

Lift regulations

An essential guide

Introduction

Two new standards; BS EN 81-20 and BS EN 81-50 were published in 2014 and implemented in 2017 to optimise the safe operation of passenger and goods lifts for users and maintenance engineers. The new standards apply throughout the UK, yet some specifiers and lift engineers are still unfamiliar with the details of the standard and are failing to meet its requirements.

In this technical guide, we will highlight the core changes this legislation has introduced, the implications for building design, technical safety and door design, and provide links for further information.

Why have these standards been introduced and where do they apply?

The new standards have been created to improve safety. BS EN 81-20 covers the safety rules for the construction and installation of lifts for the transport of persons and goods. It applies to lifts with traction, positive or hydraulic drive, which serve defined landing levels and which have a car designed for the transportation of people or people and goods which are suspended by ropes, chains or jacks and which move between guide rails inclined by not more than 15° to the vertical. BS EN 81-50 covers the design rules, calculations, examinations and tests of lift components.

The requirements also apply to lifts which are used:

- › By people with disabilities
- › In case of fire
- › In a potentially explosive atmosphere
- › In extreme climate conditions or during seismic events
- › For the transportation of dangerous goods

Who should be familiar with these regulations?

Anyone who is involved with building design where lifts are required, lift engineers, lift manufacturers, organisations undertaking lift installation and maintenance, health and safety officers and fire safety offices should be fully conversant with the new regulations and their requirements.

What's changed?

The new standards supersede the previous standards:
 BS EN 81-1:1998+A3: 2009
 BS EN 81-2:1998+A3: 2009

EN
81-20:
2020

EN 81-20: **2020**
 Safety requirements for construction and installation

EN
81-50:
2020

EN 81-50: **2020**
 Test and examination requirements for certain lift components

The updated standards:

- › Incorporate health and safety requirements from relevant EU Directives
- › Cover safety improvements due to the use of new technologies
- › Are designed to eliminate reporting errors
- › Clarify text and proposals which resulted from previous legislative interpretation requests
- › Provide improve references for other relevant standards

Technician Safety NEW Requirements

The regulations cover seven core areas with regard to technician safety: Lighting; control station access and control; lift car balustrades; protection against horizontal projections; safety refuge spaces, and electrical safety.

1. Lighting

- › Shaft lighting should provide a minimum of 50 lux a metre above the car roof vertically, one meter above the pit floor in areas where a person can stand, work or move between work areas, and 20 lux elsewhere excluding any shadows.
- › Emergency lighting on the car roof must now be sustained at 5 lux for one hour.
- › The car roof should also have an anti-slip surface.
- › The machine room should have a lighting of a minimum 200 lux.

2. Electrical Safety

- › A RCD device should be provided for separate 230v circuits and LED lighting.
- › A shaft switch will need to be installed to guarantee an inspection speed of 0.3 m/s.

3. Control Station Location & Access

Specifically station location and access to the pit and machine room:

- › Access requirements for pits deeper than 2.5 metres are now stricter with designated dimension, strength and location requirements for access aids such as ladders. An access door might also be required.
- › To prevent technicians needing to use ladders or stools to reach components underneath the lift car, a control station (including audio communication in case of entrapment) must now be located in the pit near to refuge spaces. A reset function must be located outside of the lift shaft.
- › Safety gear should be fitted to counterweights where there are accessible spaces under the pit such as in a storage space or car park.

4. Access, Inspection & Rescue Doors

The provision of access, inspection and rescue doors which meet specified criteria:

- › Access/inspection doors should be provided instead of inspection trapdoors.

- › Machine room shaft access doors should be a min: 2000mm (h) by 600mm (w)
- › Pulley-room access doors should be a min: 1400mm (h) by 600mm (w)
- › Access trapdoors (to machine and pulley rooms) must be counterbalanced and provide clear passage of: 800mm x 800mm
- › Emergency doors should be a min: 1800mm (h) x 500mm (w)
- › Inspection doors should be a min: 500mm (h) x 500mm (w)

5. Lift-car Roof Balustrade Requirements

There are now defined strength and height requirements for balustrades on the lift car roof to prevent installation and maintenance operatives from falling into the lift shaft.

- › Where the distance between the inner edge of the handrail and wall of the lift shaft is up to 500mm, the balustrade must have a minimum height of 700mm.
- › Where the distance between the inner edge of the handrail and the wall of the lift shaft exceeds 500mm, the balustrade must have a minimum height of 1100mm.

6. Protection Against Horizontal Projections

- › Any ledge or similar that protrudes into the shaft or horizontal beam greater than 150mm wide must be protected to prevent a person standing on it, unless car roof access is prevented by a balustrade. This exemption does not apply for ledges around the pit such as those that might be found in a partially enclosed elevator shaft and car roof balustrades.

7. Safety Refuge Spaces

New minimum volumes for safety refuge spaces and access requirements have been introduced which specify:

- › Volumes for safety refuge spaces have been increased to 0.4 x 0.5m (horizontal) and 2m (height) in the upright position, 0.5 x 0.7m (horizontal) and 1m (height) in the crouching position and 0.7 x 1m (horizontal) x 0.5m in the laying position (pit only).
- › The landing door to the pit must be able to be opened from within the shaft allowing technicians to exit even if the landing door is closed.

Building Design NEW Requirements

A further five areas are covered under EN 81-20:2014 with regard to lift shafts:

Lift shaft requirements:

1. All glass must be laminated.
2. Shaft walls must be able to withstand 1000 N.
3. The shaft should now contain a fire extinguisher though the sprinkler should only be activated when the lift is stood still at a landing.
4. The fire or smoke detection system should switch off the lift's main switches and lighting circuits when activated.
5. Installations in buildings taller than 40m (in which the ride distance exceeds 40m) must account for building shrinkage in building design.

Importantly, the responsibility for ventilation of the shaft now falls to the building designer.

Manufacturers are also required to provide key information on lift components including heating and emissions performance figures. This approach allows designers to consider energy efficient solutions while mindful of working conditions for technicians and passenger comfort.

Implications for door design

At Selo, we take pride in designing and manufacturing door products which not only meet but often exceed current legislative requirements.

The Selo Quadra Lift Shaft door has been tested by BRE (The Building Research Establishment) to ensure it meets the requirements for access, inspection, and rescue doors as specified by the new standards.

Tests conducted by BRE have also established that Selo Quadra Lift Shaft doors meet the requirements of sections (a) through to (f) of EN 80-20 section 5.2.2.3 and additionally the soft impact body test carried out in accordance with EN 81-20 Section 5.3.5.3.4. to impact

test the door and ensure it meets the mechanical strength requirements of the landing car doors as specified in 5.2.2.3 e).

Additionally, the door will need a previously tested and approved electrical safety switch which will need to be specified and supplied by the lift system provider in conjunction with Selo.

The Quadra range of doors have also been successfully tested to EN1634-1 for a duration of 120 minutes to establish their integrity as an uninsulated steel fire doorset.



Quadra+ Lift Shaft

[VIEW SYSTEM](#)

Technical support

If you have any queries about the requirements specified under EN 81-20: 2020 and EN 81-50: 2014, please contact our Technical Director, Jeff.



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PLEASE NOTE Information contained within this guide was correct at the time of writing in May 2021.



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