
Explanatory supplement to BS 5655 'Lifts and service lifts' Part 1 'Safety rules for the construction and installation of electric lifts' (EN 81 : Part 1)

Supplément explicatif à BS 5655 'Ascenseurs et monte-charge' Partie 1 'Règles de sécurité pour la construction et l'installation des ascenseurs électriques' (EN 81 : Partie 1)

Erklärende Ergänzung zu BS 5655 'Personen- und Lastenzufzüge sowie Kleingüteraufzüge' Teil 1 'Sicherheitsregeln für die Konstruktion und den Einbau von elektrisch betriebenen Aufzügen' (EN 81 : Teil 1)

Foreword

This revision of PD 6500 : 1984, which has been prepared under the direction of the Mechanical Handling Standards Committee, is an explanatory supplement to BS 5655 'Lifts and service lifts' Part 1 'Safety rules for the construction and installation of electric lifts', to assist users in their understanding and implementation of that standard. The explanations have been prepared by the CEN interpretation committee mentioned in footnote 1) to clause 0 'General introduction' of EN 81 : Part 1, which is reproduced in BS 5655 : Part 1, to make clear the meaning of various clauses of the standard and the spirit in which the experts had drafted them.

This revision takes into account the text changes incorporated into BS 5655 : Part 1 : 1986 (i.e. second edition of EN 81-1 published 1985). The changes to that standard incorporate improvements or clarification, both technical and linguistic, which now remove the need for many of the explanations which were provided in the earlier editions of this Published Document.

The basis of the explanations remain the official numbered Interpretations issued to national standards bodies periodically by the CEN/TC 10 Interpretation Committee (i.e. numbers 1 to 119 inclusive as at December 1985) and an earlier set of 48 'comments' issued as document CEN/TC 10.N57 of August 1978; for convenience these latter comments have been arbitrarily allocated the numbers 501 to 548 inclusive. Reference copies of all these interpretation documents (listed in appendix A) are held for information purposes at BSI, but not published.

Many of these explanations are of equal relevance to hydraulic lifts when BS 5655 : Part 2 makes reference to specific clauses in BS 5655 : Part 1.

This Published Document supersedes PD 6500 : 1984 which is therefore withdrawn.

This Published Document will be periodically reviewed and updated as experience in the use of the standard is gained.

The explanations given in this document of certain clauses in the standard that are considered to lack clarity will be adopted either in an amendment to or in a future revision of the standard. To facilitate subsequent incorporation, the wording used closely follows the style of the text of the standard.

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Explanatory supplement

1 Scope

This Published Document gives guidance to users of BS 5655 : Part 1 : 1986 (EN 81-1 : 1985) in their implementation of the standard. It relates to clauses for which it is considered, for a better understanding of the requirements, it would be desirable:

- (a) to explain the basis of the thoughts or calculations which led to a given requirement being specified;
- (b) to provide such examples that could not be stated in a standard (the given examples do not preclude the use of other possible designs);
- (c) to clarify certain requirements where experience has shown that such clarification is necessary or that there are discrepancies between the English language version and one or both of the other two official language versions, i.e. German and French.

NOTE. The titles of the publications referred to in this Published Document are listed on the inside back cover.

2 Explanations

The explanations on the following pages give assistance in the understanding of specific clauses in BS 5655 : Part 1 : 1986 (EN 81-1 : 1985).

NOTE 1. For easy cross-reference the explanations are given the same section and paragraph headings with the same figure and table numbers as in the standard. The numbers of the figures in this document are prefixed by EX to distinguish them from the figures in the standard.

NOTE 2. When mandatory requirements are stated in certain explanations in this document they correspond to the mandatory requirements specified in the standard.

NOTE 3. Wherever an official CEN explanation is given, the CEN reference number is quoted in square brackets. A list of these numbers and the relevant clause numbers is given in appendix A of this document (see also foreword).

Clause in BS 5655 : Part 1 : 1986 (EN 81-1 : 1985)	Explanation
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Clause 5 Lift well

5.2.2	Inspection doors, emergency doors and inspection traps are considered to be part of the building construction and not items directly associated with the construction of the lift equipment. In accordance with 0.1.3, the requirements for their fire resistance are not therefore specified in the standard. The requirements of the Building Regulations are relevant. [20]
5.7.1.1(d)	The standing place on the car roof called for in 8.13.1(b) shall be located, for at least 0.12 m ² of its area, within the vertical projection of the rectangular block called for in 5.7.1.1(d). [122*]
5.8	Fire sprinklers also shall be excluded from the well. [22]

*At stage of draft interpretation

Clause in
BS 5655 : Part 1 : 1986
(EN 81-1 : 1985)

Explanation

Clause 6 Machine and pulley rooms

- 6.1.2** This clause requires that 'the machine shall be in a special room comprising solid walls, ceiling and door and/or trap.'. The 'wall' should be considered as extending full height to ceiling (in contrast to an enclosure dealt with in **6.1.2.2**). The door however need not be provided if an access trapdoor (**6.3.3.2**) is provided. [39]
- 6.1.2.1.2(b)** This requirement is intended to safeguard persons in the machine room. It is not practicable to fix limiting values to the dimensions of gaps between the machine room and the well due to the different configurations. [113]
- 6.1.2.1.3** If the overspeed governor in the well is accessible only through an opening not exceeding 0.5 m x 0.5 m in the machine room wall, this opening need not be protected by an inspection trap. [114]
- 6.1.2.1.4(a)** To avoid bodily injury it is acceptable to protect the pulley or sheave with a wire mesh guard to provide protection, up to code IP2, on the side or sides where the pulley or sheave can be reached by hand. [55]
- 6.1.2.1.4(b)** The use of rods is a satisfactory method to prevent ropes or chains leaving the grooves, provided the rod or rods are arranged to maintain a clearance from the pulley outside diameter which is less than the nominal diameter of the rope. It is also acceptable for the flanges to retain the rope or chain provided the dimensions of the flanges correspond to the maximum possible rope or chain slack. [55]
- 6.1.2.1.4(c)** The introduction of foreign objects may be prevented by the use of a small metal guard fitting into the apex of the angle formed between the ropes and sheave and contoured to follow the profile of the rope and the grooves. [55]
- 6.2.2(b)** The clause forbids, for safety reasons, the use of vertical ladders with a height of 1.5 m and more. [504]
- 6.2.2(c)** The wording 'the necessary provisions shall be made for that purpose' means that the ladder shall be secured by means of, for instance, a padlock, so that the ladder cannot be removed by unauthorized persons. [505]
- 6.3.2.1** The clear surface area shall be provided in the proximity of each moving part; it is, however, acceptable if such areas overlap or if they are common. [3]
- 6.3.2.5** The surface of the main level of the machine room floor shall be flush and free from obstacles. [506]
- 6.3.3.2** Trap doors used solely to provide access for equipment and materials do not require counter-balancing. [40]
- A guard rail shall be provided to prevent the fall of persons whilst the trap door remains open, i.e. when moving equipment or materials. [105]
- In addition, to prevent the fall of materials a plinth or toe guard which is at least 50 mm high should be provided around the trap door. [105]
- 6.4.3.2** The explanation of **6.3.3.2** is equally applicable. [105]

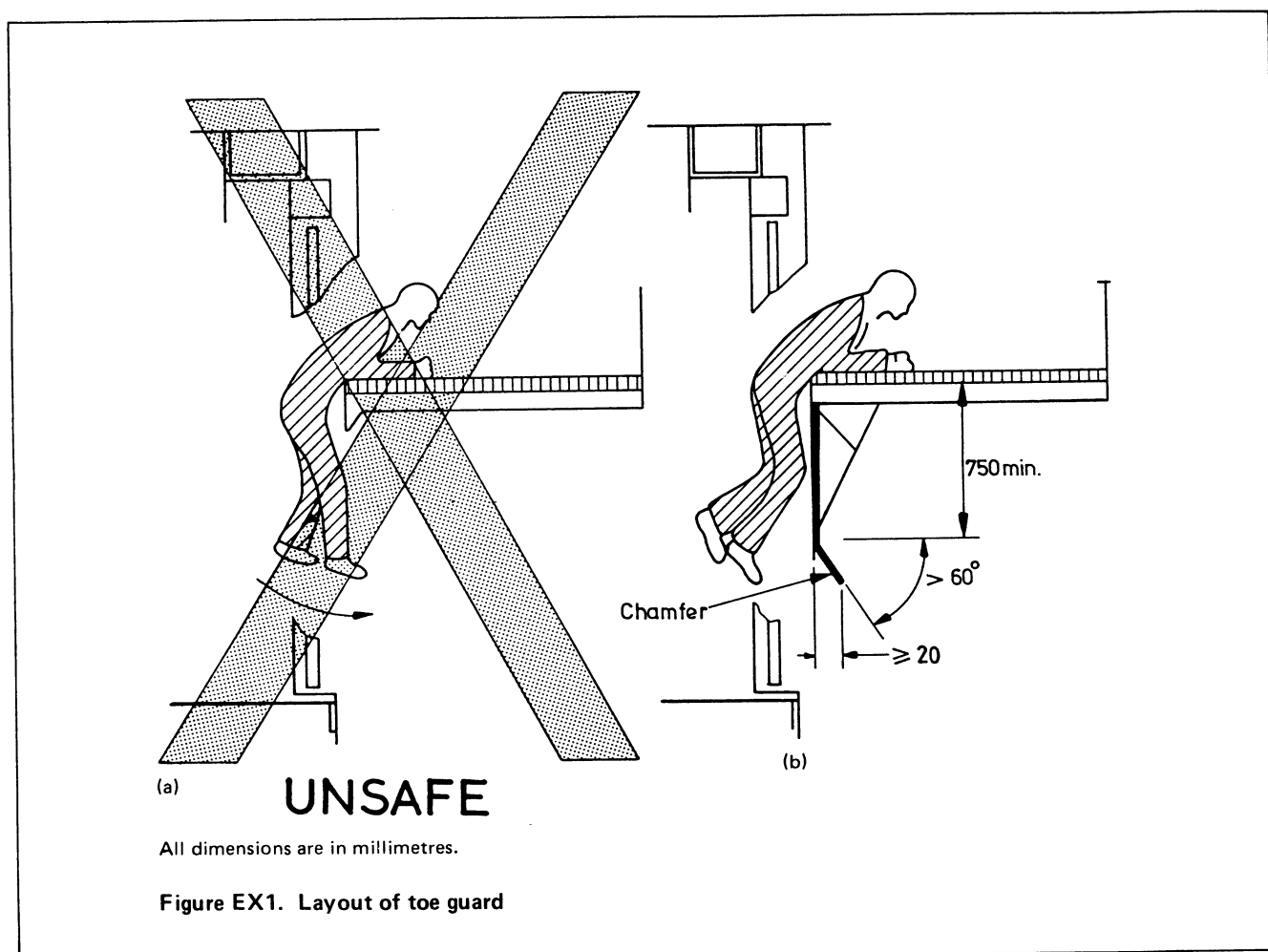
Clause 7 Landing doors

- 7.1.1** If it is required to open manually a power operated multi-panel sliding landing door, a recessed handle on the outside is permitted provided that the distance between the two door jambs is such that the handle in any position of the door remains within the clear distance between the jambs. [50]
- 7.2.3.1** The requirements of **7.2.3(a)** and **7.2.3(c)** shall also apply. [508]

Clause in BS 5655 : Part 1 : 1986 (EN 81-1 : 1985)	Explanation
7.5.2	Doors with power operation shall be considered as being motorized doors, i.e. operated by electric motor or hydraulic or pneumatic actuator. [509]
7.5.2.1.1	The wording 'automatic power operated doors' applies to all power operated doors that may close without the need of any positive action by a user (for example without constant pressure on a button). [510]
7.5.2.1.1.1	Power operated horizontally sliding landing doors whose closing movement requires a force exceeding 150 N shall be provided with a door control button which requires continuous pressure by the user. [49]
7.5.2.1.1.3	The wording of this clause is such as to permit the use of the following protective devices: (a) safety edge; (b) safety shoe; (c) device responsive to relative movement between the door and the door operating mechanism; (d) systems using a beam controlling the free opening of the door in any direction, for instance, photocell systems; (e) proximity device. This clause applies equally to side opening articulated landing doors, automatically operated by compressed air, as do 7.5.2.1.1.1 and 7.5.2.1.1.2. [106 and 511]
7.5.2.3	The explanation given above to 7.5.2.1.1 of the wording 'automatic power operated doors' also applies to this clause. [512]
7.7.3.1.9	Contacts shall be considered as being part of the working parts of a lock that require inspection. [513]
7.7.5.1	This clause emphasizes that at least two actions not being part of the normal operation are necessary to cause the car to move. One such action can be, for instance, shorting of a landing door contact by means of a wire bridge. On the other hand, pressing a control button shall be considered as being part of normal operation. [514]
7.7.5.2	This requirement refers to proving during normal operation that locking has been achieved. The term 'positive operation' requires that the means of proving locking shall not depend upon the use of springs, etc., i.e. as required for safety contacts (14.1.2.2.1). [4]
7.7.6	F.1.3.1 considers that the linkages between door panels form part of the door locking device, it is therefore necessary that these mechanical linkages satisfy the static and dynamic type tests described in F.1.2.2.2 and F.1.2.2.3. [5 and 99]
7.7.6.1	A labyrinth formed by folding back the sheet metal of each panel of a telescopic door and latching the fast panel to the slow panel when in the fully closed position can be considered a direct mechanical linkage. A simple hook or hooks positioned at one or more points achieving essentially the same linkage is also acceptable. [100]
7.7.6.2	Direct mechanical linkages (e.g. by lever connections) are considered to be safer than indirect mechanical linkages (e.g. by rope, belt or chain). [54] It should be noted that compliance with this requirement will be confirmed by the type test specified in F.1.3.1. [5]

Clause 8 Car and counterweight

8.2.2	When EN 81-1 was drafted it was intended that the weight of the handling devices need not be included in the rated load. This matter will be reviewed at a future revision of the standard. [63]
8.4.1 and 8.4.2	See figure EX1. [516]
8.6.1 <i>specific case</i>	The further specific case of perforated panel vertically sliding doors of the rise and fall type will be considered at a future revision of EN 81-1. [61]



Clause in
BS 5655 : Part 1 : 1986
(EN 81-1 : 1985)

Explanation

- 8.8** The wording 'photoelectric or similar device' permits other types of devices based upon a ray or radiant beam. A hinged flap or mobile sill is not acceptable as an alternative. [6 and 517]
- 8.9.2** It is necessary to protect the car door locking devices against deliberate misuse. [25]
- 8.10.2** If the mechanical locking of the car door panels is in accordance with 5.4.3.2.2, the locking device shall satisfy the same requirements as for landing door locking devices. [96]
- 8.11.1(a)** Depending on the position of the car, the use of the emergency unlocking triangle may be necessary to unlock the landing door. [518]
- 8.12.3** This requirement is specified to cover the probability of an object becoming jammed between the car and the well. It is therefore essential that access to the car is gained before any movement of the car from the machine room is attempted. [7]
- 8.12.4** It is permissible to provide door sills on the car platform to reduce the gap between cars such that it does not exceed 0.75 m. [31]