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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

bsi.

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National foreword

This British Standard is the UK implementation of EN 81-77:2018. It supersedes BS EN 81-77:2013, which is withdrawn.

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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

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31 December 2018	Implementation of CEN correction notice 5 December 2018: date of withdrawal of conflicting standards amended in European foreword

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EUROPEAN STANDARD **EN 81-77**

NORME EUROPÉENNE

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Règles de sécurité pour la construction et l'installation des élévateurs - 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 corrected and reissued by the CEN-CENELEC Management Centre on 5 December 2018.

This European Standard was approved by CEN on 18 June 2018.

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European foreword

This document (EN 81-77:2018) 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of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by November 2020.

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 81-77:2013.

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

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

The main changes with respect to the previous edition (EN 81-77:2013) are as follows:

— updating of references and their associated requirements with regard to EN 81-20:2014;

— general editorial corrections since the last publication;

— replacement of the Annex ZA with regard to the commission mandate M/549/C(2016) 5844 Final and Directive 2014/33/EU;

— visual indication of seismic mode (chapter 5.10.3.8);

— replace mass P with PEC in proof of guide rails (Annex D).

This document is part of the EN 81 series of standards: “*Safety rules for the construction and installation of lifts”.*

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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0 Introduction

0.1 General

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

This document is a Type C Standard as stated in EN ISO 12100.

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

0.2 General remarks

0.2.1 The object of this standard is to define additional safety rules related to passenger and goods lifts with a view to safeguarding persons and objects against the risks described below associated with the use, maintenance, inspection and emergency operation of lifts subject to seismic conditions.

0.2.2 The aim of this European Standard is to:

— avoid loss of life and reduce the extent of injuries;

— avoid people trapped in the lift;

— avoid damage;

— avoid environmental problems related to oil leakage;

— reduce the number of lifts out of service.

0.3 Principles

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

0.4 Assumptions

It is assumed that negotiations have been made for each contract between the customer and the supplier/installer about 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. The building designer or the lift owner should provide the design acceleration (a_d) which will be documented in the information for the owner provided by the installer.

This European Standard covers only the effects of earthquakes on lifts and not the nature of them.

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1 Scope

This document specifies the special provisions and safety rules for passenger and goods passenger lifts where these lifts are permanently installed in buildings that are in compliance with EN 1998-1 (Eurocode 8).

This document defines additional requirements to EN 81-20 and EN 81-50.

It applies to new passenger lifts and goods passenger lifts. However, it can be used as a basis to improve the safety of existing passenger and goods passenger lifts.

This document does not introduce any additional special provisions and safety rules for lifts which are in Seismic lift category 0 as defined in Annex A, Table A.1.

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

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 81-20:2014, *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 81-50:2014, *Safety rules for the construction and installation of lifts - Examinations and tests - Part 50: Design rules, calculations, examinations and tests of lift components*

EN 81-72:2015, *Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts - Part 72: Firefighters lifts*

EN 81-73:2016, *Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts - Part 73: Behaviour of lifts in the event of fire*

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

ISO 7465:2007, *Passenger lifts and service lifts - Guide rails for lift cars and counterweights - T-type*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 81-20:2014 and EN 81-50:2014 and the following apply.

3.1
snag point
point of interference between flexible elements and fixed

Note 1 to entry: Examples of flexible elements are ropes, chains, travelling cable.

Note 2 to entry: Examples of fixed elements are guide rail brackets, guide rail clip bolts, fishplates, vanes, and similar devices.