objective

- To prevent authorised personnel from tripping, contact with moving parts or electric shock whilst moving around the machine room.

14. In situations where clearances around





machinery do not comply with EN81-1/2, the equipment should be protected by suitable covers in accordance with EN953.

Risk Assessment Objective
 – To prevent authorised personnel from coming into contact with moving parts.

15. In situations where landing door locks do not comply with EN81-1/2, the locks should be replaced with locks in accordance with EN81-1/2, 7.7.

Risk Assessment Objective
 – To prevent persons from falling down the lift well due to doors not being properly locked.

16. Triangular key type emergency unlocking devices, in accordance with EN81-1/2, 7.7.3.2, should be fitted to landing doors; suitable written instructions

should accompany the release keys.

Risk Assessment Objective
 – To prevent persons from falling down the lift well following unauthorised opening of the landing doors.

17. Landing door locks should not be accessible from the outside of the lift well so as to reduce the risk of unauthorised opening.

Risk Assessment Objective
 – To prevent persons from falling down the lift well following unauthorised opening of the landing doors.

18. Landing doors that are fitted with glass should be in accordance with EN81-1/2, 7.2.3 and annex J.

Risk Assessment Objective
 – To prevent persons

breaking the glazed panel and sustaining injury through falling or coming into contact with moving equipment.

19. Horizontal sliding doors that can be driven by the car doors should have an automatic closing device fitted in accordance with EN81-1/2, 7.7.3.2.

Risk Assessment Objective
 – To prevent persons from falling down the lift well when the landing door remains open after ‘emergency unlocking’ or when the car leaves the floor due to creeping.

20. All landings should have a landing door apron fitted in accordance with EN81-1/2, 5.4.3.

Risk Assessment Objective
 – To prevent maintenance/ inspection personnel from





sustaining serious injury or death due to tripping or coming into contact with moving parts.

21. Landing door fixings should resist the forces of derailment as defined in EN81-1/2, 7.2.3.1 and 7.4.2.1.

Risk Assessment Objective

- To prevent persons from falling down the lift well due to failure of the door fixings or suspension/ retention system.

22. In situations where there is no car door fitted, a car door should be fitted in accordance with EN81-1/2.

Risk Assessment Objective

- To prevent persons from serious injury due to crushing by goods or the building structure.

23. In situations where power

operated doors are not fitted with any protection device, car and landing door protective devices should be fitted in accordance with EN81-1/2, 7.5.2.1.1 and 8.7.2.1.1.

Risk Assessment Objective

- To prevent persons from being hit or jammed by the door panels causing serious injury.

24. A car door lock or means to reduce the distance should be incorporated in situations where the horizontal distance between the inner surface of the well and the car equipment exceeds the dimensions laid down in EN81-1/2.

Risk Assessment Objective

- To prevent persons from falling down the lift well or sustaining shearing injuries, in the event of the car moving, whilst the

person is exiting.

25. The car should have an apron in accordance with EN81-1/2, 8.4 or prEN81-21.

Risk Assessment Objective

- To prevent persons from falling down the lift well when trying to escape in an emergency situation.

26. In situations where the horizontal free distance from the edge of the car roof exceeds 300mm, suitable safeguards should be fitted.

Risk Assessment Objective

- To prevent serious injury or death due to equipment failure or downward overspeed situation maintenance/ inspection personnel from falling down the lift well as a result of a trip or stumble on top of the lift car.

27. The lift must be fitted with an adequate safety gear





and overspeed governor.

Risk Assessment Objective

- To prevent serious injury or death to persons due to equipment failure or downward overspeed situation.

- 28. Hydraulic lifts should be fitted with suitable protection to guard against uncontrolled downward movement.

Risk Assessment Objective

- To prevent serious injury or death to persons due to equipment failure, resulting in the car moving downwards uncontrollably and also possibly leaving a landing entrance open.

- 29. Electric lifts should be fitted with an overspeed governor compatible with the existing safety gear.

Risk Assessment Objective

- To prevent serious injury or death due to equipment

failure or downward overspeed situation.

- 30. Adequate buffers are required on all lifts in accordance with EN81-1/2, 10.3.

Risk Assessment Objective

- To prevent serious injury due to car or counterweight hitting inadequate buffering mechanisms.

- 31. The distance between car and landing door should not exceed 120mm for flat panel doors and 150mm between a hinged landing door and a folding car door.

Risk Assessment Objective

- To prevent persons from falling down the lift well or sustaining shearing injuries, in the event of the car moving, whilst people are within the danger zone.

- 32. The lift should be provided

with an emergency operation system in accordance with EN81-1/2; and supplemented by clearly displayed rescue instructions.

Risk Assessment Objective

- To prevent persons from panicking or possibly falling down the lift well during the emergency operation procedure.

- 33. Where practical, on electric lifts, the electro-mechanical brake should comply with EN81-1, 12.4.2.

Risk Assessment Objective

- To prevent persons from becoming trapped between the car and landing doors in an uncontrolled movement situation.

- 34. The lift should be fitted with at least two independent starting contactors in accordance with EN81-1/2,





12.7 and EN81-2, 12.4.

Risk Assessment Objective

- To prevent persons from becoming sheared or crushed due to component failure.

35. The following protections against electric shock are required:

- a) the electrical equipment should be fitted with casings providing a degree of protection of at least IP 2X;
- b) a lockable main switch should be present;
- c) suitable terminal markings should be present if the voltage exceeds 50V;
- d) suitable warning notices should be fitted to group controllers.

Risk Assessment Objective

- To prevent maintenance/

inspection personnel from coming into contact with electrical equipment.

36. An emergency alarm device allowing two-way voice communications should be fitted in accordance with EN81-1/2, 14.2.3.

Risk Assessment Objective

- To prevent persons from panicking or obtaining medical care during lift breakdown situation.

37. The car roof should be fitted with an inspection control station and a stopping device in accordance with EN81-1/2.

Risk Assessment Objective

- To prevent maintenance/ inspection personnel from injury or death, whilst working on the car roof, due to uncontrolled movement of the car. □