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BSI Standards Publication

Safety rules for the construction and installations of lifts — Particular applications for passenger and goods passenger lifts

Part 77: Lifts subject to seismic conditions

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National foreword

This British Standard is the UK implementation of EN 81-77:2022. It supersedes BS EN 81-77:2018, which will be withdrawn on 31 May 2024.

The UK participation in its preparation was entrusted to Technical Committee MHE/4, Lifts, hoists and escalators.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

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Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2022.

Amendments/corrigenda issued since publication

Date	Text affected
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EUROPÄISCHE NORM

May 2022

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Supersedes EN 81-77:2018

English Version

Safety rules for the construction and installations of lifts - Particular applications for passenger and goods passenger lifts - Part 77: Lifts subject to seismic conditions

Règles de sécurité pour la construction et l'installation
des ascenseurs - Applications particulières pour les
ascenseurs et les ascenseurs de charge - Partie 77 :
Ascenseurs soumis à des conditions sismiques

Sicherheitsregeln für die Konstruktion und den Einbau
von Aufzügen - Besondere Anwendungen für
Personen- und Lastenaufzüge - Teil 77: Aufzüge unter
Erdbebenbedingungen

This European Standard was approved by CEN on 20 April 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 81-77:2022) has been prepared by Technical Committee CEN/TC 10 "Lifts, escalators and moving walks", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2022, and conflicting national standards shall be withdrawn at the latest by May 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 81-77:2018.

In comparison with the previous edition, the following significant changes have been made:

- update of normative references;
- visual indication of seismic mode;
- removal of Table 4 and reference to ISO 7465:2007;
- modification of Annex ZA.

No technical changes have been made in Clause 5 during this revision.

This document is intended to be used in conjunction with EN 81-20:2020, which gives the basic requirements for passenger and goods passenger lifts.

This document is part of the EN 81 series of standards. The structure of the EN 81 series is described in CEN/TR 81-10:2008.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

0.1 General

This document is a type-C standard as stated in EN ISO 12100.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate in the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

0.2 Principles

Risk analysis, terminology and technical solutions have been considered taking into account the methods of EN ISO 12100:2010 and EN ISO 14798:2013.

0.3 Assumptions

It is assumed that information has been exchanged to determine the design acceleration (a_d) to be considered and the most effective position of the seismic detection system, if any, and of the primary wave detection system, if any.

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1 Scope

This document specifies the additional special provisions and safety rules for passenger and goods passenger lifts where these lifts are installed in buildings and constructions (hereinafter buildings) intended to withstand seismic events in compliance with EN 1998-1:2004 (Eurocode 8), during use, maintenance, inspection and emergency operation of lifts.

The aim of this document is to:

- avoid loss of life and reduce the extent of injuries;
- avoid people getting trapped in the lift;
- avoid damage;
- avoid environmental problems related to oil leakage;
- reduce the number of lifts out of service.

This document does not introduce any specific provisions and safety rules for lifts when $a_d \leq 1 \text{ m/s}^2$ as defined in Annex A.

This document does not address other risks due to seismic events (e.g. fire, flood, explosion).

This document is not applicable to lifts installed before the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 81-20:2020, *Safety rules for the construction and installation of lifts — Lifts for the transport of persons and goods — Part 20: Passenger and goods passenger lifts*

EN 81-72:2020, *Safety rules for the construction and installation of lifts — Particular applications for passenger and goods passenger lifts — Part 72: Firefighters lifts*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN 81-20:2020 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>