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April 30, 2007

All Registered Lift/Escalator Contractors / Engineers

Dear Sirs,

**Circular No. 7/2007**  
**Code of Practice on the Design and Construction**  
**of Lifts and Escalators (2000 Edition)**  
**Amendment No. 12**

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Pursuant to section 27G of the Lifts and Escalators (Safety) Ordinance, Cap. 327, the Code of Practice on the Design and Construction of Lifts and Escalators (2000 Edition) (the Design Code) has been amended by incorporating requirements for suspension compensating means and minor changes.

The changes have been provided for in Amendment No. 12 of the Design Code, a copy of which is attached herewith for your reference. Please note that the changes covered in Amendment No. 12, which do not modify the prevailing requirements in any material respect, shall form part of the Design Code with immediate effect.

Yours faithfully,



(CHUI Mow-wah, Gregory)  
for Director of Electrical and Mechanical Services

Encl.

c.c. AD/BS, D of Housing (Attn.: TS/2),  
D of Buildings (Attn.: CBS/Legislation), D of Fire Services (Attn.: Fire Safety Command),  
The Hong Kong General Union of Lift and Escalator Employees  
G28/28 SF1 Pt. IV

**Code of Practice  
on the Design and Construction of  
Lifts and Escalators  
(2000 Edition)**

**Amendment No. 12 of the 2000 Edition  
Requirements for Suspension Compensating Means and Minor Changes**

(Form Part of the Design Code with Immediate Effective)

<u>Item</u>	<u>Clause</u>	<u>Description</u>
1	Section E Part 1 Clause 1.5.1.3	Replace "Clause" in "the value of $0.035V^2$ in Clause 1.5.1.1 and 1.5.1.2 for ..." with 'Clauses'.
2	Section E Part 1 Clause 4.17.4	Replace Clause 4.17.4 by the following:  "4.17.4 Every counterweight shall, from a height of 300 mm above the floor of the lift pit to a height of not less than 2.1 m above such floor, be screened so that worker in the pit would not accidentally come into contact with a moving counterweight. It is permissible to raise the bottom of the counterweight screen to clear the compensating chain / rope / means or other equipment. The bottom of the counterweight screen shall be as low as possible and shall be at least 300 mm below the lowest parts of the counterweight resting on a fully compressed counterweight buffer. "
3	Section E Part 1 Clause 5.4.1	Replace Clause 5.4.1 by the following:  "5.4.1 The safety factor of the suspension ropes shall be calculated according to Annex N of EN 81-1. The safety factor of the suspension ropes shall be at least:  (a) 12 in the case of traction drive with three ropes or more;  (b) 16 in the case of traction drive with two ropes;  (c) 12 in the case of drum drive.  The safety factor is the ratio between the minimum breaking load (N) of one rope and the maximum force (N) in this rope, when the car is stationary at the lowest level, with its rated load. "

- 4 Section E Part 1 Clause 5.5.2 Insert 'of the dead parts of reeved ropes' after "... counterweight or suspension points" in Clause 5.5.2.
- 5 Section E Part 1 Clause 5.5.3 Replace "by" in Clause 5.5.3 with 'or'.
- 6 Section E Part 1 Clause 5.5.4 Insert 'of the dead parts of reeved ropes' after "... counterweight or suspension points" in Clause 5.5.4.
- 7 Section E Part 1 Clause 5.8.3 Insert 'themselves' after "... in such a way that these devices cannot work" in Clause 5.8.3.
- 8 Section E Part 1 Clause 5.9 Replace Clause 5.9 by the following:
- 5.9 Compensation**
- 5.9.1 Compensating chains (bare metallic chains) may be used if the rated speed of the lift does not exceed 2.5 m/s.
- 5.9.2 Whenever compensating ropes are used, the following shall apply:
- (a) tensioning pulleys shall be used;
  - (b) protection for tensioning pulleys shall be provided according to Clause 5.10;
  - (c) the ratio between the pitch diameter of the tensioning pulleys and the nominal diameter of the compensating ropes shall be at least 30;
  - (d) the tension shall be provided by gravity; and
  - (e) the minimum tension shall be checked by an electrical safety device in conformity with Clause 10.2.
- 5.9.3 For lifts whose rated speed does not exceed 3.5 m/s, compensating means (in the form of suspended lines made up of metallic chain embedded in a sheath made of plastic or similar material, cables or belts) other than chains or ropes may be used, and the following shall apply:
- (a) devices shall be provided to retain the compensating means to their travelling paths;
  - (b) the compensating means shall be connected to the bottom of the lift car and the counterweight such that the pitch distance of the compensating means shall be not less than the minimum pitch diameter of the return

loop formed by the same compensating means (with the ends of the compensating means being suspended to form a "U" and with the plumb lines joining the return loop tangentially); and

(c) the tension shall be provided by gravity.

5.9.4 For lifts whose rated speed exceeds 3.5 m/s there shall be, in addition to the requirements of Clause 5.9.2, an anti-rebound device (see Clause 1.5.1.4).

The operation of the anti-rebound device shall initiate the stopping of the lift machine by means of an electrical safety device in conformity with Clause 10.2. "

9 Section E Replace Clause 5.10 by the following:

Part 1

Clause 5.10

**"5.10 Protection for Traction Sheaves, Pulleys and Sprockets**

5.10.1 For traction sheaves, pulleys and sprockets, provisions shall be made according to Table 2 of EN 81-1 to avoid:

- (a) bodily injury;
- (b) the ropes/chains leaving the pulleys/sprockets, if slack; and
- (c) the introduction of objects between ropes/chains and pulleys/sprockets.

5.10.2 The devices used shall be constructed so that the rotating parts are visible, and inspection or maintenance operation will not be hindered. If they are perforated the gaps shall comply with Table 4 of EN 294. The dismantling shall be necessary only in the following cases:

- (a) replacement of a rope/chain;
- (b) replacement of a pulley/sprocket;
- (c) re-cutting of the grooves. "

10 Section E Replace Clause reference "5.9.1" and the corresponding Function description of "Check on the tension in the compensation ropes" to '5.9.2' and 'Check on the tension in the compensating ropes' respectively.

Part 1  
Table 4

Amend the original Clause reference "5.9.2" corresponds to the Function description of "Check on the anti-rebound device" to '5.9.4'.