SLOVENSKI STANDARD
oSIST prEN 81-76:2020

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Varnostna pravila za konstruiranje in vgradnjo dvigal (liftov) - Posebne izvedbe osebnih in osebno-tovornih dvigal - 76. del: Uporaba osebnih dvigal za evakuacijo invalidnih oseb

Safety rules for the construction and installation of lifts - Particular applications for passengers and goods passenger lifts - Part 76: Evacuation of persons with disabilities using lifts

Sicherheitsregeln für Konstruktion und Einbau von Aufzügen - Besondere Anwendungen für Personen- und Lastenaufzüge - Teil 76: Personenaufzüge für die Evakuierung von Personen mit Behinderungen

Règles de sécurité pour la construction et l'installation des élévateurs - Applications particulières pour les ascenseurs et les ascenseurs de charge - Partie 76 : Évacuation des personnes en situation de handicap au moyen d'ascenseurs

Ta slovenski standard je istoveten z: **prEN 81-76**

ICS:

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91.140.90	Dvigala. Tekoče stopnice	Lifts. Escalators

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English Version

Safety rules for the construction and installation of lifts - Particular applications for passengers and goods passenger lifts - Part 76: Evacuation of persons with disabilities using lifts

Règles de sécurité pour la construction et l'installation des élévateurs - Applications particulières pour les ascenseurs et les ascenseurs de charge - Partie 76 : Évacuation des personnes en situation de handicap au moyen d'ascenseurs

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 10.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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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 (prEN 81-76:2019) has been prepared by Technical Committee CEN/TC 10 “Lifts, escalators and moving walks”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede CEN TS 81-76:2011.

Introduction

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

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

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

This document specifies a lift to be used for the evacuation of persons with disabilities and persons with disabled mobility automatically or under the direction and control of the building management. Annex A provides a concept for the use of an evacuation lift.

The following assumptions were made in writing this document:

a) the building is provided with means to protect the following from the effects of fire and smoke for at least the maximum planned duration of the evacuation:

— the lift well;

— machine rooms and machinery spaces;

— refuges;

— safe areas including direct access to safe exit;

— landing doors which are not in safe areas;

— hose or piping and cables between the lift well and machinery spaces;

— power supplies and supply cables.

b) fire and smoke detection is provided at least in the evacuation lift well, safe areas and machinery spaces;

c) smoke management to prevent the ingress of smoke into the lift well, safe area and stairs. e.g. air pressurization;

d) power supplies are secure and reliable; to ensure this the provision of a secondary supply or an alternative supply cable from the main building intake is considered to be essential;

e) the number, size and speed of lifts, and the floors to be served, have been determined as part of the building design and are appropriate for the intended purpose including the use by persons in wheelchairs etc.;

f) the building is designed to minimize the risk of flooding into the lift or lift well. To this end, sprinkler discharge, burst pipes, fire hose etc. are not located to discharge within or towards the lift and any water close to the lift is directed away from it by sloping floors etc.;

g) the lift is maintained and the evacuation operation is tested at suitable regular intervals to ensure its availability in the event of an evacuation;

h) negotiations have been made between the owner, customer, building designers, fire authorities or other relevant bodies and installer concerning the evacuation plan including the following:

1) the intended use of the lift (whether to use the lift for evacuation and when to remove it from evacuation service is assumed to be a building management decision);

2) the building evacuation strategy;

3) the floors to be served during evacuation;

4) the design of the lift to fulfil the requirements of the evacuation strategy e.g. attendant control with visual signals and audible announcements;

5) the maximum planned time of the evacuation;

6) building requirements (e.g. structural and technical fire safety measures);

7) suitable maintenance and verification plan;

8) interfaces between the lift and the building management system (BMS) or fire detection system and responsibilities for signalling systems to return the lift to the appropriate evacuation floor(s) e.g. the use of an automatic recall device such as the building's fire detection system in addition to the evacuation lift switch;

9) location, type and protection of evacuation lift switch;

10) water management (if applicable);

11) emergency lighting in safe areas and staircases.

NOTE Developers and architects are expected to take account of national building regulations.

1 Scope

This document specifies the additional or deviating requirements to prEN 81-20 for new passenger and goods passenger lifts, which may be used to support faster evacuation of persons with difficulty in using stairs including in case of fire alarm.

This document does not apply to:

— lifts which are not included in a fire resisting building structure;

— the evacuation due to other circumstances, like explosion, chemical or biological attack, flooding, storm damage, earthquake etc.

NOTE General evacuation guidance can be found in ISO/TS 18870.

The following significant hazards are not covered in this document and are assumed to be addressed by the building designer:

— fire or smoke in the evacuation lift well, safe areas or machinery spaces;

— ingress of water to the lift well during evacuation process;

— insufficient or incorrectly located evacuation lifts;

— entrapment in waiting area (safe area) due to absence of lift service or adjacent stairs;

— structural collapse or failure of building services (e.g. power supply, lighting, ventilation) before the evacuation using lifts has been completed;

— presence of harmful gases, potentially explosive atmosphere, extreme climate conditions, transport of dangerous goods, etc.

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.

prEN 81-20:2019, *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 81-28:2018+AC:2019, *Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 28: Remote alarm on passenger and goods passenger lifts*

EN 81-70:2018, *Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lift - Part 70: Accessibility to lifts for persons including persons with disability*

EN 81-71:2018+AC:2019, *Safety rules for the construction and installation of lifts - Particular applications to passenger lifts and goods passenger lifts - Part 71: Vandal resistant lifts*

prEN 81-72:2019, *Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts - Part 72: Firefighters lifts*

prEN 81-73:2019, *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 81-77:2018, *Safety rules for the construction and installations of lifts - Particular applications for passenger and goods passenger lifts - Part 77: Lifts subject to seismic conditions*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and prEN 81‑20:2019 and the following apply.

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

• IEC Electropedia: available at http://www.electropedia.org/

• ISO Online browsing platform: available at http://www.iso.org/obp

3.1
Building Management System
BMS
system in the building capable of making decisions based on information sent to it

3.2
evacuation assistant
person appointed by building management to assist in the evacuation process and drive the lift when required

3.3
evacuation lift
lift designed to be used for the evacuation of persons with difficulty in using stairs, in automatic mode or under the direction of building management, trained evacuation assistant or rescue services

3.4
evacuation lift switch
a manual device intended to be used to switch the lift to evacuation service

3.5
Main Evacuation Exit Floor
MEEF
floor determined by the building designer where the evacuation for persons with disabilities is guided to

Note 1 to entry: This may or may not be the main floor of the building.

3.6
safe area
refuge
refuge area
lobby
fire protected lobby)
area, provided with a safe route to the lift and safe exit e.g. stairs, that will remain safe for persons for the duration of evacuation operations and is both separated from a fire by suitable fire resisting construction and kept free from dangerous temperatures and the effects of smoke

[SOURCE: EN 81-72:2015, 3.9, modified]

3.7
suspend service signal
signal to suspend the evacuation service

3.8
person with disabilities
person who, due to any disability or impaired mobility, is unable to use stairs safely in the event of evacuation

3.9
evacuation recall signal
signal to recall the lift to MEEF and maintained during evacuation operation

4 List of significant hazards

4.1 General

This clause contains the significant hazards, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for this type of lift and which require action to reduce or eliminate risk.

4.2 Significant hazards

Significant hazards dealt with in this document are shown in Tables 1 and 2 below.

Table 1 — List of significant hazards and hazardous situations – Environment

Significant Hazards and Hazardous situations - Environment		Information in this document
1	Fire/heat/smoke in to a lift well/machinery space/safe area	Introduction a), Introduction b), Introduction c), 5.1, 5.2.7, 5.4.4, B.2.2, B.5
2	Lift not useable long enough for evacuation of persons with disabilities	5.2.3, 5.9.2, B.3
3	Flow of water into the lift well	Introduction f), Introduction j) 10), Scope, 5.2.5, B.4
4	Not having enough or correctly located evacuation lifts to evacuate all persons with disabilities requiring evacuation within adequate time	Introduction e), Introduction h), 5.2.2, 5.1.4, B.2
5	Failure of the power supply	Introduction a), Introduction d), 5.1.5, 5.1.6, 5.1.7, 5.9, 5.10, B.3
6	Inadequate lighting	Introduction h) 11), 5.1.2, 5.1.5, 5.9
7	Interruption of a connection between the lift and the building management system (BMS) or fire detection system	5.3.3, 5.4.3.3.3, 5.4.4
8	Difficulty in finding the safe area	B.2.3

Table 2 — List of significant hazards and hazardous situations – Evacuation lift

No	Hazards as listed in EN ISO 12100:2010, Annex B	Requirements and clauses in this document
1	General hazards for lifts	Introduction, 5.2.1
2	Trapping hazard, entrapment	5.2.1, 5.2.4, 5.2.6, 5.4.2 i), 5.9, 5.10, B.3
3	Lift is not used correctly for evacuation	Introduction e), 5.3, 5.4, Annex A
4	Lift is not accessible to persons with disabilities	5.2.1, 5.2.2, 5.4.3
5	Lift not available when needed	Introduction e), Introduction h), 5.2.3, 5.3.5, 7
6	Hazards to maintenance personnel	5.1.8, 5.2.1, 5.3.1
7	Inadequate design, location or identification of manual controls	5.2.1, 5.3, 5.5
8	Inadequate communications during evacuation	5.1.2, 5.1.5, 5.4.3.3.1, 5.5.2, 5.6, 5.9, 7
9	Inadequate marking	5.1.2, 5.2.8, 5.4.2, 5.4.3.1, 5.4.3.2.1, 5.4.3.3.2, 5.4.3.4.2, 5.5, B.2.3

4.3 Hazards not addressed

The following significant hazards are not dealt with in this document:

a) entrapment in waiting area (safe area) due to absence of lift service or adjacent stairs;

b) structural collapse before the evacuation has been completed using lifts.

5 Safety requirements and/or protective measures

5.1 Environment/Building requirements

5.1.1 The evacuation lift shall be located in a well with a safe area in front of every landing door which according to the evacuation plan requires evacuation service. Where no evacuation service is provided, a fire shutter or a fire door can be provided as alternative to the safe area.

5.1.2 It is the responsibility of national regulations to determine the required levels of fire resistance and other building requirements that shall be addressed for a safe evacuation lift:

— fire resistance of the safe areas in front of the landing doors;

— fire resistance of staircases;

— separation of the well;

— fire resistance of the landing doors;

— fire resistance of the lift well and machinery space walls;

— fire resistance of fire shutters and fire doors;

— connection between lift safe areas and staircase;

— water management (see B.4);

— power supply;

— fire protection of primary and secondary or alternative power supply cables;

— audio and/or visual communication connection;

— smoke detection system in safe areas, staircases, lift well and machinery space;

— smoke control e.g. air pressurization system;

— emergency lighting in safe areas and staircases;

— signage to identify the evacuation lift(s) and safe areas.

5.1.3 The lift equipment including any machinery, hoses, piping, electrical cables or suspension means shall be within fire protected enclosure(s). The level of fire resistance of the lift well shall also apply to any ducts containing hoses, piping, electrical cable or suspension means between machinery spaces and the lift well. If there are other lifts in the same well, then the entire common well shall fulfil the fire resistance requirements of evacuation lift wells.

The lift main switch, emergency and test panel, machine room and access route from MEEF to those locations shall be fire protected (see also 5.2.8).

It shall be ensured that a malfunction of any lift remaining in operation (e.g. firefighters lift) does not have any adverse influence of the function of the evacuation lift.

5.1.4 The lift(s) or group of lifts shall serve all floors which according to the evacuation plan require service.

5.1.5 The power supply of the evacuation lift, the lighting of the car and the safe area in front of the lift and the communication system shall consist of primary and secondary (emergency, standby or alternative) power supplies.

The secondary power supply shall be sufficient to run the evacuation lift at the rated speed and rated load for a period agreed in negotiations, see Introduction, h), item 5).

5.1.6 The evacuation lift electrical power supply cables and secondary or alternative power supply cables shall be fire protected. The fire protection shall be for at least the maximum planned duration of the evacuation.

5.1.7 The source of the secondary power supply and automatic switch gear shall be located in a fire protected area.