Singapore Standards Council

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SINGAPORE STANDARD

Code of practice for installation, operation and maintenance of electric passenger and goods lifts

[Formerly CP 2]

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Code of practice for installation, operation and maintenance of electric passenger and goods lifts

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Contents

Page

Figures

Foreword

This Singapore Standard was prepared by the Technical Committee on Lifts, Escalators and Passenger Conveyors under the purview of the Electrical and Electronic Standards Committee. It is a revision of the code of practice, CP 2 which was first prepared in 1971. CP 2 has been re-numbered as SS 550. This Singapore Standard was revised to keep up with the latest changes in technology, local practices and developments in lift standardisation internationally.

The main changes made in this revision are as follows:

a) For clause 3 on lift well, new subclauses have been added for partially and totally enclosed well. In addition, new requirements have been added for access to lift well and installation of wired and wireless devices in lift well.

b) For clause 4 on machine and pulley spaces, a new subclause 4.4 is added for machinery inside the lift well to include the special requirements for machine room-less lifts.

c) For clause 5 on landing doors, information on mechanical strength and materials including the use of glass panels are added.

d) For clause 6 on car rated loading capacity, Table 1 is revised to provide better understanding and allow flexibility in practice.

e) For clause 8 on suspension, compensation and overspeed protection, information on special requirement of counterweight safety gear and ascending car overspeed protection is included.

f) For clause 9 on guiderails, buffers and final limit switches, a new subclause is added for general provisions concerning guide rails and the minimum buffer stroke in Table 3 is revised for clearer understanding and alignment with international / regional standards.

g) For clause 12 on electrical installations and appliances, changes have been made to require communication devices to be installed in every lift and to the capacity of EBOPS.

h) For clause 13 on emergency operations for lifts, requirements for automatic rescue devices (ARD) are included.

i) For Annex D, periodic maintenance and examination, the contents are expanded and a new subclause for lift maintenance scope of work, examinations and tests after a major modification is included

j) A new annex on energy efficiency of lifts (Annex G) is included.

Annexes A, B, C, D, E, G & H are informative and Annex F is referred to under 6.4 rated loading capacity.

In preparing this revision, reference was made to the following publications:

1. EN 81 Safety rules for the construction and installation of lifts
   Part 1 : 1998 Electric lifts
2. ISO/TR 11071 Comparison of worldwide lift safety standards
   Part 1: 1990 Electric lifts (elevators)
3. HK Guidelines on Energy Efficiency of Lifts and Escalators Installations, 2000.
   (Annex G, energy efficiency of lifts)

The following materials were reproduced from EN 81-1 : 1998 - "Safety rules for the construction and installation of lifts, Part 1 : 1998 Electric lifts" with permission from CEN, Rue de Stassart 36, B-1050 Brussels for incorporation into this Singapore Standard:

1. Definitions for buffer, guide rails, unlocking zone, lift machine, overspeed governor and safety gears;

2. Figures for partially enclosed well and distances;

3. Clauses on protection of any spaces located below the car, counterweight or balancing weight, emergency unlocking of landing doors, car lighting, ascending car overspeed protection means and general provisions concerning guide rails.

Tables 1, 2 and 3 and Subclause 8.2.4 were extracted from ASME A17.1 – 1996 “Safety code for elevators and escalators” by permission of The American Society of Mechanical Engineers (All rights reserved).

Diagrams in Annex E are provided by courtesy of Toshiba Elevator.

As amended Dec 13 Subclause 8.4 on unintended car movement protection was reproduced/adapted from 9.11 of EN 81-1:1998+A3:2009 with permission from CEN.

Acknowledgement is made to the above organisations for the use of their materials.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

Code of practice for installation, operation and maintenance of electric passenger and goods lifts

1 General

1.1 Scope

This Code shall apply to the design, construction, installation, testing, inspection, operation and maintenance of permanently installed new electric lifts, with traction or hydraulic drive, serving defined landing levels, having a car designed for the transportation of persons or persons and goods, suspended by ropes and moving between guide rails inclined not more than 15^{o} to the vertical.

It does not apply to :

a) Lifts used solely for erecting, demolishing, altering or repairing buildings;

b) Orchestral and stage lifts;

c) Stacking machines and similar portable appliances;

d) Conveyors used for the handling of materials and goods, such as swing tray lifts, bucket conveyors and similar appliances;

e) Skip-hoists;

f) Wharf ramps;

g) Amusement devices;

h) Mine lifts;

i) Inclined lifts;

j) Paternosters;

k) Dumbwaiters (see 2.38);

l) Vehicle lifts and stair lifts. *As amended Dec 13*

However, this standard may be taken as a basis.

1.2 Purpose

The purpose of this Code is to establish uniformity in lift engineering practice in the Republic of Singapore. The Code is framed in such a manner as to safeguard persons and objects against the risk of accidents associated with the usage, maintenance and emergency operation of lifts.

1.3 Normative references

BS 476 : - Fire tests on building materials and structures

Part 4 : 1970 – Non-combustibility test for materials

Part 7 : 1997 – Method of test to determine the classification of the surface spread of flame of products

BS 952 : -	Glass for glazing Part 1 : 1995 – Classification
EN 12015 : 2004	Electromagnetic compatibility – Product family standard for lifts, escalators and passenger conveyors – Emission
EN 12016 : 2004	Electromagnetic compatibility – Product family standard for lifts, escalators and passenger conveyors – Immunity
EN 50214 : 2006	Flat polyvinyl chloride sheathed flexible cables
IEC 60085 : 2007	Electrical insulation -Thermal evaluation and designation
IEC60227	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V
	Part 6 : 2001 – Lift cables and cables for flexible connections
IEC 60331 : -	Tests for electric cables under fire conditions – Circuit integrity
	Part 11 : 1999 – Apparatus – Fire alone at a flame temperature of at least 750^{o}C
	Part 21 : 1999 – Procedures and requirements – Cables of rated voltage up to and including 0.6/1.0 kV
IEC/TR2 60332 : -	Tests on electric cables under fire conditions
	Part 3 : 1992 – Test on bunched wires or cables
SS CP 5 : 1998	Code of practice for electrical installations
SS 209 : 1996	Battery-operated emergency power supply for lighting and ventilation of passenger lifts
SS 341 : 2001	Safety glazing materials for use in buildings (human impact consideration) glass
SS 535 : 2007	Code of practice for the installation, operation, maintenance, performance and constructional requirements of mains failure standby generating systems

Guidelines on energy efficiency of lifts and escalators installations, 2000 Hong Kong