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मानक

IS 15259 (2002): Installation and Maintenance of Home Lifts - Code of Practice [ETD 25: Lift and Escalators]



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भारतीय मानक

होम लिफ्टों का संस्थापन और रख रखाव-रीति संहिता

Indian Standard

INSTALLATION AND MAINTENANCE OF HOME LIFTS—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.

Recently, a number of home lifts have been installed in this country similar to those which have become very popular in Japan and other developed countries. Need has, therefore, been felt to prepare this standard to regulate the installation and maintenance, and for safe working of home lifts and the associated machinery and apparatus.

In the preparation of this standard, assistance has been derived from the following:

- a) 'Design Instructions for Private Housing Elevators' issued by the Japan Building Centre in 1987; and
- b) ANSI Document, Part V 'Private Residence Elevators'.

AMENDMENT NO. 1 SEPTEMBER 2012 TO IS 15259 : 2002 INSTALLATION AND MAINTENANCE OF HOME LIFTS — CODE OF PRACTICE

(*Page* 1, *clause* 1.1) — Substitute the following for the existing clause:

'1.1 This standard deals with lifts specifically designed for a private home up to 4 stops (maximum rise of 12m), where the usage of the lift is restricted to primarily to residents of the private home. Unlike conventional lifts which allow virtually unlimited access to members of the general public, in case of home lifts, non-residents shall have limited access in exceptional circumstances and only under the supervision of the residents of the private home.'

(*Page* 1, *clause* 2) — Insert the following at the end of list:

IS No.	Title	
<u>'14671 : 1999</u>	Code of practice for installation and maintenance of	
	hydraulic lifts	
15785 : 2007	Installation and maintenance of lift without conventional	
	machine rooms — Code of practice'	

[Page 1, clauses 3.1 (a) and (b)] — Substitute the following for the existing:

- 'a) Usage of the lift restricted primarily to the residents of a private home;
- b) Special facilities to meet the needs of elderly and differently abled persons, including wheelchair users;'

(*Page 1, clause* **4.3**) — Substitute the following for the existing clause:

'4.3 The residents of the private home shall ensure that the access to the home lift is protected from unauthorized use.'

(*Page 1, clause 5*) — Substitute the following for the existing clause:

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'5 DESIGN OF HOME LIFTS

A Home lift as stipulated in **3.1** shall have a load capacity of not less than 204 kg (3 passengers) and not more than 272 kg (4 passengers) and car speed not exceeding 0.2mps and components as described below is recommended.'

(*Page 1, clause* **5.1**) — Substitute the following for the existing clause:

'5.1 Lifting mechanism could be,

- a) a simple drum type machine using a single-phase electric motor installed directly in the hoistway or in a suitable protected place;
- b) a traction machine placed in the hoistway or in a suitable protected place (elevator shall be as per the provisions of IS 15785); and
- c) a hydraulic jack driven by a pump transmitting hydraulic fluid (elevator shall be as per the provisions of IS 14671).

(*Page 2, clause* **5.3**) — Substitute the following for the existing clause:

'5.3 Controller

Microprocessor controller with ac variable voltage variable frequency inverter shall be provided.'

(*Page 2, clause* **5.7.3**) — Substitute the following for the existing clause:

'5.7.3 The overhead dimension shall not be less than 2 900 mm provided that the top clearance from the highest point of the car shall not be less than 225mm when the car is at the top terminal landing.'

(Page 2, clause 5.7.3) — Insert 5.7.4 after 5.7.3:

'5.7.4 The pit depth shall be such that when the car (or counterweight when applicable) is resting on a fully compressed buffer, the free distance between the pit floor (or any equipment installed in the pit) and the lowest point of the car shall not be less than 50mm.

If a minimum clear space of 500mm is not available under the platform when at its lowest position, a manually positioned mechanical blocking device shall be provided to enable the platform to be held in a raised position and to create a free distance of at least 500mm between the floor of the pit and the lowest parts of the lift car. If a counterweight is provided such device shall also be made available for the counterweight.'

(*Page 2, clause* **5.9.1**) — Substitute the following for the existing clause:

'5.9.1 Precaution Against Free Fall

To prevent the lift car (and counterweight when accessible spaces exist below the pit) from free fall, emergency stop equipment shall be provided which can automatically come into action. The equipment shall also control the falling of the lift when the rope loosens (slack rope safety) when applicable.'

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Reprography Unit, BIS, New Delhi, India

Indian Standard

INSTALLATION AND MAINTENANCE OF HOME LIFTS—CODE OF PRACTICE

1 SCOPE

1.1 This standard deals with lifts specifically designed for private homes up to maximum 4 stops (maximum rise of 10 m), where usage of the lift is restricted primarily to residents of the private homes. Unlike conventional lifts in high rise buildings which allow virtually unlimited access to members of the general public, in the case of home lifts, visitors will have limited access in exceptional circumstances, only under the supervision of the residents of the private homes.

1.2 This standard is intended to assist potential users and regulatory authorities who are already familiar with electric lifts complying with existing Indian standards (IS 14665 series).

2 REFERENCES

IC M.

The following Indian Standards are necessary adjuncts to this standard:

Title

IS NO.	1 1110
2365:1977	Specification for steel wire suspension ropes for lifts, elevators and hoists (<i>first revision</i>)
14665 (Part 2/ Sec1 and Sec2): 2000	Electric traction lifts: Part 2 Code of practice installation, operation and maintenance, Section 1 Passenger and goods lifts Section 2 service lifts
14665 (Part 4/ Sec 1 to Sec 9): 2001	Electric traction lifts: Part 4 Components, Section 1 Lift buffers Section 2 Lift, guide rails and guide shoes Section 3 Lift carframe, car, counterweight and suspension, Section 4 Lift safety gears and governors Section 5 Lift retiring cam Section 6 Lift doors and locking devices and contacts Section 7 Lift machines and brakes Section 8 Lift wire ropes Section 9 Controller and operating devices for lifts

3 TERMINOLOGY

3.0 For the purpose of this standard the following

definition in addition to those given in 3 of Section 1 of IS 14665(Part 2/Sec 1 and Sec 2) shall apply.

3.1 Home Lift

A lift specifically designed for private homes, where the design takes into consideration the following:

Compact design in view of the limitations of space in a private residence;

- a) Usage of the lift restricted primarily to the residents of the private homes;
- b) Special facilities to meet the needs of elderly and handicapped persons, including wheelchair users;
- c) Quiet, smooth, jerk-free movement of the lift; and
- d) Controls to have ease of operation.

4 CONSTRUCTION, INSTALLATION, PROTEC-TION, OPERATION AND MAINTENANCE OF HOME LIFTS

4.1 Every home lift and part thereof shall be of sound material of sufficient rating and construction and sufficient mechanical strength for the purpose for which it is intended and shall be installed, protected, operated and maintained in such a manner so as to prevent danger.

4.2 All materials used in home lifts shall conform to the latest Indian Standards, wherever applicable.

4.3 The residents of the private homes shall ensure that the access to the home lift is protected from unauthorized use.

5 RECOMMENDED DESIGN OF HOME LIFT

To meet the specific needs of home lifts stipulated in **3.1** above, a compact design of home lift, with a load capacity of 204 kg (3 passengers), car speed of 0.2 m/s (12 m/min) and components as described below is recommended.

5.1 Lift Machines

The simplest lift machine could be a drum type machine using a single-phase electric motor. To optimize space, the machine may be installed directly in the hoistway or in a suitable protected place.

5.2 Lift Car

The car enclosure shall be constructed in such a way

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that there is no possibility of anything outside coming in direct contact with people or things inside the car. For optimum utilization of space, the car may have curved car side wall panels.

The car need not have a carframe. The load can be borne by the car enclosure and car platform.

For lift cars and carframes, wherever provided, the requirements specified in **5.1** to **5.10** of Section 3 of IS 14665 (Part 4/Sec 1 to 9) shall apply.

5.3 Controller

Multiprocessor controller with ac variable voltage variable frequency (VVVF) inverter suitable for collective operation. The requirements specified in Section 9 of IS 14665 (Part 4/Sec 1 to 9) shall also apply.

5.4 Car Doors, Landing Doors and Locking Devices

The requirements specified in Section 6 of IS 14665 (Part 4/Sec 1 to 9) shall apply.

5.5 Guide Rails, Guide Shoes and Buffers

The requirements specified in Sections 1 and 2 of IS 14665 (Part 4/ Sec 1 to 9) shall apply.

5.6 Suspension

Wherever provided, the suspension ropes shall comply with the requirements specified in IS 2365 and Section 8 of IS 14665(Part 4/Sec 1 to 9).

5.7 Dimensional Tolerances

The following dimensions are recommended and are subject to any variations mutually agreed to between the manufacturer and the purchaser.

5.7.1 To make the lift wheelchair user-friendly, the recommended car inside width in the centre is 1 000 mm, the car inside depth is 1 150 mm and the car height is 2 000 mm (The minimum car width is 900 mm.).

5.7.2 The space-reduced design of the hoistway has a recommended width of 1 500 mm and a depth of 1 450 mm. The clear opening at each landing is 800 mm wide and 1 900 mm high.

5.7.3 The overhead dimension shall not be less than 2 400 mm and the pit depth not less than 550 mm, provided that the top clearance from the highest point of the car shall not be less than 225 mm when the car is at the topmost floor.

5.8 Terminal Stopping and Final Limit Switches

Every home lift shall be provided with upper and lower normal terminal limit switches arranged to stop the car automatically within the limits of top car clearance and bottom run-by (overtravel) from any speed attained in normal operation. Such limit switches shall act independent of the operation devices, the ultimate or final limit switches and the buffers.

Home lifts shall in all cases be provided with an ultimate or final switch arranged to stop the car automatically within the top clearance independent of the normal operating service.

5.9 Operating and Safety Devices and the second

5.9.1 Precaution Against Free Fall

To prevent the lift car from free fall, an emergency stop equipment shall be provided which can automatically come into action. This equipment will also control the falling of the lift when the rope loosens (slack rope safety).

5.9.2 Precaution Against Descent with Excessive Speed

If for any reason the car starts moving very fast, no matter in which direction, there must be equipment to ensure that power to the motor is cut off when the speed of the car crosses 1.0 m/s.

5.9.3 Overload Prevention Device

As with the provision of overload prevention devices in conventional lifts, the lift car shall not start when the lift car is overloaded. The lift operation shall resume only upon removal of the overload.

5.9:4 Levelling Accuracy and Re-levelling Facility

The lift car shall stop at each landing with car sill level with the landing sill. The difference in level shall not exceed $\pm 5 \text{ mm } Max$.

The re-levelling facility automatically adjusts the lift car position to be level with the landing when the lift car moves up and down slightly with people boarding and leaving the lift car.

5.9.5 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.

5.9.6 Intercom

For intercommunication with passengers in the lift car, a suitable intercom facility shall be provided.

5.9.7 Option for Wheelchair Users

An option shall be available to the purchasers of ordering the hall buttons and car operating panel lower than normal so as to make the lift wheelchair userfriendly.

Bureau of Indian Standards

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