

**Liftide valmistamise ja paigaldamise ohutuseeskirjad.  
Inimeste ja kauba transpordi liftid. Osa 21:  
Olemasolevatesse hoonetesse paigaldatavad uued  
inimeste ja kauba transpordi liftid KONSOLIDEERITUD  
TEKST**

**Safety rules for the construction and installation of lifts -  
Lifts for the transport of persons and goods - Part 21:  
New passenger and goods passenger lifts in existing  
buildings CONSOLIDATED TEXT**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 81-21:2009+A1:2012 sisaldab Euroopa standardi EN 81-21:2009+A1:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 81-21:2009+A1:2012 consists of the English text of the European standard EN 81-21:2009+A1:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.08.2012.	Date of Availability of the European standard is 15.08.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 91.140.90

### Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

### The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:  
Aru 10, 10317 Tallinn, Estonia; [www.evs.ee](http://www.evs.ee); phone 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

**Safety rules for the construction and installation of lifts - Lifts for  
the transport of persons and goods - Part 21: New passenger  
and goods passenger lifts in existing buildings**

Règles de sécurité pour la construction et l'installation des  
élévateurs - Élévateurs pour le transport de personnes et  
de charges - Partie 21 : Ascenseurs et ascenseurs de  
charge neufs dans les bâtiments existants

Sicherheitsregeln für die Konstruktion und den Einbau von  
Aufzügen - Aufzüge für den Personen- und Gütertransport -  
Teil 21: Neue Personen- und Lastenaufzüge in  
bestehenden Gebäuden

This European Standard was approved by CEN on 16 July 2009 and includes Amendment 1 approved by CEN on 16 July 2012.

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.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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



**Management Centre: Avenue Marnix 17, B-1000 Brussels**

# Contents

Page

Foreword.....	3
Introduction.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions.....	5
4 List of significant hazards.....	7
5 Safety requirements and/or protective measures.....	8
5.1 Perforate wall of the lift well.....	8
5.2 Clearances between car, counterweight or balancing weight.....	8
5.3 Counterweight or balancing weight in a separate well.....	8
5.4 Pulleys in the well.....	9
5.5 Reduced top clearances.....	10
5.6 Car roof balustrade.....	14
5.7 Reduced bottom clearances.....	15
5.8 Apron.....	19
5.9 Height of machine room.....	21
5.10 Height of machine room doors.....	21
5.11 Dimensions of trap doors for machine room.....	21
5.12 Height of pulley rooms.....	22
5.13 Dimensions of trap doors for pulley room.....	22
5.14 Height of landing doors.....	22
6 Verification of safety requirements and/or protective measures.....	22
6.1 Verification table.....	22
6.2 Tests before putting the lift into service.....	24
6.3 Technical dossier.....	24
7 Information for use.....	24
7.1 Instructions.....	24
7.2 Notices and warnings.....	25
Annex A (normative) List of the electric safety devices.....	27
Annex B (informative) Periodical examinations and tests, examinations and tests after an important modification or after an accident.....	28
B.1 Periodical examinations and tests.....	28
B.2 Examinations and tests after an important modification or after an accident.....	28
Annex C (normative) Examination of pre-triggered stopping system.....	29
C.1 General provisions.....	29
C.2 Statement and test samples.....	29
C.3 Laboratory tests.....	30
C.3.1 Method of test.....	30
C.3.2 Determination of the nominal braking force of the stopping gear.....	30
C.3.3 Checking after the tests.....	30
C.4 Calculation.....	31
C.4.1 Calculation method.....	31
C.4.2 Site test case.....	31
C.4.3 Worst cases.....	31
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 95/16/EC.....	33
Bibliography.....	34

## Foreword



This document (EN 81-21:2009+A1:2012) 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 February 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

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

This document supersedes EN 81-21:2009.

This document includes Amendment 1 approved by CEN on 2012-07-16.

The start and finish of text introduced or altered by amendment is indicated in the text by tags  .

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.

This standard is part of the EN 81 series of standards "*Safety rules for the construction and installation of lifts*". This is the first edition.

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

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

When provisions of this type C standard are different from those 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.

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

Where one or several requirements in EN 81-1 or EN 81-2 ~~■<sub>A1</sub>~~ *deleted text* ~~■<sub>A1</sub>~~ cannot be fulfilled, due to reasons such as the constraints of the structure of the existing building, the corresponding requirements in this European Standard apply. According to section 2.2 of Annex I to the Lifts Directive, the application of alternative measures to prevent the risk of crushing above and underneath the lift car is restricted to installations where the requirement for free space or refuge is impossible to fulfil and may be subject to prior approval by national authorities.

The main concern dealt with in this standard is the reduction of top and pit clearances that may be required due to site conditions. The adopted principle of safety is based on two levels of achievement: first by means of an electrical stopping of the lift car, then by means of a mechanical stopping of the lift car.

When drafting this standard, it has been considered for reduced overhead and pit the following:

- a) Risk reduction measures that rely solely on operations in compliance with procedures are considered as not acceptable, except in a few situations in which mistake-proof solutions are not available (e.g. some activities in repair and installation in which safety devices cannot be operational);
- b) The risk reduction measures shall be automatically (without any intervention) activated, or may be manually activated if mistake-proof-by-design, or a combination of both is used.

## 1 Scope

This European Standard specifies the safety rules related to new passenger and goods/passenger lifts permanently installed in existing buildings where in some circumstances due to limitations enforced by building constraints, some requirements of EN 81-1 and EN 81-2 cannot be met (see also **4<sup>th</sup> sentence of Introduction**).

This European Standard addresses a number of these constraints and gives requirements for alternative solutions. It shall be read and applied in conjunction with the European Standards EN 81-1 or EN 81-2 ~~A1~~ deleted text ~~A1~~, including their Clause 0.

This European Standard covers:

- Either the construction and installation of one or more complete new lift(s) including new well and machinery spaces in an existing building; or
- The replacement of one or more existing lift(s) by new ones in existing well(s) and machinery spaces.

This European Standard does not cover:

- Replacement or modifications of some parts to a lift already installed;
- Other applications outside of the scope of EN 81-1 or EN 81-2.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

~~A1~~ EN 81-1, *Safety rules for the construction and installation of lifts — Part 1: Electric lifts*

EN 81-2, *Safety rules for the construction and installation of lifts — Part 2: Hydraulic lifts* ~~A1~~

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)*

ISO 3864-1:2002, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs in workplaces and public areas*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and EN 81-1:1998 and EN 81-2:1998 and the following apply.

### 3.1

#### **existing building**

building, which is used or was already used before the order for the lift was placed

NOTE A building whose internal structure is completely renewed is considered as a new building.