



SLOVENSKI STANDARD

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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 passenger 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 ascenseurs - 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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Safety rules for the construction and installation of lifts - Particular applications for passenger 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 :
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Aufzügen - Besondere Anwendungen für Personen-
und Lastenaufzüge - Teil 76: Personenaufzüge für die
Evakuierung von Personen mit Behinderungen

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.

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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
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prEN 81-76:2022 (E)

European foreword

This document (prEN 81-76:2022) 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.

This document is intended to be used in conjunction with other parts of EN 81 series of standards. The structure of the EN 81 series of standards 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.

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Introduction

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 lifts 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. <https://standards.iteh.ai/catalog/standards/sist/48b74a63-e8da-47f3-af5b-0b0125abd75d/osist-pr-en-81-76-2022>

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

prEN 81-76:2022 (E)**1 Scope**

This document specifies the additional requirements to EN 81-20:2020 for passenger and goods passenger lifts, which can be used to support faster evacuation of persons with disabilities and persons with walking difficulties, including in case of fire alarm.

This document does not apply to:

- lifts installed into buildings which are not in accordance with Annex C;
- lifts for evacuation due to circumstances which introduce other hazards such as explosion threat, chemical or biological attack, flooding, storm damage, or earthquake. In these cases, this document can be used as a basis with further measures as required from risk assessment.

The following significant hazards are out of the scope of this document (see Table 2):

- 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;
- insufficient evacuation capacity;
- entrapment in waiting area (safe area) due to absence of lift service or adjacent stairs;
- structural collapse or failure of building services (including public supply network, lighting, ventilation) before the evacuation using lifts has been completed;
- presence of harmful gases, potentially explosive atmosphere, extreme climate conditions, transport of dangerous goods.

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 81-28:2003, *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 81-70:2003, *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*¹

EN 81-71:2005+A1:2006, *Safety rules for the construction and installation of lifts — Particular applications to passenger lifts and goods passenger lifts — Part 71: Vandal resistant lifts*

¹ As impacted by EN 81 70:2003/A1:2004.

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 81-73:2020, *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 131-1:2015+A1:2019, *Ladders — Part 1: Terms, types, functional sizes*

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

IEC 60417:2002, *Graphical symbols for use on equipment (available at: <https://www.graphical-symbols.info/equipment>)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and 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/>

3.1

evacuation lift

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

3.2

person with disabilities

person who, due to any temporary or permanent disability, impaired mobility or walking difficulty, is unable to use stairs safely

3.3

evacuation assistant

person appointed to assist in the evacuation process

3.4

driver

evacuation assistant (3.3) appointed to operate the evacuation lift from inside the car

3.5

evacuation lift switch

manual device to activate the evacuation operation(s)

prEN 81-76:2022 (E)**3.6****evacuation exit floor****EEF**

destination floor(s) for evacuating the building using lift(s) determined by the evacuation plan and which has a safe area(s)

Note 1 to entry: It is assumed that the evacuation exit floors have safe and accessible routes out of the building.

3.7**safe area**

refuge, refuge area, lobby or fire protected lobby, provided with a safe route to the lift and a safe exit, 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

Note 1 to entry: The term "place of relative safety" defined in EN 17210:2021, 3.36, has the similar meaning as safe area.

3.8**building management system****BMS**

system capable of making decisions based on information sent to it

[SOURCE: EN 81-73:2020, 3.2]

3.9**suspend service signal**

signal to suspend the evacuation operation

3.10**evacuation recall signal**

signal to switch the lift to phase 1 evacuation operation (including the recall to active EEF)

4 List of significant hazards**4.1 Significant hazards related to the evacuation lift**

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this standard, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk (see Table 1).

Table 1 — 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	5.3.1
2	Trapping hazard, entrapment	5.3.1, 5.3.4, 5.3.5, 5.5.2 i), 5.10, 5.11
3	Lift is not used correctly for evacuation	5.4, 5.5, 7.1, 7.2
4	Lift is not accessible to persons with disabilities	5.3.1, 5.3.2, 5.5.3, 5.6.3.1, 5.6.3.3, 5.7.3.1
5	Lift not available when needed	5.3.2, 5.3.3, 5.3.4, 5.3.7, 5.4.3
6	Hazards to maintenance personnel	5.3.1, 5.4.1, 7.1, 7.2
7	Inadequate design, location or identification of manual controls	5.3.1, 5.6, 5.7.3.1
8	Inadequate communications during evacuation	5.5.3.3.1, 5.6.2, 5.7, 5.10
9	Inadequate marking, difficulty in recognizing the evacuation lift	5.5.2, 5.5.3.1, 5.5.3.2.1, 5.6.3.3, 5.6.4

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4.2 Significant hazards related to environment and conditions

Table 2 shows significant hazards related to environment and conditions of the evacuation lift, which are outside the scope but dealt with by this document.

Table 2 — List of significant hazards and hazardous situations – Environment and conditions

No.	Significant Hazards and Hazardous situations - Environment	Information in this document
1	Fire/heat/smoke into a lift well/machinery space/safe area	5.3.6, 5.5.4, Annex C, Annex D, F.2.2, F.6
2	Lift not useable long enough for evacuation of persons with disabilities	5.3.3, 5.10, 5.11, C.9, F.3
3	Flow of water into the lift well	C.12, F.4, F.5
4	Not having enough or correctly located evacuation lifts to evacuate all persons with disabilities requiring evacuation within adequate time	5.3.2, F.2
5	Failure of the power supply	5.10, 5.11, F.3, C.5, C.7, C.9, C.10
6	Inadequate lighting	5.10, C.5, C.9
7	Interruption of a connection between the lift and the building management system (BMS) or fire detection system	5.4.3, 5.5.3.3.3, 5.5.4

5 Safety requirements and/or protective measures

5.1 General

Passenger and goods passenger lifts shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, the passenger and goods passenger lifts shall be designed according to the principles of EN ISO 12100:2010 for relevant but not significant hazards which are not dealt with by this document.

5.2 Environmental conditions, building interface and assumptions for implementing an evacuation lift

Annex C, Annex D and Annex F give requirements and guidance on environmental conditions, building interface and assumptions for implementing an evacuation lift, which are essential for the implementation and safe use of an evacuation lift.

5.3 Fundamental evacuation lift requirements

5.3.1 The evacuation lift shall be designed in conformity with EN 81-20:2020 and provided with additional protection, controls and signals.

5.3.2 The minimum evacuation lift car size shall be of a type 2 according to EN 81-70:2003, Table 3. See also F.2.1.

5.3.3 The lift shall be designed to operate during whole evacuation operation period (see C.9 and F.2).

5.3.4 Any ambient temperature sensor shall not stop, or prevent the start, of the evacuation operation.

5.3.5 The evacuation lift shall have an emergency trap door according to EN 81-20:2020, 5.4.6 except for its size, which shall be according to EN 81-72:2020, 5.4.1.1. When the distance between consecutive landing doorsills exceeds 7 m, intermediate emergency doors shall be provided, such that the distance between sills is not more than 7 m.

Portable/movable 6 m long ladders according to EN 131-1:2015+A1:2019 without stabilizer shall be provided and stored in the vicinity of the evacuation lift. The use and storing of the ladders shall be described in the instructions.

NOTE The trap door is intended to provide a way to give support into the car.

5.3.6 An evacuation lift shall be provided with a means to suspend evacuation operation, see 5.5.4.

NOTE The suspend service signal allows a building management system (BMS) to suspend evacuation operation, e.g. if smoke or fire is detected in the lift spaces, safe areas.

5.3.7 No electrical fault on any other lift located in the same lift group as the evacuation lift shall affect the operation of the evacuation lift.

5.3.8 When on evacuation operation, the evacuation lift door shall open only where there is a safe area in front of the landing door.

5.3.9 In the case of lifts with more than one car door, no more than one car door shall open at a time during evacuation operation.

5.3.10 All EEFs shall have the required equipment for the selected lift configuration and the selected operation modes according this document.

5.3.11 The landing and car doors shall be automatic power operated horizontally sliding doors.

5.4 Control system requirements

5.4.1 General

Evacuation operations shall not override any of the following:

- any electric safety devices;
- the suspend service signal (see 5.5.4);
- the inspection operation (see EN 81-20:2020, 5.12.1.5);
- the emergency electrical operation (see EN 81-20:2020, 5.12.1.6);
- the firefighters lift switch (see EN 81-72:2020, 5.8), if applicable;
- the behaviour of the lift in seismic mode (EN 81-77:2018, 5.10.4), if applicable;
- the remote alarm system (EN 81-28:2003, 4.1);
- any maintenance control.

NOTE Maintenance controls include, but are not limited to, the following functions:

- prevention of movement of lift after the opening of any door providing access to the pit (EN 81-20:2020, 5.2.6.4.4.1 d));
- prevention of movement of lift after return to normal operation of the lift from pit inspection station (EN 81-20:2020, 5.12.1.5.2.2);
- protection for maintenance operations (EN 81-20:2020, 5.12.1.7); or
- landing and car door bypass device(s) (EN 81-20:2020, 5.12.1.8).

5.4.2 Evacuation control signals, functions and signal priorities

Evacuation control signals, functions and priorities of signals shall be provided according to Table 3. At least one of the optional evacuation operations (5.5.3.2, 5.5.3.3, 5.5.3.4) shall be provided.

Evacuation control signals shall be provided either by an evacuation lift switch, if provided, or provided automatically.

NOTE Selection of appropriate evacuation operation(s) is based on evacuation strategy.