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Mazdoor Kisan Shakti Sangathan

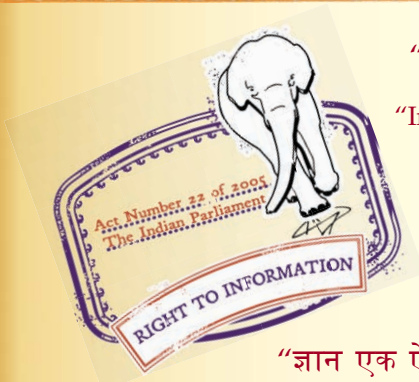
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 15330 (2003): Code of Practice for Installation and Maintenance of Lifts for Handicapped Persons - [ETD 25: Lift and Escalators]



“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
विकलांग व्यक्तियों के लिए लिफ्टों के संस्थापन
तथा रख-रखाव — रीति संहिता

Indian Standard

INSTALLATION AND MAINTENANCE OF LIFTS FOR
HANDICAPPED PERSONS — CODE OF PRACTICE

ICS 91.140.90

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Lifts and Escalators Sectional Committee had been approved by the Electrotechnical Division Council.

In order that persons with disabilities can access a building without difficulty, the lift(s) in such a building needs to have special characteristics. These requirements have been specified in this Code.

In the preparation of this Code, assistance has been derived from pr EN81-70 'Safety rules for the construction and installations of lifts: Part 70 Particular applications for passenger and goods passenger lifts — accessibility to lifts for persons including persons with disability' and AS1735.12 — 1999 'Lifts, escalators and moving walks: Part 12 Facilities for persons with disability'.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

INSTALLATION AND MAINTENANCE OF LIFTS FOR HANDICAPPED PERSONS — CODE OF PRACTICE

1 SCOPE

This standard specifies additional requirements for lifts in order that they are accessible for persons with disabilities.

2 REFERENCES

The following standards are necessary adjuncts to this standard:

IS No.	Title
14665	Electric traction lifts:
(Part 1) : 2000	Guidelines for outline dimensions of passenger, goods, service and hospital lifts
(Part 2) : 2000	Code of practice for installation, operation and maintenance Section 1 Passenger and goods lifts Section 2 Service lifts
(Part 3) : 2000	Safety rules Section 1 Passenger and goods lifts Section 2 Service lifts

3 TERMINOLOGY

3.0 For the purpose of this standard, the following definitions in addition to those given in IS 14665 (Part 2/Sec 1 and Sec 2) shall apply.

3.1 Accessibility

Accessibility in the context of this standard is the quality of a building or structure which enables people to access it and use its features equally and independently.

NOTE — Environmental factors that do not allow all persons to use the environment effectively will result in a handicap, a handicapped person is one that has difficulty in a handicapping environment.

3.2 Disability

Characteristic of a person that is a limitation or loss of use of a physical part of the body or intellectual or sensory impairment, medical conditions or mental illness that significantly limits his or her ability to carry out some activities of everyday life (independent living).

4 REQUIREMENTS

4.1 Entrances: Door Opening

4.1.1 Entrance clear opening shall be at least 800 mm. The doors shall be constructed as automatic horizontal sliding doors.

4.1.2 Obstacle-free accessibility on the landing floors is required on all eligible floors.

NOTE — Recommendations regarding landing free space in front of lift door are given in Annex A.

4.1.3 To allow users to enter and leave the lift unhindered, the door dwell time shall be adjustable.

NOTE — The present time for a certain lift may be reduced by using the door closing button in the car or by other means.

4.1.4 A non-contact sensor device shall be provided in the door opening to detect an entering or exiting passenger or an assistive device and prevent the risk of the passenger or assistive device from being hit by the leading door panel (s). The sensor device shall cover at least 2/3 of the door height measured from a distance of 25 mm above the door sill.

4.2 Car Dimensions, Equipment in the Car, Levelling Accuracy and Sill Gap

4.2.1 Car Dimensions

Inside dimensions of lift cars with single entrance or with two opposite entrances shall be chosen in accordance with Table 1.

**Table 1 Minimum Car Dimensions for Lift
Cars with a Single Entrance of
Two Opposite Entrances
(Clause 4.2.1)**

Sl No.	Type of Unit	Minimum Car Dimensions	Accessibility Level	Remarks
(1)	(2)	(3)	(4)	(5)
i)	1	1 100W × 300D	This lift car accommodates one wheel chair user and one other passenger	—
ii)	2	2 000W × 1 300D	This lift car accommodates one wheel chair user and several other passengers	This type allows full manoeuvrability of a wheel chair

NOTE — Shaft requirements for above lift cars are as specified in Annex B (see also Fig. 5).

4.2.2 Equipment in the Car

At least on one side wall of the car a handrail shall be installed. The gripping of this handrail shall have a minimum circumscribed diameter of 30 mm and a maximum of 45 mm. The free space between the wall and the gripping part shall be at least 45 mm. The height of the top edge of the gripping part shall be within 900 mm + 0/-25 mm from the finished car floor level. The handrail may be interrupted where the car operating panel is located in order to avoid obstructing buttons or controls.

If the end of a handrail directly faces a doorway it shall be returned to the wall (see Fig. 1).

4.2.3 Seats

The design of the lift car shall have provisions to retrofit a tip-up seat. Where provided the seat and its position must not impede the normal use of the lift, neither to the person using the seat nor to other users. The seat shall have following dimensions:

- a) Seat height from the floor : 500 mm + 10 mm
- b) Depth : 300-400 mm
- c) Width : 400-500 mm

4.2.4 In case of a car size of Type 1 as given in Table 1 where a passenger in a wheelchair is unable to turn around, a device to observe obstacles when moving backwards out of the car shall be installed, for example a mirror installed in an appropriate position. Where glass is used as mirror it shall be of a laminated safety glass.

NOTE — The lowest part of the mirror should be a minimum of 300 mm from the floor.

4.2.5 Levelling Accuracy

Under normal operation the levelling accuracy of the lift car shall be ± 12 mm.

4.3 Control Devices, Signals and Additional Fittings

4.3.1 Landing Controls

On every landing where buttons are used for the

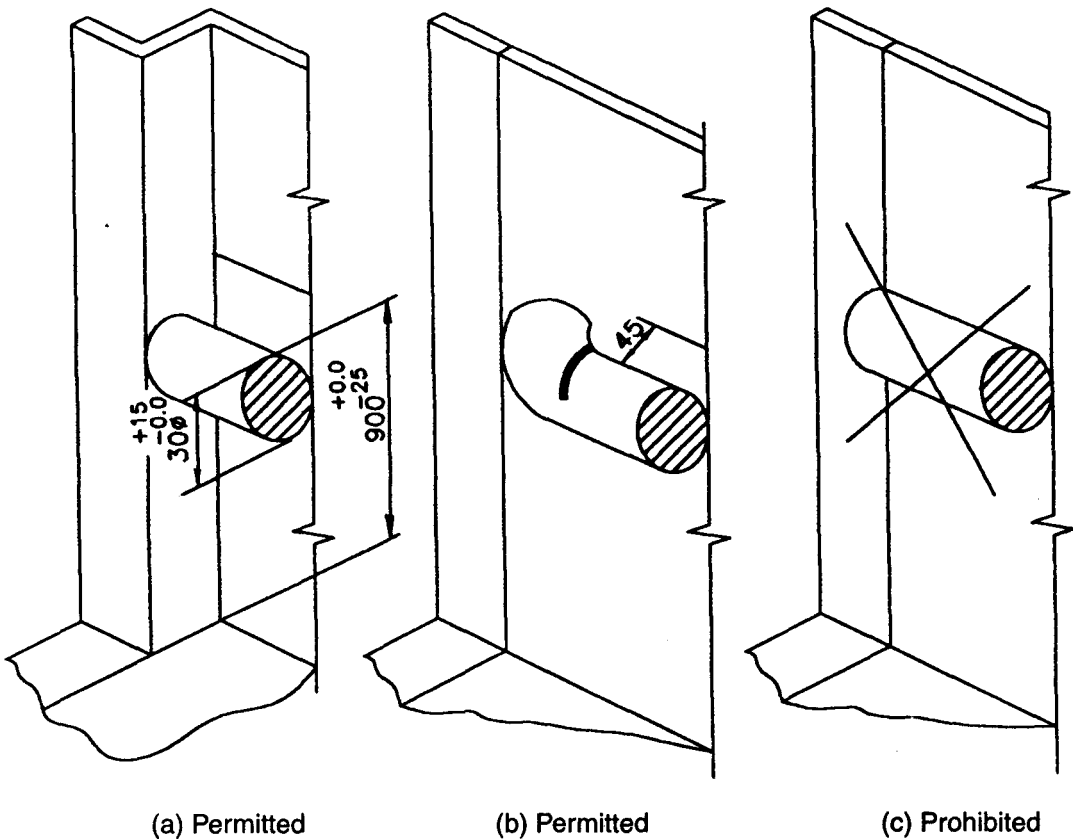


FIG. 1 POSITIONS OF HANDRAILS AT DOORWAYS

operation of the lift they shall meet the following requirements:

- a) Operating force for the button shall be minimum 2.5N and maximum 5N.
- b) Minimum area of the active part shall be 490 mm square and buttons shall be 20 mm minimum in the smallest dimension.

NOTE — In the case of two buttons, the vertical distance between the active parts shall be more than 10 mm and the buttons shall be arranged one above the other.

- c) User shall be able to know that the button has been operated, either because it possesses perceivable movement or it is provided with a system of mechanical feedback. The call registration shall be confirmed by a visible signal.
- d) Height from floor level to the centre line of any button shall be between 900 mm and 1 100 mm.
- e) Active part of the button shall be identifiable visually and by touch from the face plate or its surroundings.
- f) Colour of any face plate of a landing push button shall be contrasted to its surrounds.
- g) Passenger lifts accessible to wheelchair users, the minimum distance to the centre line of any of the buttons from any wall or door at right angles, shall be 500 mm.
- h) Size of any symbols shall be minimum of 15 mm and maximum 40 mm, in relief with a thickness of 1 mm + 0.5 mm/–0 mm and contrasted to their background. Symbols shall preferably be on the active part of the button or on the left of the active part of the button at a distance between 10 mm and 15 mm. This shall be measured from the edge of the relief.

4.3.2 Car Controls

Operating panel(s) shall have:

- a) one button for each floor (marked – 2, –1, 0, 1, 2, etc) or a key pad;
- b) one alarm button (yellow with bell shaped symbol);
- c) one door 'reopen' button (marked <1>); and
- d) one stopping device (if required by the safety standards in force) (red with the word 'STOP').

4.3.3 Where buttons are located within the car they shall meet the following requirements:

- a) Requirements of 4.3.1 (a), (b), (c), (e), (f) and (h) shall apply;

- b) Distance between the active parts of two floor buttons shall be not less than 10 mm;
- c) Centre line of alarm and door open buttons shall be located from the floor at 900 ± 10 mm. This applies even to the door closing button;
- d) Lowest floor button shall be located above the alarm and door buttons. The vertical distance between floor buttons and alarm or door buttons shall be not less than twice the distance defined at (b) above;
- e) Highest floor button shall be located at not more than 1 200 mm above the floor. When possible the highest button should be not more than 1 100 mm from the floor; and
- f) Order of the floor buttons, for a horizontal single row shall be from left to right. The order of floor buttons for a vertical single row shall be from the bottom to the top and for multiple rows from left to right from the bottom to the top.

NOTE — When possible the highest button should be not more than 1 100 mm from the floor.

4.3.4 The car control panel shall be on the side wall and located as follows:

- a) With centre opening doors, it shall be on the right hand side when entering the car; and
- b) With side opening doors, it shall be on the closing side.

4.3.5 The minimum distance to the centre line of any of the buttons from any wall or door at right angles shall be 400 mm.

4.3.6 Landing Signals

Where, prior to entering the car, the control system may establish the next direction of travel (collective control) the following shall be provided:

- a) Two illuminated indicator arrows giving advance information on the next departure direction of the car (only one at the terminal landings) placed above or near the doors in a visible position, to indicate the direction in which the car will subsequently move.
Landing indicator arrows shall be located between 1.80 m and 2.50 m above the floor. The height of arrows shall be 40 mm to 70 mm.
- b) An audible signal shall accompany the lighting of the arrows. The audible signal in local language(s) shall have a sound level of between 35 d BA and 55 d BA adjustable to suit the site conditions.

4.3.7 Car Signals

4.3.7.1 A car position signal shall be located with or above the car operating panel. The centre line of the indicator shall be positioned between 1.60 m and 1.80 m from the car floor.

The height of the floor number shall be between 25 mm and 60 mm and have a contrasted colour to its surround.

Additional indicators, if provided, may be placed in any location.

4.3.7.2 When the car stops, a voice shall indicate, in the local language(s) the car position. The sound level of the information shall be adjustable between 35 dBA and 55 dBA adjusted to suit the site conditions.

4.3.7.3 Battery operated/back up emergency light, alarm and intercom shall be provided.

4.3.8 Temporary Activation of Features

The features, extended door dwell time (*see 4.1.3*) and voice announcement [*see 4.3.6 (b) and 4.3.7.2*] may be activated for a single trip by a suitable device. If a button is used for this purpose it has to meet the requirements of **4.3.1** and shall be marked with the international symbol of access.

4.3.9 Automatic Rescue Device (ARD)

In the event of a power failure during normal operation, a battery operated ARD shall automatically move the stalled lift to the nearest floor, open the doors, thereby facilitating rescue of the stranded passengers in the lift.

4.3.10 Overload Prevention Device

The lift car shall not start when the car is overloaded. The lift operation shall resume only upon removal of the overload.

ANNEX A

(Clause 4.1.2)

WHEELCHAIR TURNING SPACE IN FRONT OF LIFT DOOR

A-1 In order for the lift to be fully accessible to all users, it is vital that a clear turning space is provided in the lobby outside the lift doors. The space should be

1 500 mm × 1 500 mm or 1 500 mm diameter. Where it is possible to provide more space this should be done.

Space needed is illustrated in Fig. 2, 3 and 4.

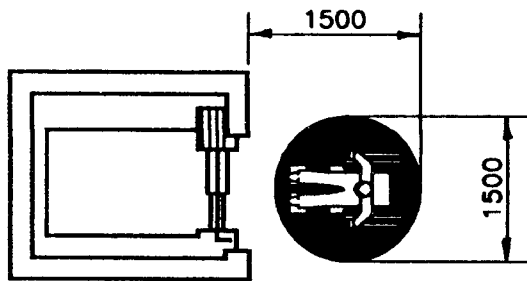


FIG. 2 SPACE FOR TURNING IN FRONT OF DOOR

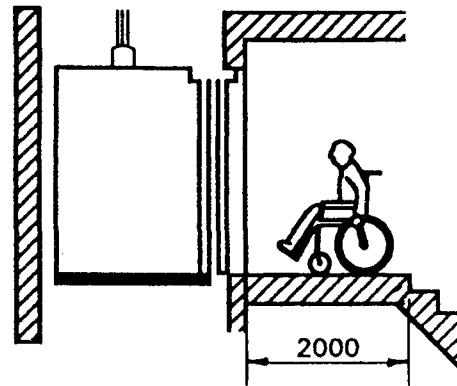


FIG. 3 SPACE BETWEEN FRONT OF LIFT DOOR AND STAIRCASE OPPOSITE THE DOOR

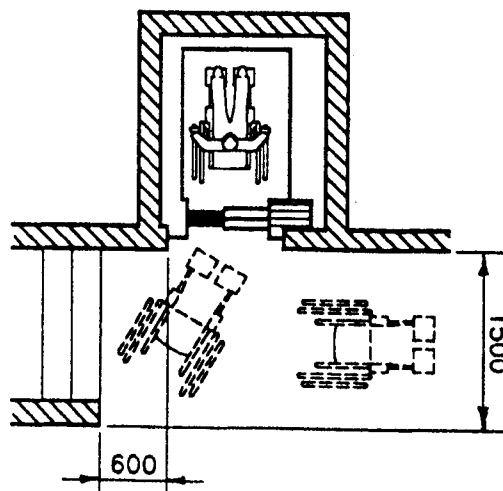


FIG. 4 SPACE BETWEEN FRONT OF LIFT DOOR AND STAIRCASE LOCATED BESIDE THE DOOR

ANNEX B

(Table 1 under clause 4.2.1)

SHAFT REQUIREMENTS FOR LIFT CARS

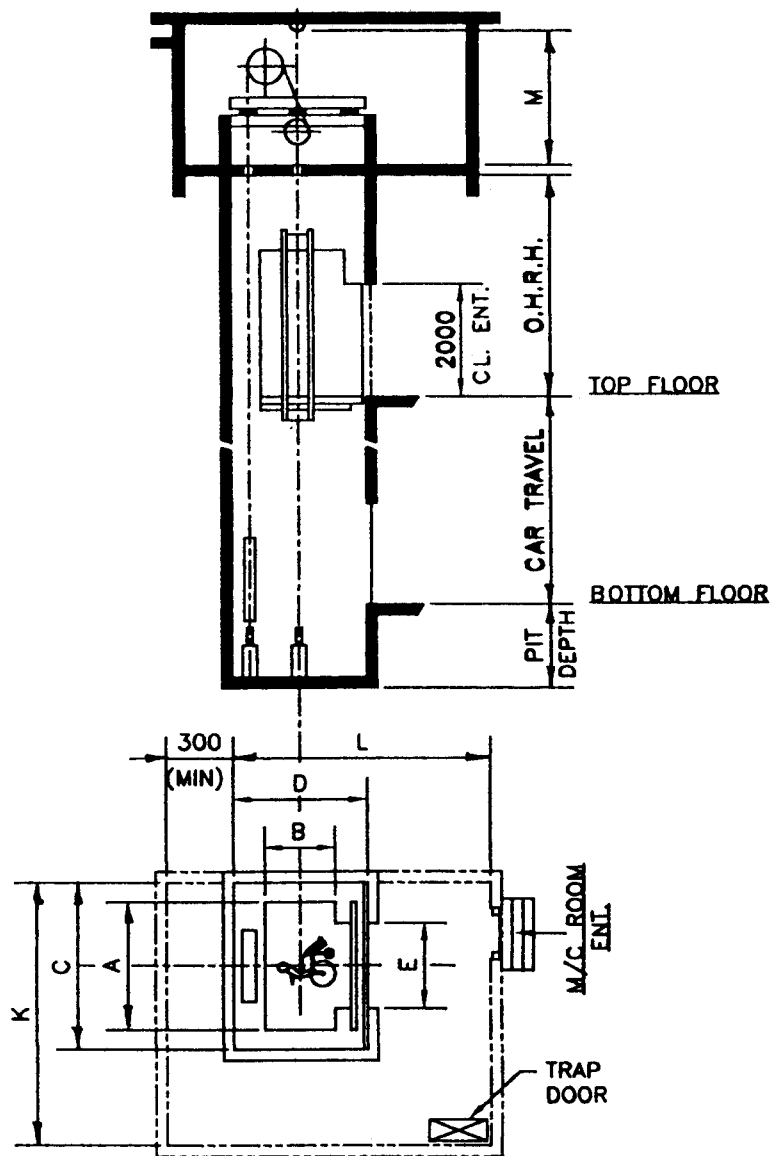


FIG. 5 SHAFT REQUIREMENTS FOR LIFT CARS

Space Requirements:

Load		Door	Car Inside		Lift Shaft		Entrance	Machine Room		
Persons	kg		A	B	C	D		K	L	M
8	544	COAD	1 100	1 300	1 900	2 000	800	3 400	4 500	2 500
		TLAD					900			
16	1 088	COAD	2 000	1 300	2 500	2 100	1 000	4 000	4 600	2 500

- Pit depth = 1 600 mm for 1m/s and 1.5m/s speed.
- OHRH = 4 800 mm for 1m/s and 1.5m/s speed.
- All civil dimensions as per IS 14665 (Part 1).
- Lift shaft dimensions are minimum plumb sizes.

For tolerances, *see* 6.3 of IS 14665 (Part 2).

- All dimensions are in mm, unless otherwise specified.

Key:

OHRH = Overhead room height,

COAD = Centre opening automatic door, and

TLAD = Telescopic automatic door.

NOTE — Car inside dimensions given above are recommended. Any variations mutually agreed between the manufacturer and the purchaser are permitted within the maximum area limits specified in IS 14665 (Part 3/Sec 1).

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

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