



BSI Standards Publication

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

National foreword

This British Standard is the UK implementation of EN 81-76:2025. It supersedes DD CEN/TS 81-76:2011, which is withdrawn.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 committee manager.

The National foreword to DD CEN/TS 81-76:2011 made clear that in the United Kingdom the description of an evacuation lift was to be found in BS 9999. The UK committee believes this standard is a significant improvement in the state of the art for evacuation lifts compared with either DD CEN/TS 81-76:2011 or BS 9999.

Significant lead times are to be expected for new evacuation lifts owing to the design, development and conformity assessment of solutions to meet this standard; provision of building elements to protect an evacuation lift; and provision of necessary signals to the lift controls.

Consequently, users of this standard are advised to liaise with relevant parties and to allow adequate time after publication of this document for suitable solutions to become available.

This standard forms part of a series of standards concerning the safe design of passenger and goods passenger lifts. It is intended to be read in conjunction with the other standards in the series; in particular, the base standard BS EN 81-20 for the design of new lifts.

The implementation of a safe evacuation lift depends on the satisfactory integration of the evacuation lift into the building. This needs collaboration between those responsible for the lift and those responsible for other aspects (outside the lift) such as:

- building-related conditions in which the lift is installed (see [Annex C](#));
- the number and size of evacuation lifts based on capacity assessment (see [B.1.2](#), [C.2](#));
- specification of optional modes for driver assisted evacuation and/or automatic evacuation operation (see Introduction, [Annex B](#));
- specification of the evacuation lift as either of Class A or Class B (see Introduction, [B.1.1](#));
- minimum lift car size depending on whether the intended use is to include a stretcher or trolley stretcher, and whether the evacuation lift is Class A or Class B (see [4.3.2](#));
- a means to suspend evacuation operation if fire or smoke is detected (see [4.3.6](#), [4.4.2](#), [4.5.4](#), [C.3](#));
- whether the evacuation lift is also a firefighters lift (see [4.4.1](#));
- signals to recall the lift and for selection of evacuation operational mode(s) (see [4.4.2](#));
- for automatic evacuation operation, any signals for active floor alarms and a signal for the evacuation of all floors (see [4.4.2](#), [4.5.3.2.2](#));

- for a Class A evacuation lift with no secondary power supply, the landing to which the evacuation lift recovers (see 7.2.1); and
- clarification that any emergency voice communication system in a temporary waiting space outside the lift is separate from the communication system required on a lift with remote assisted evacuation operation or driver assisted evacuation operation (see 4.7).

For further information please see: <https://www.leia.co.uk/bs-en-81-76-evacuation-lift-guidance/>.

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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

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des ascenseurs - Applications particulières pour les
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Evakuierung von Personen mit Behinderungen

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 81-76:2025) 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 January 2026, and conflicting national standards shall be withdrawn at the latest by July 2027.

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 CEN/TS 81-76:2011.

This document is part of the 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 addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

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 persons 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.

This is the first European standard specifying a lift which might be used for the evacuation of persons with disabilities. Traditionally, building occupants have been instructed not to use lifts for evacuation e.g. at a fire alarm. The possible use of lifts described in this document might therefore be new to those responsible for buildings and to building occupants. Further text is included in Annex B on the concept of an evacuation lift to support this document.

Previously CEN/TS 81-76:2011 described an evacuation lift based on trained assistants taking control of the evacuation lift. This concept, further developed, is reflected in the option in this document for “driver assisted evacuation operation”. However, such an evacuation concept might not be suitable for a building which does not have trained assistants who can take control when needed such as for a residential building with multiple owners sharing common escape routes.

Experience since 2011, and publication of standards such as EN 17210:2021, made clear that in some buildings, the independent evacuation by persons with disabilities required the use of suitable evacuation lifts, supported by an intelligent fire alarm system. This need is reflected in the option in this document for “automatic evacuation operation”.

The further possibility of controlling an evacuation lift from outside the lift car (but preferably within the same building) as an evacuation concept is reflected in the option in this document for “remote assisted evacuation operation”.

These three concepts are reflected in the three optional modes described in this document allowing one or more to be selected based on the building type and evacuation strategy.

This document further recognizes that different types of buildings with simpler requirements might not need the full specification of evacuation lift described in this document (the full specification being a “Class B evacuation lift”) and describes a Class A evacuation lift which might be specified where:

- the highest floor is such that a firefighter’s lift would not be required, and
- the evacuation strategy does not require more than one evacuation exit landing for the lift in question, and
- the evacuation strategy does not require prioritization of evacuation lift service for specific landings, and
- a secondary power supply is not available, the evacuation plan can accommodate an evacuation lift with an automatic rescue operation.

A Class B evacuation lift is described which might be specified for all other cases and if a remote assisted evacuation operation is specified. Additionally, a Class B evacuation lift has a larger minimum car size and some additional control requirements for automatic evacuation operation.

Information on the building-related conditions in which the lift is installed is part of the information for use and is specified in Annex C.

1 Scope

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

This document does not apply to:

- 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 provision of evacuation aids to assist when the evacuation lift is unavailable.

The significant hazards covered by this document are listed in Annex D.

The following significant hazards are out of the scope of this document:

- 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;
- inability of users to understand the use of the lift in evacuation;
- 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;
- unavailability of the evacuation lift.

This document is not applicable to evacuation lifts manufactured before the date of its publication.

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 81-28:2022, *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 81-70:2021+A1:2022, *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 81-71:2005+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*

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 81-77:2022, *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 (ISO 12100:2010)*

ISO 8102-20:2022, *Electrical requirements for lifts, escalators and moving walks — Part 20: Cybersecurity*

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 terminology 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

3.2 persons with disabilities

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

3.3 evacuation lift switch

manual device for activation of the evacuation operation(s)

3.4 evacuation exit landing

EEL
floor to exit the building during the evacuation

Note 1 to entry: It is assumed that the evacuation exit landing has a safe and accessible route out of the building.

3.5 suspend service landing

SSL
landing at which the lift is taken out of service during suspension of lift operation

Note 1 to entry: It is assumed that the suspend service landing has a safe and accessible route out of the building.

Note 2 to entry: Suspend service landing can be the same or different than the EEL.

3.6

safe area

fire and smoke protected area at the landing in front of an evacuation lift

Note 1 to entry: For details see also C.4.

Note 2 to entry: The design of the safe area is not covered by this document.

3.7

automatic rescue operation

device or function that operates automatically in case of failure or loss of power supply to move the lift car to a landing

4 Safety requirements and/or protective measures

4.1 General

Evacuation lifts shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, evacuation 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.

4.2 Evacuation lift concept and classification

The concept of the evacuation lift is explained in informative Annex B.

The evacuation lift shall comply with the requirements of either Class A or Class B.

4.3 General evacuation lift requirements

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

4.3.2 The minimum evacuation lift car size shall be of a type 2 according to EN 81-70:2021+A1:2022, Table 3.

Where the intended use of the evacuation lift is to accommodate such items as a stretcher or bed, then the minimum car size shall be type 3 according to EN 81-70:2021+A1:2022, Table 3.

For a Class B evacuation lift, the minimum lift car area shall be of type 3 or type 4 according to EN 81-70:2021+A1:2022, Table 3, or other car dimensions providing at least the same floor area.

4.3.3 A Class A evacuation lift shall have one EEL.

4.3.4 A Class B evacuation lift shall have at least one EEL.

4.3.5 The evacuation lift shall have an emergency trap door according to EN 81-20:2020, 5.4.6, except for the size of the emergency trap door for lifts of Class B, which shall be at least 0,50 m × 0,70 m.

NOTE The emergency trap door in the car roof is intended to provide a way to give support to the persons in the car.

4.3.6 An evacuation lift shall be provided with a means to suspend evacuation operation, see 4.5.4.

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

4.3.7 The evacuation lift shall not be affected by an electrical fault in the lift control system from other lifts located in the same lift group.

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

4.3.9 In the case of lifts with more than one car door, no more than one car door shall be open at the same time during evacuation operation. When one of the car doors is open, the door open buttons for the other car doors shall be inoperative.

4.3.10 Voice announcements shall be in at least one of the official local languages. Voice announcements shall be according to EN 81-70:2021+A1:2022, 5.1.3.

4.3.11 Automatically operated horizontal sliding car and landing doors shall be used.

4.4 Control system requirements

4.4.1 General

Evacuation operations and suspension of lift operation shall not override any of the following:

- any electric safety devices;
- the inspection operation in accordance with EN 81-20:2020, 5.12.1.5;
- the emergency electrical operation in accordance with EN 81-20:2020, 5.12.1.6;
- the firefighters lift switch in accordance with EN 81-72:2020, 5.8, if applicable;
- the behaviour of the lift in seismic mode in accordance with EN 81-77:2022, 5.10.4, if applicable;
- the remote alarm system in accordance with EN 81-28:2022, 4.1;
- any maintenance control.

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

- prevention of movement of the 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 the lift after the return to normal operation of the lift from the 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).

4.4.2 Evacuation control signals, functions and signal priorities

Evacuation control signals, functions and priorities of signals shall be provided according to Table 1. At least one of the optional evacuation operations (4.5.3.2, 4.5.3.3, 4.5.3.4) shall be provided.

Table 1 — Summary of evacuation controls, functions and priorities

Control name	Function name	Signal priority ^a	Clause	Requirement
the suspend service signal	Suspend service	1 (Highest)	4.5.4	Mandatory
the driver assisted evacuation signal	Driver assisted evacuation operation	2	4.5.3.4	Optional
the remote assisted evacuation signal	Remote assisted evacuation operation	3	4.5.3.3	Optional
the automatic evacuation signal	Automatic evacuation operation	4	4.5.3.2	Optional
the evacuation recall signal for each EEL	Evacuation recall (Phase 1)	5 (Lowest)	4.5.2	Mandatory
the floor alarm signal for each floor	Control of evacuation zone and floor priorities.	Applicable for automatic evacuation operation only.	4.5.3.2.2 a)	Mandatory for class B
the evacuation of all floors signal				Optional for class A
^a The priority of a control signal does not confer any preference for the use of the relative evacuation operation. NOTE The selection of (an) appropriate optional evacuation operation(s) is based on the evacuation strategy.				

For changing the evacuation operation from one to another, see 4.5.2, 4.5.3.2.3, 4.5.3.3.3 and 4.5.3.4.3. See Annex A for the evacuation control functionalities and priorities.

4.4.3 Availability and diagnostics

The interruption of a connection to the lift control system shall be treated as in Table 2.

Table 2 — Signal connection interruption reaction

Connection interruption of:	The lift control system shall consider the signal as:
the suspend service signal	active (see 4.5.4)
the driver assisted evacuation signal	active (see 4.5.3.4.2)
the remote assisted evacuation signal	inactive (see 4.5.3.3.3)
the communication of the remote evacuation control panel for more than 30 s	panel inactive (see 4.5.3.3.3)
the automatic evacuation signal	active (see 4.5.3.2.3)
the evacuation recall signal	active
the floor alarm signal for each floor	inactive
the evacuation of all floors signal	inactive

NOTE In case of any evacuation operation signal becomes inactive unintentionally, the lift is prevented from returning to normal operation by keeping the evacuation recall signal active during the evacuation operation.

4.5 Evacuation operations and suspension of lift operation

4.5.1 General

Upon receiving signals defined in Table 1, the evacuation lift shall operate as described in sub-clauses 4.5.2 to 4.5.4.

4.5.2 Evacuation recall (Phase 1)

An evacuation recall signal shall be provided for each EEL either by an evacuation lift switch, if provided, or provided externally.

On receipt of the first activated evacuation recall signal, corresponding landing shall be considered as the active EEL. Other evacuation recall signals shall be ignored until the first signal is reset. The active EEL shall be assigned in the sequence received.

In case of

- receipt of the first recall signal; or
- change of active EEL when none of the evacuation operations (Phase 2) is active (see also Table 1 and Table 2); or
- change of evacuation operation mode,

the lift shall behave as described as follows:

- a) all registered car calls shall be cancelled, and no new car calls shall be registered;
- b) all registered landing calls shall be cancelled, and no new landing calls shall be registered. This requirement is not valid in case of change of evacuation operation mode;
- c) a visual indication as shown in Figure 1 with minimum dimensions of 20 mm × 20 mm and located in the car shall be activated. The visual indication shall remain activated as long as the lift is in evacuation operation;
- d) door re-open button (EN 81-20:2020, 5.3.6.3), door close button (where provided), door protective device (EN 81-20:2020, 5.3.6.2.2.1 b)), door reopening device (EN 81-20:2020, 5.3.6.2.2.1 d)) and remote alarm system (EN 81-20:2020, 5.12.3) shall remain operative;
- e) a car parked at a landing, shall close the doors and travel nonstop to the active EEL. When the doors are not closed after 20 s, the protective device according to EN 81-20:2020 5.3.6.2.2.1 b) shall be made inactive and the doors shall attempt to close as defined in EN 81-20:2020, 5.3.6.2.2.1 b) 4);
- f) a car travelling away from the active EEL shall make a normal stop latest at the nearest possible landing without opening the doors, a voice announcement according to 4.3.10 shall announce “evacuation” and the car shall return to the active EEL;
- g) a car travelling towards the active EEL shall continue its travel nonstop to the active EEL. If the lift has already started stopping at a level, it shall:
 - make a normal stop without opening doors;
 - give a voice announcement “evacuation” according to 4.3.10;
 - continue to the active EEL;

- h) on arriving at the active EEL, the car shall open its door and shall make a voice announcement according to 4.3.10 and a visual indication informing the user(s) to leave the evacuation lift. The visual indication shall be located within or above the car operating panel or above the car door(s);
- i) when the doors are not closed at the active EEL after 20 s, the protective device according to EN 81-20:2020 5.3.6.2.2.1 b) shall be made inactive, the doors shall attempt to close as defined in EN 81-20:2020, 5.3.6.2.2.1 b) 4);
- j) any landing call at the active EEL shall initiate opening of the doors;
- k) the well shall be automatically illuminated.

On deactivation of the evacuation recall signal and when any evacuation operation is not active, the car shall travel to the latest active EEL, open the doors and then the lift shall return to normal operation and visual indication (see 4.5.2 c)) shall be deactivated. A voice announcement according to 4.3.10 shall announce that the evacuation operation of the lift has stopped.

4.5.3 Evacuation operation (Phase 2)

4.5.3.1 General

4.5.3.1.1 After the evacuation recall (see 4.5.2) is completed and when evacuation operation is activated (see Table 1), the lift shall operate as follows:

- a) registration of landing calls shall be reactivated on those landings intended to be served according to the evacuation strategy;
- b) when the lift is capable of serving landing calls, information about this service capability of the lift shall be available for external systems;

NOTE This information is used e.g. for controlling evacuation route indicators.

- c) service capability and the active EEL indications (see 4.6.3.2) shall be activated;
- d) at any landing intended to be served, activation of any landing control device or any accessibility button according to EN 81-70:2021+A1:2022, 5.4.2.2.3, shall register a landing call;
- e) the call registration feedback shall be according to EN 81-70:2021+A1:2022, Table 4, item g);
- f) if evacuation operation is not available, all existing landing calls shall be cancelled and call registration feedback shall not be given.

4.5.3.1.2 In case of a change of the active EEL, existing landing calls shall not be cancelled. If a lift is on its way to the active EEL during a change of the active EEL it shall behave as follows:

- a) a car travelling towards the new EEL shall continue its travel non-stop to the new EEL;
- b) if the car has already started stopping at the previous EEL, it shall make a normal stop and without opening doors continue to the new EEL;
- c) a car travelling away from the new EEL shall make a normal stop latest at the nearest possible landing without opening the doors and return to the new EEL.

4.5.3.2 Automatic evacuation operation

4.5.3.2.1 General

Automatic evacuation is an evacuation where the lift automatically serves given landing calls and then travels to the active EEL.

4.5.3.2.2 Functional requirements

After the procedure described in 4.5.3.1, when the automatic evacuation signal is active, and when no higher priority signal is active (see Table 1), the lift shall operate as follows.

- a) The lift control system of a Class B evacuation lift shall accept the following signals:
 - a signal per each floor defined to be served during the evacuation, where the signal identifies an active floor alarm; and
 - a signal for the evacuation of all floors defined to be served during the evacuation.
- b) The lift shall register and serve landing calls according to the following (see also B.2.1):
 - 1) Evacuation lifts with either no active floor alarm(s) or with its signal for the evacuation of all floors is active, shall serve landing calls, except from the active EEL, from floors defined to be served during the evacuation.
 - 2) When there is an active floor alarm(s) and the signal for the evacuation of all floors is not active, the lift evacuation zone shall be:
 - the floor(s) with active floor alarm(s);
 - where there are more than one active floor alarms, the floors between floors with active floor alarms;
 - up to two floors above the highest active floor alarm; and
 - up to two floors below the lowest floor with an active floor alarm.

If one of these floors is the active EEL, this shall be excluded from the lift evacuation zone.

- 3) When there is an active floor alarm(s) and the signal for the evacuation of all floors is not active, landing calls from the floor(s) with active floor alarm(s) shall be served before other registered landing calls from the lift evacuation zone.
 - 4) When there is an active floor alarm(s) and the signal for the evacuation of all floors is active, landing calls from the floor(s) with active floor alarm(s) shall be served before other registered landing call from all other floors.
- c) If the lift has started deceleration to respond a landing call, this landing call shall be served before any other landing calls;
 - d) On arrival at a landing other than the active EEL, the car shall open the doors and give a voice announcement according to 4.3.10 to inform persons to enter the car (message such as “Evacuation. Enter the car”). A car call or destination indication to the active EEL shall automatically be indicated;

- e) The door dwell time shall comply with EN 81-70:2021+A1:2022, 5.2.2. When the actual door dwell time exceeds no more than 20 s, all door protective devices shall be made inactive and the doors shall attempt to close as defined in EN 81-20:2020, 5.3.6.2.2.1 b) 4) and a voice announcement according to 4.3.10 shall be made (message such as “Doors closing. Stand clear of doors”);
- f) Once the doors are closed, the car of the evacuation lift shall proceed towards the active EEL. A lift having a rated load of at least 1000 kg and an actual load of less than 20 % of the rated load, may serve intermediate landing calls on the way towards the active EEL;
- g) In the case of 4.5.3.2.2 f), a voice announcement according to 4.3.10 and a visual indication shall inform persons not to leave the car (message such as “No exit”);
- h) The activation of any landing control device or any accessibility button according to EN 81-70:2021+A1:2022, 5.4.2.2.3 shall register a new call and shall not prevent the car from closing its doors and leaving the floor;
- i) On arriving at the active EEL, the evacuation lift car shall open its door and shall make a voice announcement according to 4.3.10 and a visual indication such as “Exit now”.

4.5.3.2.3 Deactivation of automatic evacuation operation

In case of any of the following:

- the automatic evacuation signal is deactivated; or
- the remote assisted evacuation signal is activated; or
- the driver assisted evacuation signal is activated,

automatic evacuation operation shall be ceased when the car next returns to the active EEL in accordance with 4.5.3.2.2. During its return to the active EEL, the car shall not serve any calls from intermediate landings.

4.5.3.3 Remote assisted evacuation operation

4.5.3.3.1 General

Remote assisted evacuation is evacuation under manual control of the lift from a remote location. Remote assisted evacuation operation shall be only available for Class B evacuation lifts.

The cybersecurity of remote assisted evacuation operation shall comply with ISO 8102-20:2022, Clause 5.

Remote assisted evacuation operation shall be provided with communication means as specified in 4.7.2.

The remote assisted evacuation operation shall override the automatic evacuation signal (see 4.5.3.2).

4.5.3.3.2 Functional requirements

After the procedure described in 4.5.3.1, when the remote assisted evacuation signal is active, and when no higher priority signal is active (see Table 1), the communication to the remote evacuation controls shall be initiated by the lift control system. The audio communication system (see 4.7.2.1) and the video monitoring system (see 4.7.2.2) between the lift and the remote evacuation controls shall also be initiated by the lift control, if not already active. After the communication to the remote evacuation controls and the audio communication system are established and the remote evacuation control controls are activated, the lift shall operate as described as follows:

- a) the control of the lift is solely from remote evacuation controls except the alarm and door open button(s) of the in-car operating panel(s) shall continue operation;
- b) registered landing calls, the car position, the direction of travel and the car door(s) status (open, closed or obstructed) shall be indicated at the remote evacuation controls;
- c) a call registered on the remote evacuation controls shall cause the car door to close and the car to travel to the required landing;
- d) a separate command given from the remote evacuation controls shall cause the door protective device (EN 81-20:2020, 5.3.6.2.2.1 b)) to be deactivated, and the car doors shall attempt to close as defined in EN 81-20:2020, 5.3.6.2.2.1 b) 4);
- e) it shall be possible to register a new call from the remote evacuation controls. The previous call given from the remote evacuation controls shall be cancelled. The car shall travel to the newly registered landing;
- f) on arrival at a landing, the car shall automatically open its selected door (see 4.3.9) and remain at the landing until a new call from the remote evacuation controls is registered;
- g) after opening the door, a voice announcement according to 4.3.10 to inform persons to enter the car (message such as "Evacuation. Enter the lift") shall be given;
- h) when arriving at the active EEL, the evacuation lift shall make a voice announcement according to 4.3.10 and a visual indication such as "Exit now";
- i) one of the remote commands shall be automatic evacuation, where the lift shall operate as defined in 4.5.3.2.2.

4.5.3.3.3 Deactivation of remote assisted evacuation

Remote assisted evacuation operation shall be ceased when:

- the remote assisted evacuation signal is deactivated; or
- the remote evacuation controls become inactive; or
- the connection between the remote evacuation controls and the lift is interrupted for more than 30 s (see also Table 1 and Table 2); or
- the driver assisted evacuation signal is activated.

In these cases, the car shall return to the active EEL according to 4.5.2.

4.5.3.4 Driver assisted evacuation operation

4.5.3.4.1 General

Driver assisted evacuation is evacuation under manual control of the lift from the car operating panel.

Driver assisted evacuation operation shall override the automatic evacuation operation (see 4.5.3.2) and remote assisted evacuation operation (see 4.5.3.3).

4.5.3.4.2 Functional requirements

After the procedure described in 4.5.3.1 and when the driver assisted evacuation signal is active (see 4.6.5.2), the lift shall operate as described as follows:

- a) registered landing calls shall be indicated in the car by blinking car call acceptance light of the given landings or by indicating the floor identification on a display;
- b) where multiple lifts in a group are in evacuation operation, all registered landing calls shall be indicated in each car in the driver assisted evacuation operation. If one of the cars has a registered car call to a landing, indication of the registered landing call shall be cancelled from the other car(s);
- c) the active EEL shall be indicated in the car;
- d) all heat and smoke sensitive door protection devices shall be made inactive;
- e) constant pressure on a car call button or on a door close button shall cause the car door to close. Closing shall start only after 1 to 2 s delay. If the button is released before the car door is fully closed, the car door shall automatically reopen. When the car door is fully closed, the car call can be registered and the car shall start to travel to the destination landing (see 4.3.11);
- f) if the car doors are closed by the door close button and no car calls are registered within 15 s, the car shall travel to the active EEL and open its door;
- g) when a new call is registered from the car, the previous car call shall be cancelled. The car shall travel to the newly registered landing;
- h) on arrival at any destination, the car shall automatically open its selected door (see 4.3.9) and remain at the landing until the car door is closed and a new car call is registered as described in e), or until timeout expires as described in f).

4.5.3.4.3 Deactivation of driver assisted evacuation operation

If the driver assisted evacuation signal is deactivated, a voice announcement according to 4.3.10 shall announce that the evacuation operation is suspended and the lift car will return to the exit floor. The lift car shall operate as follows:

- if the doors are closed the lift shall return to the active EEL according to 4.5.2;
- if the doors are open, after minimum 5 s and maximum 20 s of the given voice announcement, all door protective devices shall be made inactive and the doors shall attempt to close as defined in EN 81-20:2020, 5.3.6.2.2.1 b) 4) and a voice announcement according to 4.3.10 shall announce that the doors are closing and to stand clear of doors. Once the doors are closed, the lift car shall return to the active EEL according to 4.5.2.

4.5.4 Suspension of lift operation

Upon receiving the suspend service signal the evacuation lift shall cease evacuation operations and shall react as follows:

- a) all landing controls and controls in the car shall be rendered inoperative and all existing registered calls shall be cancelled;
- b) the visual indicator within the car referred to in 4.5.2 c) shall be deactivated;
- c) the service capability signal referred to in 4.5.3.1.1 b) shall be deactivated;
- d) the service capability and active EEL indication referred to in 4.5.3.1.1 c) shall be deactivated;
- e) the door open and alarm buttons shall remain operative;
- f) while the lift is under inspection operation, emergency electrical operation or any maintenance control, an audible signal shall sound on the car and in relevant machinery spaces.

The A-weighted sound pressure level of the audible warning shall be adjustable between 35 dB(A) and 65 dB(A), initially set at 55 dB(A). The audible signal shall be cancelled when the lift is removed from inspection operation, emergency electrical operation or any maintenance control;

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

- prevention of movement of the lift after the opening, by the use of a key, of any door providing access to the pit;
- prevention of movement of the lift after the return to normal operation of the lift from the pit inspection station;
- protection for maintenance operations; or
- landing and car door bypass device(s).

- g) the lift shall operate in the following way:
 - 1) a voice announcement according to 4.3.10 shall announce that the lift is out of service and the lift car will return to the SSL;
 - 2) if the doors are open, after minimum 5 s and maximum 20 s of the given voice announcement, all door protective devices shall be made inactive and the doors shall attempt to close as defined in EN 81-20:2020, 5.3.6.2.2.1 b) 4) and a voice announcement according to 4.3.10 shall announce that the doors are closing and to stand clear of doors. Once the doors are closed, the lift car shall return to the SSL;
 - 3) a car travelling away from the SSL shall make a normal stop and reverse its direction at the nearest possible landing without opening the doors and return to the SSL;
 - 4) a car travelling towards the SSL shall continue its travel non-stop to the SSL. If the lift has already started stopping at a level, it is acceptable to make a normal stop and without opening doors to continue its travel to the SSL.
- h) on arriving at the SSL, the lift shall open its door and a voice announcement according to 4.3.10 and a text message in at least one of the official local languages shall announce that the lift is out of service and that persons shall exit the lift.

At the latest when the actual door dwell time exceeds 20 s, the car and landing doors shall be closed and the lift shall be removed from service. The door open and alarm buttons shall remain operative. Any landing call at the SSL shall initiate opening of the doors of the lift which is at the corresponding SSL for maximum 20 s.

The lift shall remain out of service while the suspend service signal is active.

4.6 Car and landing control equipment

4.6.1 Car controls for driver assisted evacuation operation

Whilst on driver assisted evacuation operation, the control of the evacuation lift shall be by means of buttons or similar devices in the car. These shall be buttons for the normal use of the lift or a dedicated set of controls.

NOTE A typical application of a dedicated set of controls is a destination control.

In the case the controls are behind a cover, the cover shall be marked with a pictogram shown in Figure 1 with the dimensions of 20 mm × 20 mm, unless the cover is automatically openable upon the activation of driver assisted evacuation operation. If the cover is lockable, the lock shall be automatically or manually operable. In case of manual operation, the key shall be the same as used for the evacuation lift switch defined in 4.6.5.

4.6.2 Remote evacuation controls

The remote evacuation controls shall have at least the following controls and indications as required in various clauses of this document:

- registered landing calls (see 4.5.3.3.2 b));
- car position and direction of travel (see 4.5.3.3.2 b));
- door status (see 4.5.3.3.2 b));
- registered car call (see 4.5.3.3.2 c));
- evacuation lift operation mode and service availability;
- active EEL;
- lift identification.

NOTE The audio and video communication system is specified in 4.7.2.

4.6.3 Landing controls and signals

4.6.3.1 Landing controls

Landing controls shall comply with EN 81-70:2021+A1:2022, 5.4.2.2.

4.6.3.2 Landing signals at the EEL

Each EEL shall have a car position indicator.

Each EEL shall have a visual indication of the service capability.

In case the evacuation lift has multiple EELs, the active EEL location shall also be indicated at each EEL.

4.6.3.3 Landing signals at the landings intended to be served

An indication of the available evacuation service shall be given by the landing call registration feedback according to EN 81-70:2021+A1:2022, Table 4, item g) or in case of a destination control according to EN 81-70:2021+A1:2022, 5.4.3.1.2. No feedback shall be given, if the evacuation service is not available.

On arrival at the landing the lift shall give an audible signal according to EN 81-70:2021+A1:2022, 5.4.2.4.2, without the need of arrows.

4.6.4 Evacuation lift sign

The evacuation lift shall be indicated with an evacuation lift sign according to Figure 1 on every landing intended to be served during the evacuation operation. The location of the sign shall be according to EN 81-70:2021+A1:2022, 5.4.3.3 c) and the minimum size of the sign shall be 40 mm × 40 mm.



Figure 1 — Safety sign “Evacuation lift for people unable to use stairs”, ISO 7010-E070

The illustration in the safety sign shall be in white with green background.

4.6.5 Evacuation lift switch for driver assisted evacuation operation

4.6.5.1 General

An evacuation lift switch shall be provided for every evacuation lift having a driver assisted evacuation operation.

The evacuation lift switch shall be located in the safe area at each EEL within 2,0 m horizontally from the evacuation lift, at a height between 1,4 m and 2,0 m above the floor level. The switch shall be marked with the safety sign shown in Figure 1. The size of the safety sign shall be at least 100 mm × 100 mm. In addition, it shall be indicated to which lift the switch is associated, in accordance with EN 81-70:2021+A1:2022, 5.4.3.3 c).

4.6.5.2 Operation of the evacuation lift switch

The operation of the evacuation lift switch shall be by means of a key. Where no other key type has been agreed, the key shall be the unlocking triangle as defined in EN 81-20:2020, 5.3.9.3. The key shall be available on the site of the lift installation (see also EN 81-20:2020, 0.4.2 a) and 3.2).

The switch shall have at least two positions marked '0' and '1'. There shall be a visual indication of the switch position. In position '1', driver assisted evacuation operation is initiated. Additional positions are permitted for other evacuation operations and for suspension of the service. Additional positions shall be indicated, if applied.

4.7 Evacuation operation communication system

4.7.1 General

A communication system shall be provided for remote assisted evacuation operation and driver assisted evacuation operation.

4.7.2 Remote assisted evacuation operation communication system

4.7.2.1 Audio communication system

An evacuation lift with remote assisted evacuation operation shall be provided with a communication system for interactive two-way speech communication. This shall allow communication between the remote evacuation controls and the evacuation lift car, each lift landing to be evacuated and the EELs.

The communication equipment in the car shall be a built-in microphone and speaker, and not a telephone handset. The communications from the car to the remote evacuation controls shall be active during the evacuation operation, unless there are other communications active at the same time controlled from the remote evacuation controls or from the active EEL.

The communication equipment at the landings shall be a built-in microphone and speaker, and not a telephone handset, and shall be provided with a communication call request button. The activation of the communication call request button shall be indicated at the remote evacuation controls. The communications from the landings to the remote evacuation controls shall individually be switched active from the remote evacuation controls. The communication call request button shall be illuminated when remote assisted evacuation operation is active, and indication shall be provided when the voice communication with the remote evacuation controls is active.

The communication call request button shall be located in the vicinity of the landing control buttons and it shall be marked with the speak symbol according to EN 81-70:2021+A1:2022, Table 4. The position, the size and the operating force of the button shall be according to EN 81-70:2021+A1:2022, Table 4 and Table 5.

4.7.2.2 Video monitoring system

A remote assisted evacuation operation shall be supported by a video system. It shall allow monitoring at the location of the remote evacuation operation control panel of the number of persons in the car, in front of the lift at any landing to be evacuated and at the EELs.

4.7.3 Driver assisted evacuation operation communication system

An evacuation lift with driver assisted evacuation operation shall be provided with a communication system for interactive two-way speech communication between the evacuation lift car and:

- a) each EEL. The microphone in the lift car intercom unit shall be active without pressing a control button. The microphone in the active EEL intercom unit shall either be active without pressing a control button or be made active by pressing a control button. The size and the operating force of the button shall be according to EN 81-70:2021+A1:2022, Table 4 and Table 5. Microphones in non-active EELs shall be muted;
- b) the evacuation lift machine room or in the case of machine roomless lifts at the emergency and test panel(s). The microphone shall only be made active by pressing a control button on the intercom unit.

Where provided, the microphones of intercom units at other locations shall only be made active by pressing a control button on the intercom unit.

The communication equipment within the lift car and at the EELs shall be a built-in microphone and speaker, and not a telephone handset.

4.8 Vandal prone areas

When the landing door security system defined in EN 81-71:2005+A1:2006, 5.3.2 is applied, it shall be automatically de-activated when the evacuation recall signal (Phase 1), any evacuation operation signal (Phase 2) or the suspend service signal is active.

4.9 Seismic conditions

If the lift is designed according to EN 81-77:2022 Category 3, after activation of the seismic detection system the lift shall operate according to EN 81-77:2022. When the operation is stopped, the evacuation lift shall make a voice announcement according to 4.3.10 and visual indication such as "Exit now".

The communication system according to 4.7 shall remain active.

NOTE In EN 81-77:2022 seismic mode a lift in motion reduces its speed or stop and proceed to the next possible landing. This landing is not necessarily the active EEL.

4.10 Changeover and interruption of electrical supplies

When the power supply is re-established and the lift is in evacuation operation, the lift shall become available for service within 60 s. If the lift needs to move to establish its position, it shall not move more than one floor and towards the active EEL and indicate its position.

Registered calls, the activated evacuation operation and communication systems shall remain after the changeover of electrical supply.

5 Verification of safety measures and/or protective devices

Safety requirements and/or protective measures of Clauses 4 and 6 shall be verified according to Table 3.

Table 3 — Verification table

Subclause	Visual inspection ^a	Compliance with the lift design ^b	Measurements ^c	Design document check ^d	Functional Test ^e
4.3.1	see EN 81-20:2020				
4.3.2			X		
4.3.3				X	
4.3.4				X	
4.3.5	X		X	X	
4.3.6		X		X	X
4.3.7		X		X	X
4.3.8		X		X	X
4.3.9					X
4.3.10		X	X		X
4.3.11	X				
4.4.1		X			X
4.4.2		X		X	X
4.4.3		X		X	X
4.5.1		X		X	X
4.5.2		X	X	X	X
4.5.3		X	X	X	X
4.5.4		X	X	X	X
4.6.1	X	X	X		X
4.6.2	X	X		X	X
4.6.3	X		X		X
4.6.4	X		X		
4.6.5.1	X	X	X	X	
4.6.5.2	X			X	X
4.7.1		X			
4.7.2	X	X	X	X	X
4.7.3	X	X	X	X	X
4.8		X			X
4.9		X	X		X

Subclause	Visual inspection ^a	Compliance with the lift design ^b	Measurements ^c	Design document check ^d	Functional Test ^e
4.10		X	X	X	X
6	X	X		X	
^a The results of the “visual inspection” are only to show that something is present (a marking, a control panel, an instruction), that the marking required satisfies the requirement and that the content of the documents delivered to the owner is in accordance with the requirements. ^b The results of the “compliance with the lift design” are to prove that the lift is built according to the design and that the components/devices comply with the design documents. ^c The result of the measurement is to show that the stated measurable parameters have been met. ^d The results of the “design document check” are to prove that the design requirements of the document have been matched “on paper” in the design documentation (layout, specification). ^e The results of the “functional test” are to show that the lift works as intended, including the safety devices.					

6 Information for use

6.1 General information

The following information shall be provided as part of the instructions:

- a) the operation of the evacuation lift in response to evacuation control signals and lift controls (see 4.5) including the following:
 - operation of the lift in evacuation recall (Phase 1) (see 4.5.2);
 - use of the lift under provided evacuation operation(s) (Phase 2) (see 4.5.3);
 - suspension of evacuation operation (see 4.5.4);
- b) the use of any evacuation operation communications systems;
- c) the need for the evacuation lift switch key to be available;
- d) the location and access route to the machinery space where the evacuation lift emergency operation devices are located;
- e) items relevant to equipment described in EN 81-70:2021+A1:2022:
 - the need to maintain safe and unobstructed access to the lift and its control devices on landings;
 - information for adjusting the door dwell time;
 - information for adjusting the sound level of audible signals in the car and at the landings and for adjusting the amplifier of induction loops, if provided;
- f) In order to ensure the safe and reliable operation of the lift in case of evacuation, it is essential that planned maintenance is carried out and operates in accordance with the instructions provided by the installer (see 6.2).

6.2 Information for checks and maintenance

The instructions shall include in particular to following information for checks and maintenance:

- procedures to check correct response of the lift to the actuation of the evacuation lift switch and response to the activation of other evacuation control signals, including suspend service signal;
- procedure to simulate a failure of the primary power supply to check changeover to the secondary supply and operation from the secondary supply or to check the changeover and operation of automatic rescue operation, if equipped, to check the evacuation operation including communication systems to ensure the lift can be driven to any required floor.

7 Building-related boundary conditions

7.1 General

Building-related boundary conditions shall be according to Annex C.

7.2 Power supplies for evacuation lifts

7.2.1 An evacuation lift of Class A in a building not having a secondary power supply according C.12 shall have an automatic rescue operation with automatic door opening either to a landing with a safe area or to the active EEL so that passengers can leave the car in case of main power supply failure.

7.2.2 For an evacuation lift of Class B power supply shall comply with C.12.

7.3 Plans for the installation in the building

The plans shall contain at least the information in accordance with Annex C.

The information for use (see Clause 6) shall contain information about the building interface.

Annex A (informative)

Overview of evacuation lift operations

Figure A.1 gives an overview of evacuation lift operations.

NOTE This Annex gives an overview of the main features according to this document. For details and requirements, see Clause 4 of this document.

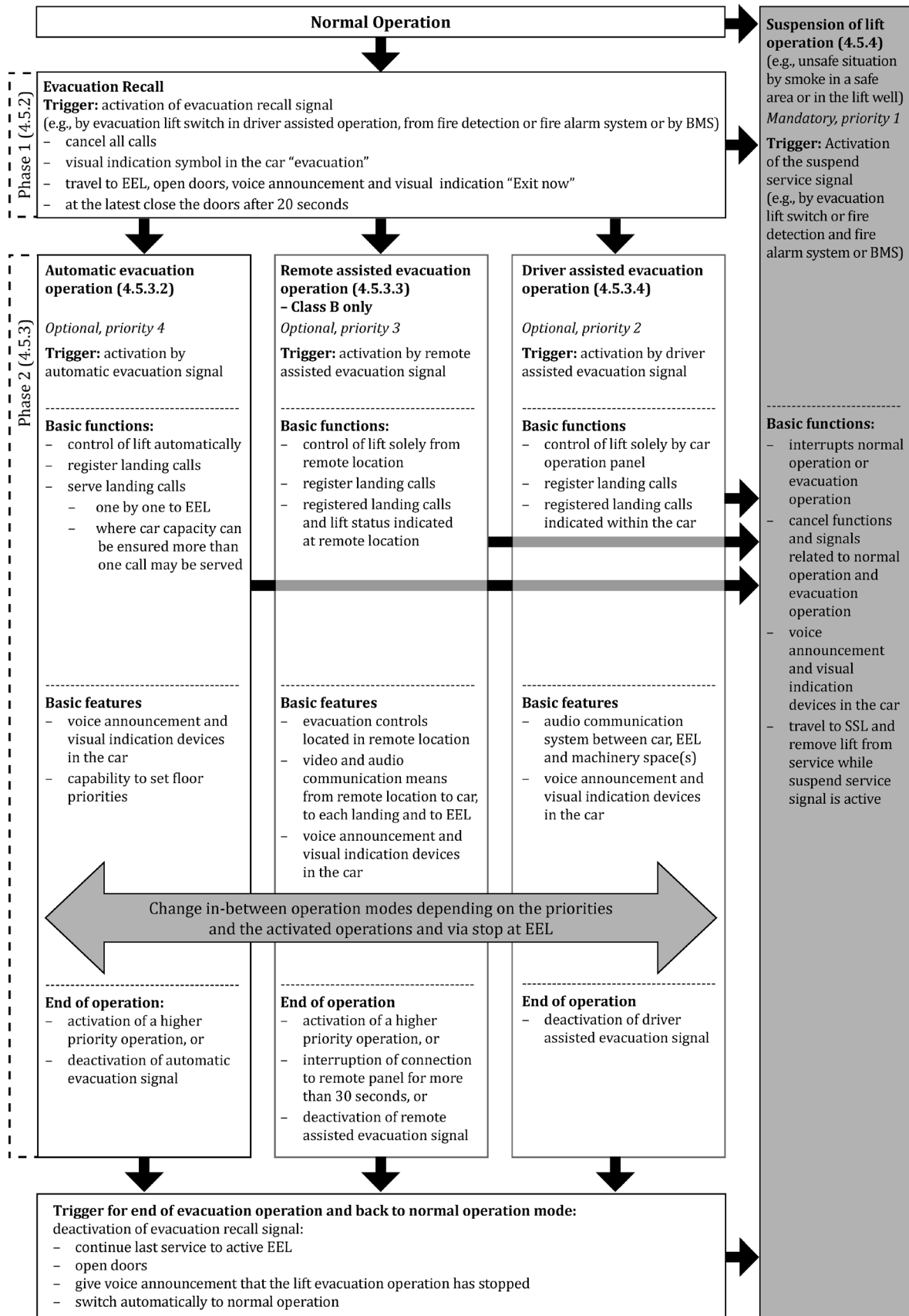


Figure A.1 — Overview of evacuation lift operations

Annex B (informative)

Concept of the evacuation lift

B.1 General

B.1.1 Introduction

Building designers, owners and managers should consider the need for occupants to escape from a building in case of a number of events including fire. The usual way for occupants of a building to escape is using stairs to an exit floor. There are two scenarios when the use of lifts might be considered:

1. evacuation of persons with disabilities using lifts which is within the scope of this document;
2. evacuation of persons who are able to use stairs which is outside the scope of this document. Guidance on such use of lifts used in this case to improve the evacuation time of a building (typically a tall building) is in ISO/TS 18870:2014¹.

Instructions to building occupants have traditionally been not to use lifts for evacuation of the building e.g. at a fire alarm. The ways that lifts can be used for the evacuation of persons with disabilities described in this document might therefore be new to some building occupants.

This document describes three alternative modes for a lift to be used for the evacuation of persons with disabilities. One or more of the following modes are to be selected or combined based on the building type and evacuation strategy:

- automatic evacuation operation;
- remote assisted evacuation operation;
- driver assisted evacuation operation.

For each of these operations, this annex describes one possible concept for the use of an evacuation lift.

This document defines two classes of evacuation lift, class A and Class B.

A Class A evacuation lift is intended to assist evacuation in a building which meets the following criteria:

- the highest floor is such that a firefighter's lift would not be required; and
- the evacuation strategy does not require more than one evacuation exit landing for the lift in question; and
- the evacuation strategy does not require prioritization of evacuation lift service for specific landings; and
- where a secondary power supply is not available, the evacuation plan can accommodate an evacuation lift with an automatic rescue operation (see 7.2.1).

¹ ISO/TS 18870:2014 is under revision and would become a future ISO 8101-1.

A Class B evacuation lift has further requirements than for a Class A evacuation lift. A Class B evacuation lift is intended for use where the criteria for a Class A evacuation lift are not fulfilled or remote evacuation operation is specified.

To ensure that the lift is available in the event of an evacuation, this document is based on the following principles:

- the boundary conditions in which the lift is installed are according to Annex C;
- the use of a firefighters lift for evacuation is not usually appropriate without agreement with the fire and rescue service unless additional firefighters lifts have been provided for this purpose and use of the lifts for evacuation is complete before the arrival of the fire and rescue services;
- until the evacuation of persons with disabilities is complete, the evacuation strategy and process ensure that the evacuation lift is dedicated to their evacuation;
- the lift and the systems on which it depends are maintained and inspected to ensure its reliability, see Clause 6.

B.1.2 General building design

The effective use of the evacuation lift is based on the evacuation strategy. The following have been assumed for the building design.

- Depending on the evacuation strategy, the lift described in this document may or may not be suitable. It needs to be determined if this type of lift is suitable for the actual strategy to be employed and to define under which limits of use the lift according to this document will achieve the required aims.
- The selected number and size of evacuation lifts, determined by a capacity assessment, is sufficient for the evacuation of the persons with disabilities within the defined duration of the evacuation.

NOTE 1 Typically at least 10 % of the population has difficulties using stairs, percentage increasing as building height increases. This figure might be higher depending on the building type and usage.

NOTE 2 Methods of capacity assessment and maximum evacuation times are not defined in this document.

- The following signals are provided by suitable means:
 - a) suspend service signal (see 4.5.4 and C.3);
 - b) evacuation recall signal (see 4.5.2).
- In the event of a fire alarm, lifts other than those intended to stay in operation (firefighters lifts and evacuation lifts) operate according to EN 81-73:2020 to ensure that they are returned to the designated landing and removed from service.

B.1.3 General building operation management

A building typically has a strategy for the evacuation of those not able to evacuate using stairs consistent with the number and type (operation) of evacuation lifts. Among other things, this would include the provision of suitable measures such as information and signage, ongoing training and evacuation drills to ensure building occupants are familiar with the use of the lift for evacuation.

All horizontal circulating areas should be equipped with signs to clearly indicate the location of the safe areas of the evacuation lift and the safe route out of the building should be equipped with signs for each EEL.

The non-availability of an evacuation lift is outside the scope of this document.

The following have been assumed:

- information on the use of the lifts for evacuation has been provided to fire and rescue services;
- adequate introduction, training and drills being carried out for those needing use of the lift for evacuation so that, in the event of an evacuation, they move to the safe areas and know how to call and operate the lift.

B.2 Automatic evacuation operation

B.2.1 Building design (automatic evacuation operation)

The automatic evacuation operation can facilitate an independent evacuation (e.g. where evacuation assistants might not be available or take time to mobilize) of persons with disabilities. An immediate activation of automatic evacuation operation can use the time before the availability of an evacuation assistant for driver assisted operation or for remote assisted evacuation mode.

The evacuation strategy should be consistent with the automatic operation described in 4.5.3.2. Considerations in addition to those in B.1.2 include the following:

- In the event of an evacuation, those requiring the use of the evacuation lift need to move to the lift safe areas and need to have an understanding of the use of the lifts for evacuation. Therefore, automatic evacuation operation is more suited to buildings with regular users who are informed accordingly and may have regular evacuation drills.
- The risks of the evacuation lift being used by persons without impaired mobility are assessed and the building design and evacuation strategy ensure that an appropriate number of lifts is available. These include risks resulting from prolonged evacuation time due to a lack of evacuation lift capacity. The likelihood of persons without impaired mobility (outside the scope of this document) wishing to use an evacuation lift can arise for different reasons depending on the type of building e.g. in tall buildings more persons might want to use the lift for evacuation from higher floors. Typically, this should be considered for floor heights from the height at which firefighters lift(s) would be specified. Where a significant proportion of the building population might be expected to use lifts for evacuation, the guidance can be found in ISO/TS 18870:2014;

Automatic operation is based on the following signals being available:

- automatic evacuation signal (see 4.5.3.2); and
- where landing calls are to be accepted only from an evacuation zone (see 4.5.3.2.2), a floor alarm signal for each floor needing evacuation lift service and a signal for the evacuation of all floors.

The prioritization of the landing calls (see 4.5.3.2.2 b)) is consistent with the building design and evacuation strategy. The evacuation strategy might prioritize evacuation from the fire floor, then the floors either side of the fire floor (lift evacuation zone), etc.

B.2.2 Building operation management (automatic evacuation operation)

The safe and effective use of an evacuation lift with automatic evacuation depends on a number of considerations. In addition to B.1.3 it is assumed that the use of the evacuation lift is only by persons with disabilities.

B.3 Remote assisted evacuation operation

B.3.1 Building design (Remote assisted evacuation operation)

It should be ensured that the evacuation strategy is consistent with the remote assisted evacuation operation described in 4.5.3.3 and that such operation is appropriate for the evacuation strategy.

Locations for remote controls can be at the EELs or can be more remote from the lift, e.g. central control point in the building where service can be ensured around the operation time of the building. The risks arising from the remoteness of the location from the lift should be assessed and addressed as part of the building design and evacuation strategy.

B.3.2 Building operation management (Remote assisted evacuation operation)

Remote assisted evacuation operation allows full control of the evacuation lift by an evacuation assistant who is not travelling with the car but who controls the lift from a remote location. A two-way audio intercom between the remote location, all floors defined to be served during evacuation and the evacuation lift car, complemented with a one-way video monitoring system allows the evacuation assistant to understand the number and kind of population waiting for lift service. If the evacuation assistant also has information from the fire detection and alarm system, the assistant can prioritize lift service to landings with most urgent need.

The safe and effective use of the evacuation lift with remote assisted evacuation depends on a number of considerations. The following have been assumed in addition to B.1.3:

- the remote evacuation assistants are designated and they are trained, including having drills, and capable of carrying out the necessary duties quickly and efficiently at all times during which the building is occupied;
- communication methods between the remote evacuation assistant and a fire and rescue service have been agreed.

The remote evacuation assistant ensures that the lift car is driven only to those levels where there are such persons in need of assistance.

As soon as the fire and rescue services arrive, they may take the management of the evacuation, but this should not be assumed.

Evacuation planning should be flexible depending on the need for evacuation (fire or other), different scenarios and the actual conditions as the evacuation progresses. These may necessitate changes to manage different situations such as the planned sequence of evacuation.

B.4 Driver assisted evacuation operation

B.4.1 Building design (driver assisted evacuation operation)

It should be ensured that the evacuation strategy is consistent with the driver assisted evacuation operation described in 4.5.3.4 and that such operation is appropriate for the evacuation strategy.

B.4.2 Building operation management (driver assisted evacuation operation)

Driver assisted evacuation operation allows full control of the evacuation lift by an evacuation assistant who travels within the car. Landing calls are indicated inside the car, which identify floors requiring service. A two-way audio intercom allows the communication between the active EEL and the car.

For the safe and effective use of the evacuation lift with driver assisted evacuation operation the following have been assumed in addition to B.1.3:

- the evacuation assistants are designated and they are trained, including having drills, and capable of carrying out the necessary duties quickly and efficiently at all times during which the building is occupied;
- one of the evacuation assistants, possibly located close to the location of the emergency and test panel or machinery space, is trained and designated to undertake the rescue procedure if required.

As soon as the fire and rescue service arrive, they may take the management of the evacuation, but this should not be assumed.

Evacuation planning should be flexible depending on the need for evacuation (fire or other), different scenarios and the actual conditions as the evacuation progresses. These may necessitate changes to manage different situations such as the planned sequence of evacuation.

Annex C (normative)

Information on the building-related conditions in which the lift is installed

C.1 General

In order to allow the evacuation lift to be used in relative safety, the information given in this Annex shall be provided as part of the information for use (see Clause 6).

It shall be instructed that if the instructions given in this Annex are not followed, then the users of the evacuation lift during the evacuation are exposed to danger.

C.2 Evacuation plan

It shall be instructed that an evacuation plan is available, and that it covers the evacuation of the persons with disabilities using evacuation lift including:

- the size and the capacity of the evacuation lift(s);
- the defined duration of the evacuation;
- the floors to be evacuated with the evacuation lift(s);
- the evacuation exit landing(s) (EEL), and
- an alternative way of evacuation of persons with disabilities in case the evacuation lift is not available.

NOTE EN 17210:2021 gives guidance on evacuation planning.

C.3 Evacuation lift's operating environment

It shall be instructed that the environment for safe operation of the evacuation lift includes:

- the well where the evacuation lift is located;
- the evacuation lift machinery spaces;
- any ducts containing hoses, piping, electrical cables or suspension means between evacuation lift machinery spaces and the evacuation lift well;
- the safe area in front of the evacuation lift landing doors of the floors defined to be served during evacuation;
- an alternative escape route from each safe area;
- the route from each evacuation exit landing (EEL) to the machinery space where the evacuation lift's emergency operation devices are located.

It shall be instructed that the evacuation lift's operating environment is protected from the effects of fire and ingress of smoke for at least the defined duration of the evacuation. When defining the duration of evacuation operations, the risk of possible unavailability of the evacuation lift service is addressed.

It shall be instructed that the evacuation lift's operating environment is provided with a fire detection and fire alarm system. When fire or smoke is detected in the evacuation lift's operating environment, a suspend service signal is given to the evacuation lift (see Table 1).

It shall be instructed that maintenance of the fire detection and fire alarm system is possible from outside the lift well.

C.4 Safe area

It shall be instructed that a safe area is a designated area where persons with disabilities can wait for the lift service in relative safety while the evacuation process is under way.

NOTE The term "place of relative safety" defined in EN 17210:2021, 3.42, has the similar meaning as a safe area.

It shall be instructed that safe areas are provided in front of every landing door according to the evacuation plan. A safe area may cover several floors and may be used as exit route.

It shall be instructed that on landings where no evacuation service is provided, fire shutters or fire doors can be provided in front of lift landing doors as alternatives to the safe areas. The fire door or fire shutter gives at least an equivalent level of protection for the lift well as a safe area.

It shall be instructed that this applies also to the other lifts sharing the common well with the evacuation lift.

C.5 Evacuation exit landing

It shall be instructed that for each evacuation exit landings (EEL), an evacuation recall signal is provided to the lift control system.

C.6 Emergency operation signage

It shall be instructed that the location and access route to the machinery space where the evacuation lift emergency operation devices are located is included in a signage label at each EEL.

NOTE Emergency operation devices are located on an emergency and test panel or in the machinery space and are needed for the release of entrapped passengers.

C.7 Water management

It shall be instructed that water ingress to the lift well during the evacuation process is prevented. This applies to every entrance to the evacuation lift well, including entrances where fire doors or fire shutters are used (see C.4).

EXAMPLE Suitable methods to prevent water ingress to the lift well include:

- the provision of drainage channels in front of a door of the lift well and drainpipes; or
- raising or ramping of the floor in front of a door of the lift well so that any water will not enter the lift well but will drain away down the stairs or in to drains.

C.8 Signals to the evacuation lift

It shall be instructed that depending on the selected evacuation operation(s), relevant signals from Table 1, including suspend service signal, are provided to the evacuation lift.

It shall be instructed that the lift is prevented from unintentionally returning to normal operation by keeping the evacuation recall signal active during the evacuation operation.

C.9 Remote assisted evacuation operation

It shall be instructed that a remote assisted evacuation operation is supported by a communication system (see 4.7.2).

It shall be instructed that the remote evacuation controls are located in the same building complex (see B.3.1).

It shall be instructed that in order to ensure a safe and undisturbed working environment for the evacuation operator, the following is considered:

- the noise level during the evacuation operation (see C.14);
- the separation of the evacuation operator area from the escape routes.

C.10 Intermediate emergency doors

It shall be instructed that when the distance between consecutive landing doorsills exceeds 7 m, intermediate emergency doors are provided, such that the distance between the sills is not more than 7 m.

C.11 Protection of electric wires and cables and hydraulic hoses

It shall be instructed that electric wires and cables and hydraulic hoses, which are located outside of the evacuation lift's operating environment (see C.3) and which are provided for evacuation operation, have at least the same degree of fire protection as the evacuation lift well.

C.12 Power supply for the evacuation lift

It shall be instructed that the power supply system of a class B evacuation lift, and the power supply system of a class A evacuation lift without an automatic rescue operation, consist of a primary and a secondary power supply (see 7.2). The secondary power supply is also supplying car lighting and the evacuation communication systems.

It shall be instructed that, in addition to the primary supply, the control and monitoring equipment for a remote evacuation operation is fed from a secondary power supply or has a backup supply.

It shall be instructed that the secondary power supply is sufficient to operate the evacuation lift at the rated load and rated speed for at least a period equal to the defined duration of the evacuation (see C.2).

It shall be instructed that the selection of the secondary power supply considers the lift's acceleration current and the regenerated power.

It shall be instructed that the secondary power supply is effectively independent from the building's normal power supply.

It shall be instructed that the changeover from primary to secondary power is automatic on loss of the primary supply (see 4.10).

NOTE The electrical source of a secondary power supply is described in HD 60364-5-56:2018, 560.6.

C.13 Air pressurization of the lift well

It shall be instructed that, in the case of an air pressurized well, the air supply speed or the air pressure does not negatively affect the lift operation (creating oscillation of the travelling cable/belt, opening and closing of the lift doors). The oscillation is prevented by limiting the air supply speed into the lift shaft to max 3 m/s.

NOTE EN 12101-13:2022 gives guidance on pressure differential systems (PDS).

It shall be instructed that the temperature in the well is maintained in the limits of 5 °C to 40 °C during the evacuation operation.

C.14 Noise

It shall be instructed that the noise level from a pressurization system and from the building fire detection and alarm system is less than 80 dB(A) at positions 0,5 m from the microphones and the speakers of the evacuation lift's communication systems and from the remote evacuation operation control panel.

Annex D
(informative)

List of significant hazards

D.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 a risk assessment as significant for this type of machinery and which require an action to eliminate or reduce the risk (see Table D.1).

Table D.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	4.3.1
2	Trapping hazard, entrapment	4.3.1, 4.3.5, 4.5.2 d), 4.10, 7.2
3	Lift is not used correctly for evacuation	4.4, 4.5, 6.1
4	Lift is not accessible to persons with disabilities	4.3.1, 4.3.2, 4.3.10, 4.3.11, 4.5.3, 4.6.3.1, 4.6.3.3, 4.6.4, 4.7.2.1
5	Lift not available when needed	4.3.2, 4.3.7, 4.4.3
6	Hazards to maintenance personnel	4.3.1, 4.4.1, 6.1, 6.2, 7.2
7	Inadequate design, location or identification of manual controls	4.3.1, 4.6, 4.7.2.1
8	Inadequate communications during evacuation	4.5.3.3.1, 4.7, 7.2
9	Inadequate marking, difficulty in recognizing the evacuation lift	4.5.2, 4.5.3.1, 4.6.1, 4.6.3.3, 4.6.4, 4.6.5.1
10	Interruption of signal connection	4.4.3

D.2 Significant hazards related to environment and building-related conditions

Table D.2 shows significant hazards related to environment and building-related conditions of the evacuation lift, which are outside the scope, but related information is given in this document.

Table D.2 — List of significant hazards and hazardous situations – Environment and building-related conditions

No.	Significant Hazards and Hazardous situations – Environment and building-related conditions	Information in this document
1	Fire/heat/smoke into a lift well/machinery space/safe area	4.3.6, 4.5.4, C.3, C.4, C.13
2	Lift not useable long enough for evacuation of persons with disabilities	4.10, 7.2, C.7, C.11, C.12
3	Flow of water into the lift well	C.7
4	Not having enough or sufficiently sized or located evacuation lifts to evacuate all persons with disabilities requiring evacuation within adequate time	4.3.2, C.2
5	Failure of the power supply	4.10, 7.2, C.11, C.12
6	Inadequate lighting	7.2, C.11, C.12
7	Interruption of a connection between the lift and the fire detection and fire alarm system	4.4.3, 4.5.3.3.3, 4.5.4, C.11

Annex ZA (informative)

Relationship between this European Standard and the essential requirements of Directive 2014/33/EU aimed to be covered

This European Standard has been prepared under a Commission’s standardization request C(2023) 6588 final (‘M/599’)² to provide one voluntary means of conforming to requirements of Directive 2014/33/EU of the European Parliament and of the Council of 26 February 2014 as regards lifts and safety components for lifts (OJ L 96, 29.3.2014).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1.1, Table ZA.1.2 and Table ZA.1.3 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

Table ZA.1.1 — Correspondence between this European Standard and Annex I of Directive 2014/33/EU

The relevant essential health and safety requirements of Annex I to Directive 2014/33/EU	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.1	See below Table ZA.1.2 and Table ZA.1.3	
1.2	4.3.2	
1.6.1	4.3.10, 4.5.3.1.1 d), 4.5.3.1.1 e), 4.6.3.1, 4.6.3.3	
1.6.2	4.6.3.1, 4.6.5.1, 4.6.5.2, 4.7.2.1	
1.6.4 d)	4.3.7, 4.4.3	
4.4	4.5.2 d)	
4.5	4.5.2 d)	
4.10	4.3.6, 4.4.2, 4.5.2, 4.5.3, 4.5.4	
6.2 a)	6.1, 6.2	

² C(2023) 6588, COMMISSION IMPLEMENTING DECISION of 5.10.2023 on a standardisation request to the European Committee for Standardization as regards lifts and safety components for lifts in support of Directive 2014/33/EU of the European Parliament and of the Council

Table ZA.1.2 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

The relevant Essential health and safety requirements of Annex I to Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.1.2 a)	4, 5, 6	
1.1.2 c)	4, 5, 6	
1.2.1	4.3.7, 4.4.1, 4.4.2, 4.4.3	

Table ZA.1.3 — Correspondence between this European Standard and Annex III of Regulation (EU) 2023/1230

The relevant Essential health and safety requirements of Annex III to Regulation (EU) 2023/1230	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
1.1.2 a)	4, 5, 6	
1.1.2 c)	4, 5, 6	
1.1.2 e)	4.5.4, 6.2	
1.1.9		not covered
1.2.1	4.3.7, 4.4.1, 4.4.2, 4.4.3	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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