# SLOVENSKI STANDARD

**SIST EN 81-73:2005**

**01-november-2005**

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**Varnostna pravila za konstruiranje in vgradnjo dvigal (liftov) – Posebne izvedbe osebnih in osebno-tovornih dvigal – 73. del: Obnašanje dvigal v primeru požara**

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

Sicherheitsregeln für die Konstruktion und den Einbau von Aufzügen - Besondere Anwendungen für Personen- und Lastenaufzüge - Teil 73: Verhalten von Aufzügen im Brandfall



Regles de sécurité pour la construction et l'installation des élévateurs - Applications particulieres pour les ascenseurs et les ascenseurs de charge - Partie 73: Fonctionnement des ascenseurs en cas d'incendie



**Ta slovenski standard je istoveten z:** **EN 81-73:2005**

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**ICS:**

| | | |
|---|---|---|
| 13.220.50 | Požarna odpornost gradbenih materialov in elementov | Fire-resistance of building materials and elements |
| 91.140.90 | Dvigala. Tekoļe stopnice | Lifts. Escalators |

**SIST EN 81-73:2005** **en**

EUROPEAN STANDARD

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# EN 81-73

May 2005

ICS 91.140.90; 13.220.50

English version

# 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

Règles de sécurité pour la construction et l'installation des élévateurs - Applications particulières pour les ascenseurs et les ascenseurs de charge - Partie 73: Fonctionnement des ascenseurs en cas d'incendie

Sicherheitsregeln für die Konstruktion und den Einbau von Aufzügen - Besondere Anwendungen für Personen- und Lastenaufzüge - Teil 73: Verhalten von Aufzügen im Brandfall

This European Standard was approved by CEN on 27 October 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.



This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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# Foreword

This document EN 81-73:2005 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 November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This standard is part of the EN 81 series of standards “*Safety rules for the construction and installation of lifts*” and is complementary to the introduction of EN 81-1 and EN 81-2. This is the first edition.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

# Introduction

This document is a type C standard as stated in EN ISO 12100-2:2003.

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

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

At present there are no European and only few national regulations for lifts which include specifications related to the behaviour of lifts in the case of a fire in a building, except for firefighters lifts and the testing of the fire resistance of landing doors. In some instances, locally required notices can be found such as “Do not use lift in case of fire”.

This has the consequence that persons may be able to use lifts whilst a fire is in the building due to the fact that they are not aware of this potential critical situation and the lifts are not taken out of service. Except for some particular cases it is not intended that lifts should be used in the event of fire.

This European Standard deals with:

a) reducing the risk of passengers being trapped in a car in the event of a fire in a building;

b) clearly showing the firefighters/rescue teams that the lift contains no trapped passengers since it will be finally parked at a designated floor;

c) reducing the risk of passengers in the car being exposed to fire and smoke.



The contents of this standard are based on the following assumptions:

— requirements apply to all passenger and goods passenger lifts with all types of drives;

— there needs to be a clear separation between the functioning of the building management system and the lift control system;

— automatic fire detection system initiates the signal to the lift causing a specific reaction of the lift. Alternatively, a manual recall device is interfaced with the lift in order to send input signals to the lift;

— lift control system determines the reaction of the lift) on receipt of a signal from the fire detection system;

— lift is in normal operation and is available for passenger use;

— fire alarm system is operating as intended;

— dependent upon the fire alarm system in the building and the management of this information, different reactions of the lift are possible;

— building designers, architects or planners shall consider this standard with care. The provision of even a manual recall device, or a fire detector on each landing will greatly improve the level of safety for persons in a building in the event of a fire;

— ISO/TS 14798 was used as the risk assessment methodology.

# 1 Scope

This European Standard specifies the special provisions and safety rules to ensure the behaviour of lifts in the event of fire in a building, on the basis of a signal(s) from the fire alarm detection system to the lift(s) control system.

It applies to new passenger lifts and goods passenger lifts. However, it may be used as a basis to improve the safety of existing passenger and goods passenger lifts.

This standard gives various options for control of the lift in the event of a fire in a building.

This standard does not apply to:

— lifts which remain in use in the event of fire e.g. firefighters' lifts as defined in EN 81-72:2003;

— the use of lifts for the evacuation of a building and

— a fire in the well.

# 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.



EN 54-1:1996, *Fire detection and fire alarm systems — Part 1: Introduction.*

EN 54-2:1997, *Fire detection and fire alarm systems — Part 2: Control and indicating equipment.*



EN 81-1:1998, *Safety rules for the construction and installation of lifts — Part 1: Electric lifts.*

EN 81-2:1998, *Safety rules for the construction and installation of lifts — Part 2: Hydraulic lifts*.

EN 81-72:2003, *Safety rules for the construction and installation of lifts – Particular applications for passenger and goods passenger lifts – Part 72: Firefighters lifts.*

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

ISO 3864-1:2002, *Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs in workplaces and public areas (Note: Corrected and reprinted in 2003-12).*

ISO 8421-3:1989, *Fire protection — Vocabulary — Part 3: Fire detection and alarm.*

# 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 12100-2:2003, EN 81-1:1998, EN 81-2:1998, EN 54-1:1996, EN 54-2:1997 and the following apply.

**3.1**
**building owner**
person legally responsible for the building

**3.2**
**building evacuation strategy**
arrangements that have been put in place for the evacuation of the building in the event of fire

**3.3**
**fire detection interface**
interface specially dedicated to the communication of fire information by the use of an electrical signal(s). The creation of the fire signal(s) can be done either:
— manually or
— semi-automatically or
— automatically

**3.4**
**lift control Interface**
(1) the boundary to the lift control system
(2) interface specially dedicated to receive electrical signal(s) from the fire detection interface

**3.5**
**protocol**
set of rules governing the format of messages that are exchanged between devices e.g. when applied to serial communication lines for data transmission

**3.6**
**fire alarm systems for the behaviour of a lift in the event of fire**

**3.6.1**
**automatic fire detection and alarm system**
fire alarm system (as defined in 3.6.3) comprising of components for automatically detecting a fire, initiating an alarm of fire and initiating other action as appropriate



[ISO 8421-3:1989, definition 3.1.3]

**3.6.2**
**fire alarm control and indicating equipment**

equipment through which fire detectors (as defined in 3.6.4) may be supplied with power and which:
— is used to accept a dedicated signal and actuate a fire alarm signal;
— is able to pass on the fire detection signal through fire alarm routing equipment to the fire-fighting organisation or to automatic extinguishers;
— is used to monitor automatically the correct functioning of the system

[ISO 8421-3:1989, definition 3.1.15]

**3.6.3**
**fire alarm system**
combination of components for giving an audible and/or visible and/or other perceptible alarm of fire. The system may also initiate other actions such as initiating the lift control system

[ISO 8421-3:1989, definition 3.1.21]

NOTE For the purposes of this standard 'Fire alarm system' is a generic term which includes ‘automatic fire detection and alarm system’ (as defined in 3.6.1) and ‘manual recall device’ (as defined in 3.11).

**3.6.4**
**fire detector**
part of an automatic fire detection system that contains at least one sensor which monitors a suitable physical or chemical phenomenon, in order to signal to the fire alarm control and indicating equipment (as defined in 3.6.2)

[ISO 8421-3:1989, definition 3.2.2]

**3.7**
**building management system**
measure(s) applied to co-ordinate all systems in the building

**3.8**
**designated landing**
floor determined by the building evacuation strategy that allows persons leaving the lift to safely exit the building or area of the building during a fire

**3.9**
**main designated landing**
floor determined as the principal exit floor when the system has the provision for another designated landing(s)

**3.10**
**alternative designated landing(s)**
floor(s) determined by the building evacuation strategy where the lift shall return when a fire has been automatically detected at the main designated landing

**3.11**
**manual recall device**
manually operated device e.g. break glass toggle switch, button or key switch, which, upon operation, activates an electrical signal, causing the lift under control to operate in the desired manner

## 4 List of significant hazards

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 lifts and which require action to eliminate or reduce the risk. These significant hazards are based upon EN 1050 (also shown are the references to the safety requirements and/or protective measures in this standard).



**Table 1 — Significant hazards dealt with in this standard**



| EN 1050 | Significant hazards and hazardous situations for lifts in the event of fire | Requirements and clauses in this standard |
|---|---|---|
| 1 | Mechanical hazards | 5.1.1, 5.1.2, 5.3.4, 5.3.5, 5.3.6, 5.3.7 |
| 1.5 | Trapping hazard | 5.1.3, 5.3 |
| 1.6 | Impact hazard | 5.3.1, 5.3.2 |
| 3 | Thermal hazard (Contamination by heat or smoke) | 5.1, 5.2, 5.3.1 a), b), c), 5.3.2, 5.3.3, 5.3.5, 5.3.7, 5.4 |
| 8.8 | Inadequate design or location of displaying units | 5.1.3, 5.3.8 |

## 5 Safety requirements and/or protective measures

### 5.1 General

Lifts shall be taken out of normal service in the event of fire, by making use of the following provisions (see also Figure A.1).