

LIFTIDE VALMISTAMISE JA PAIGALDAMISE  
OHUTUSEESKIRJAD. INIMESTE JA KAUPADE  
TRANSPORDIKS MÕELDUD LIFTID. OSA 21: UUED  
SÕIDU- JA KAUBALIFTID OLEMASOLEVATES HOONETES

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  
building

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 81-21:2018 sisaldab Euroopa standardi EN 81-21:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 81-21:2018 consists of the English text of the European standard EN 81-21:2018.
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 14.03.2018.	Date of Availability of the European standard is 14.03.2018.
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:

Koduleht [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:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 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 building

Règles de sécurité pour la construction et l'installation  
des élévateurs - Elévateur pour le transport de  
personnes et d'objets - 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 11 May 2017.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

**Contents**

Page

<b>European foreword</b> .....	<b>4</b>
<b>Introduction</b> .....	<b>5</b>
<b>1 Scope</b> .....	<b>6</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms and definitions</b> .....	<b>6</b>
<b>4 List of significant hazards</b> .....	<b>8</b>
<b>5 Safety requirements and/or protective measures</b> .....	<b>9</b>
5.1 General.....	9
5.2 Perforate wall of the lift well.....	9
5.3 Distance between car, counterweight or balancing weight.....	9
5.4 Counterweight or balancing weight in a separate well.....	9
5.4.1 General.....	9
5.4.2 Counterweight or balancing weight well provisions.....	9
5.4.3 Guiding of the counterweight or balancing weight.....	10
5.5 Reduced clearances in the headroom.....	10
5.5.1 General.....	10
5.5.2 Devices providing refuge spaces in the headroom.....	10
5.5.3 Safety system.....	13
5.5.4 Visible and/or audible information.....	14
5.5.5 Protection for group of lifts.....	14
5.6 Car roof balustrade.....	15
5.7 Reduced clearances in the pit.....	15
5.7.1 General.....	15
5.7.2 Devices providing refuge spaces in the pit.....	15
5.7.3 Safety system.....	18
5.7.4 Visible and/or audible information.....	19
5.7.5 Partition in the pit.....	19
5.7.6 Safe pit access.....	19
5.8 Apron.....	20
5.8.1 General.....	20
5.8.2 Specific requirements.....	20
5.9 Height of machine room.....	21
5.10 Height of machine room doors.....	21
5.11 Dimensions of trap doors for machine room and pulley room.....	21
5.12 Height of landing doors.....	21
5.13 Electrical safety devices.....	22
<b>6 Verification of safety requirements and/or protective measures</b> .....	<b>22</b>
6.1 Verification table.....	22
6.2 Tests before putting the lift into service.....	23
6.3 Technical compliance documentation.....	24
<b>7 Information for use</b> .....	<b>24</b>
7.1 Instructions.....	24
7.2 Notices and warnings.....	24
7.2.1 Dimensions.....	24
7.2.2 Reduced top clearances.....	25

<b>7.2.3</b>	<b>Extendable balustrade</b> .....	<b>25</b>
<b>7.2.4</b>	<b>Reduced bottom clearances</b> .....	<b>25</b>
<b>7.2.5</b>	<b>Extendable car apron</b> .....	<b>26</b>
<b>Annex A (normative) List of the electric safety devices</b> .....		<b>27</b>
<b>Annex B (informative) Periodic examinations and tests, examinations and tests after an important modification or after an accident</b> .....		<b>28</b>
<b>B.1</b>	<b>Periodic examinations and tests</b> .....	<b>28</b>
<b>B.2</b>	<b>Examinations and tests after an important modification or after an accident</b> .....	<b>28</b>
<b>Annex C (normative) Examination of pre-triggered stopping system</b> .....		<b>29</b>
<b>C.1</b>	<b>General provisions</b> .....	<b>29</b>
<b>C.2</b>	<b>Statement and test samples</b> .....	<b>29</b>
<b>C.3</b>	<b>Laboratory tests</b> .....	<b>30</b>
<b>C.4</b>	<b>Calculation</b> .....	<b>31</b>
<b>C.5</b>	<b>Test report</b> .....	<b>33</b>
<b>Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/33/EU aimed to be covered</b> .....		<b>34</b>

## European foreword

This document (EN 81-21:2018) 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 September 2018 and conflicting national standards shall be withdrawn at the latest by September 2018.

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 81-21:2009+A1:2012.

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 81-21:2009+A1:2012) are as follows:

- updating of references and their associated requirements with regard to EN 81-20:2014;
- removal of duplicated text in reference to the requirements for refuge spaces expressed in EN 81-20:2014;
- replacement of Annex ZA with regard to the commission mandate M/549/C(2016) 5844 Final and Directive 2014/33/EU.

This standard is part of the EN 81 series of standards “*Safety rules for the construction and installation of lifts*”. This is the second 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, Serbia, 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 81-20:2014 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 are 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 81-20:2014 cannot be met.

This European Standard addresses a number of these constraints and gives requirements for alternative solutions. It will be read and applied in conjunction with the European Standard EN 81-20:2014.

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 81-20:2014.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

ISO 3864-1:2011, *Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN 81-20:2014 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 1 to entry: A building whose internal structure is completely renewed is considered as a new building.