

(57) in LE/02/04 Pt.II

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3 October 2001

To all Registered Lift and Escalator Contractors

Dear Sirs,

Circular No. 13/2001

Performance Monitoring Points System (PMPS)

for Registered Lift/Escalator Contractors & Engineers

After consulting the Housing Department, the Architectural Services Department, The Lift and Escalator Contractors Association, The Registered Elevator & Escalator Contractors Association Ltd. and The International Association of Elevator Engineers, we have revised the PMPS.

Attached please find the revised PMPS, which would be effective on 1 November 2001.

Yours faithfully,

(LAW Yu-wing)

for Director of Electrical & Mechanical Services

Encl.

c.c. Director of Housing,  
Director of Architectural Services,  
The Lift and Escalator Contractors Association,  
The Registered Elevator & Escalator Contractors Association Ltd.,  
The International Association of Elevator Engineers

Performance Monitoring Points System (PMPS)  
for  
Registered Lift/Escalator Contractors & Engineers

Effective Date: 1 November 2001  
Electrical & Mechanical Services Department

## Registered Lift/Escalator Contractors & Engineers Performance Monitoring Points System

### 1. Introduction

Under the Lifts and Escalators (Safety) Ordinance, Cap. 327, (the Ordinance), registered lift/escalator contractors/engineers (hereinafter called RC and RE for registered contractor and registered engineer respectively) are required to perform their specific duties as stipulated in sections 11A (for REs) and 11J (for RCs) of the Ordinance. In order to monitor the performance of REs and RCs, the Director of Electrical and Mechanical Services (hereinafter called the Director) implemented the Performance Monitoring Points System on 1 July 1992. For enhancing this system, some additional/revised non-compliant items have been included in this updated version.

### 2. Performance Monitoring Points System (PMPS)

- (a) The PMPS is a tool to measure the performance pitfalls of RCs and REs. Their performance pitfalls are quantified based on their non-compliance with the requirements stipulated in the following Ordinance, Code of Practice and British Standards:
- i. Lifts and Escalators (Safety) Ordinance,
  - ii. Code of Practice on Building Works for Lifts and Escalators,
  - iii. Code of Practice on the Design and Construction of Lifts and Escalators (Design Code),
  - iv. Code of Practice on the Examination, Testing and Maintenance of Lifts and Escalators,
  - v. Code of Practice for the Electricity (Wiring) Regulations,
  - vi. BS2655, BS5655 and BS5656, wherever applicable to lifts or escalators.
- (b) The established non-compliant items, depending on their nature, are classified into 5 categories, namely A, B, C, D & E. Each item under the same category has the same Performance Monitoring (PM) points.
- (c) During a lift/escalator inspection conducted by the Director's representative in the presence of the RC/RE, PM points will be recorded according to each identified non-compliant item. The lift/escalator inspections may be conducted under the following occasions:
- (i) Upon receiving a test certificate issued by a RC and a RE for a new lift or a new escalator.

- (ii) Upon receiving a test certificate issued by a RC and a RE for a lift or an escalator after major alterations.
- (iii) Upon receiving a test certificate issued by a RC and/or a RE for an existing lift or escalator.
- (iv) Upon receiving complaints from the public.
- (v) Random inspections of existing lifts or escalators.

PM points recorded will be kept in the account of each RC or RE or both of them depending on the nature of the identified non-compliant items. Normally, the PM points will always be recorded in the RC's account as the RE is caused by the RC to carry out lift/escalator works.

- (d) The RC or the RE will be notified in writing in case any non-compliant items are identified and the related PM points are recorded in his account. He may appeal to the Director within two weeks of the notification date. The Director's decision shall be final.
- (e) PM points incurred for the non-compliant items identified will be kept in the RC's or RE's account for 12 successive calendar months, commencing from the month of the non-compliant items identified, for calculation of the moving average in g(iii) below, despite any action having been taken by the Director in (f).
- (f) As the total PM Points of each RC/RE's account accumulates up to the critical points, the Director may:
  - (i) issue a warning letter to the RC or RE and also notify other relevant enforcing authorities; or
  - (ii) bring the matter to the notice of a Disciplinary Board appointed under section 8 or section 11E of the Ordinance.
- (g) For the purpose of paragraph (f), three types of critical points are established:
  - (i) 15 PM points for a non-compliant item found under Category A in a single unit inspection;
  - (ii) 15 PM points for a number of non-compliant items found not under Category A in a single unit inspection.
  - (iii) 6 PM points for the moving average of the accumulated PM points of the non-compliant items found over a period within which the number of units inspected is not less than 10. PM points recorded under Category A will not be used to calculate such moving average of PM points.

- (h) A sample calculation illustrating the arrangements mentioned in (e) and (g) is shown in the appendix.
- (i) This PMPS shall not derogate of any action or penalty which has to be taken or imposed in relation to any disciplinary matter or any offence stipulated in the Ordinance.

### 3. List of Common Non-compliance - Lifts

#### Category A (15 points)

- LA1 The car door electrical interlock device is not provided or ineffective such that the lift is still operational with a car door not fully closed.
- LA2 The landing door interlock device is not provided or ineffective such that the landing door is insecure or can be opened without using the unlocking key when the car is not in the unlocking zone, or when the lift can be operated with a landing door not fully closed or locked.
- LA3 The safety gear including the ascending car overspeed protection means or the overspeed governor is not provided or ineffective such that the car (and/or counterweight where applicable) cannot be stopped and maintained stationary when the car reaches the designated tripping speed of the overspeed governor. Regarding the ascending car overspeed protection means, this applies to the lifts installed with the tender date on or after 1 January 2001.
- LA4 The machine brake is ineffective such that a downward travelling car up to 125% of the rated load (150% of the rated load for industrial truck loaded freight lifts and vehicle lifts; 110% of the rated load for passenger lifts designed & constructed prior to BS 5655:Pt. 1) cannot be stopped and maintained stationary in case the power supplies to the motor and the brake are interrupted.
- LA5 The buffer is ineffective due to either improper installation or, in the case of oil buffer, insufficient buffer oil.

#### **Hydraulic Lifts**

- LA6 The pipe rupture valve or other safety device is not provided or ineffective such that the car cannot be stopped and maintained stationary in case of pipe rupture.

LA7 The restrictor or other safety device is not provided or ineffective such that the car with rated load can move downward at a speed exceeding the rated speed by more than 0.3 m/s in the case of major leak.

Category B (6 points)

LB1 Incorrect setting of the car overload device or the car overload device is not of a fail-safe design such that the lift can close its doors and operate when the load in the car exceeds 10% or more of the rated load (for lifts installed on or after 3 May 1969).

LB2 Upper/lower final limit switches of the electric lift, or upper final limit switches of the hydraulic lift are not provided or ineffective.

LB3 Terminations of hoist ropes or compensation ropes or governor ropes improperly installed such that the ropes pull free or the rope ends are not firmly anchored to the termination.

LB4 The buffer switch is not provided or ineffective for the energy dissipation type buffer (for lifts installed on or after 31 May 1984).

LB5 The governor slack rope switch is not provided or ineffective (for lifts installed on or after 31 May 1984).

LB6 The compensation rope tension switch is not provided or ineffective.

LB7 The emergency stop switch at the machine room (for lifts installed on or after 18 March 1994), the pit or the car top is not provided or ineffective.

LB8 Incorrect speed setting of the overspeed governor.

LB9 The stopping distance in a safety gear test not complying with the sliding distance limitation stated in BS5655: Part 10 or BS2655: Part 1 (for lifts installed before 18 March 1994).

LB10 Phase failure/reversal protection is not provided or ineffective.

LB11 Insufficient traction such that the requirements stated in BS5655: Part 10 are not satisfied (for lifts installed on or after 31 May 1984).

LB12 The car door mechanical lock is not provided or ineffective (for lifts installed on or after 31 May 1984).

- LB13 The car door lock of at least 7 mm engagement is not provided (for lifts installed on or after 10 October 2000)
- LB14 The car/counterweight obstruction safety device is ineffective (for lifts installed on or after 31 May 1984).
- LB15 The interlocking device for the car top/side emergency exit is not provided or ineffective such that the lift can be operated when the exit is not closed and locked.
- LB16 The fireman's lift fails to perform the required fireman's lift operating mode.
- LB17 The home landing operation is not provided or ineffective such that the lift car cannot be brought back to home landing in case of fire emergency (for lifts installed on or after 18 March 1994).
- LB18 The electrical interlock device for the fire/security gate installed in front of the lift entrance is not provided or ineffective. (Points will be recorded if the RC or RE has not advised the owner of this defect in writing for rectification.)
- LB19 The landing door bridging control station is not provided or ineffective (for lifts installed on or after 18 March 1994).
- LB20 The tape switch is ineffective (for the lift with reduced stroke buffer and using tape to transmit car position).
- LB21 Electrical checking on operation of the car safety gear is not provided or ineffective (for lifts installed on or after 31 May 1984).
- LB22 The protective screen is not provided at the pit for the counterweight or between liftways for common shaft installation.
- LB23 Exposed/ extraneous conductive parts of the lift system are not electrically earthed or earthing ineffective in accordance with the Code of Practice for the Electricity (Wiring) Regulations.  
(Points will be recorded under the following conditions:  
The parts concerned are provided by the RC; or  
The parts concerned are not provided by the RC and the RC or RE has not advised the owner of this defect in writing for rectification.)

## Hydraulic Lifts

LB24 The anti-creep system is not provided as required or ineffective.

LB25 The pressure relief valve is not provided or ineffective.

### Category C (4 points)

LC1 Self-closing function of the landing door is ineffective (for lifts installed on or after 31 May 1984). This excludes the cases where debris, sand particles, etc. found in door sills.

LC2 Emergency alarm devices such as car push button with buzzer or intercom system are not provided or ineffective. For lifts installed on or after 20 September 1997, CCTV system, indication light, reset function and indication light for acknowledgement in lift car for the disabled are also included.

LC3 The car emergency lighting is not provided or ineffective (for lifts installed on or after 3 May 1969).

LC4 More than 10% of the total number of landing/car doors inspected have excessive clearance between door panels, or between door panels and uprights, lintels or sills (*This item is only applicable to cases specified in paragraphs 2(c)(i), (ii) & (iii) of this document*).

LC5 Corrosion or damage of car cages, car doors, landing doors or hoist ropes which affects the safety of passengers.

LC6 The normal/inspection switch of the car top control station is ineffective.

LC7 Display of the floor indication panel does not tally with the actual position of the lift car. (No points will be recorded if this non-compliance is due to the owner's arrangement without notifying the RC.)

LC8 The compensating rope/chain is broken.

### Category D (3 points)

LD1 The landing door emergency release function is ineffective.

LD2 All door sensitive protective devices are ineffective such that car/landing doors continue to close even when the device has been triggered. (It does not include the case when the sensitive protective device is made



inoperative for the forced closing system.)

- LD3 Door closing force of automatic power operated horizontally sliding doors is excessive.
- LD4 Filler weights of the counterweight are insecure.
- LD5 The car apron is not installed or properly fixed.
- LD6 The landing door apron under the threshold is not installed or properly fixed.
- LD7 The protective screen is not properly installed at the pit for the counterweight or between liftways for common shaft installation.
- LD8 Guides/Guide brackets are not properly fixed/spaced.
- LD9 The car 'door open' button is ineffective.
- LD10 Protective guards for accessible moving parts including rotating parts are not provided or they fail to offer the protection as required.

Category E (2 points)

- LE1 Failure of the RC (agent of the owner) to cause a RE to test/examine the lift in accordance with sections 21 & 23 of Cap. 327, or failure of the RC to submit Form 11 in accordance with section 26 of Cap. 327.
- LE2 The car ventilation fan is inoperative.
- LE3 Ventilation slots blocked up (not applicable for lifts installed before 31 May 1984).
- LE4 Car lighting is not properly installed or inoperative such that all lamps fail to turn on.
- LE5 The brake releasing device or the handpump or the manual lowering device is malfunction or the emergency operation instruction is not provided.
- LE6 Excessive oil leakage from machinery resulting in insufficient lubrication or oily floor.

LE7 Correct notice or operating instruction for freight lift or industrial truck loaded freight lift or vehicle lift is not provided.

LE8 Failure to update log-book in accordance with the Code of Practice on the Examination, Testing & Maintenance of Lifts and Escalators, Section C, Clause 7.

#### 4. List of Common Non-compliance - Escalators

##### Category A (15 points)

EA1 The escalator machine brake or the auxiliary brake or the broken drive chain safety device is ineffective such that the escalator steps cannot be stopped and maintained stationary.

##### Category B (6 points)

EB1 The phase failure/reversal protection device is not provided or ineffective.

EB2 The escalator brake is not properly adjusted such that the sliding distance does not comply with the limitations.

EB3 The emergency stop switch is not provided or ineffective.

EB4 The broken step chain safety device is not provided or ineffective.

EB5 The step sagging safety device is not provided or ineffective (for escalators installed on or after 31 October 1987).

EB6 The non-reversal device is not provided or ineffective.

EB7 The broken handrail safety device is not provided or ineffective (for public service escalators installed on or after 31 October 1987).

EB8 The handrail entry safety device is not provided or ineffective (for escalators installed on or after 31 October 1987).

EB9 The comb plate safety device is not provided or ineffective (for escalators installed on or after 31 October 1987).

EB10 The speed governor or speed control is not provided or not complying with the requirements in the Design Code, Section E, Part 4, Clause 8.5.1.

- EB11 The skirt panel switch is not provided, missing or ineffective such that the escalator does not stop even if foreign object is jammed between the skirt panel and the pallet (for escalators installed on or after 18 March 1994).
- EB12 The electrical interlocking device of the escalator in connection with the adjacent shutter gate is not provided or ineffective. (Points will be recorded if the RC or RE has not advised the owner of this defect in writing for rectification.)
- EB13 Exposed/ extraneous conductive parts of the escalator system are not electrically earthed or earthing is ineffective in accordance with the Code of Practice for the Electricity (Wiring) Regulations.  
(Points will be recorded under the following conditions:  
The parts concerned are provided by the RC; or  
The parts concerned are not provided by the RC and the RC or RE has not advised the owner of this defect in writing for rectification.)

Category C (4 points)

- EC1 The clearance between the skirt panel and the step of an escalator exceeds 4mm.
- EC2 The clearance  $h_6$  (see figure 1, detail X of Section E, Part 4 of the Design Code) between the comb and the step exceeds 4 mm, or the horizontal clearance between the teeth of the comb and the web of the step exceeds 4 mm or the clearance between steps exceeds 6 mm.
- EC3 The enclosure of escalator (cladding) is not properly installed such that machinery, moving parts or electrical parts are exposed and accessible by unauthorized persons.
- EC4 The safety device for the inspection door or the trap door next to the adjacent escalator treadway is not provided or ineffective such that the adjacent escalator can still operate when this inspection door or trap door is open.

Category D (3 points)

- ED1 Failure of the RC or RE to advise the owner of the missing guards or the guards are installed incorrectly at intersection between escalator and floor, between escalator and adjacent obstructions, or between criss-cross escalators.

- ED2 Protective Guards for accessible moving parts including rotating parts are not provided or they fail to offer the protection as required.
- ED3 Deviation of the speed of the handrail from the speed of the steps is not within the limits of 0 to +2%.
- ED4 The skirt deflector is not provided or the installation is ineffective (for escalators installed on or after 18 March 1994).

Category E (2 points)

- EE1 Failure of the RC (agent of owner) to cause a RE to test/examine the escalator in accordance with Sections 23 and 24 of Cap. 327, or failure of the RC to submit Form 12 in accordance with Section 26 of Cap. 327.
- EE2 The brake release or manual release instruction is not provided.
- EE3 The notice or pictograph is not provided.
- EE4 Failure to update log-book in accordance with the Code of Practice on the Examination, Testing and Maintenance of Lifts and Escalators, Section C, Clause 7.

## Appendix - Sample calculation of moving averages in 2(e) and 2(g)

For a particular RC/RE, assessment started on Jan 2001

A. Month	2001												2002	
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
B. No. of units inspected in the month	3	5	0	3	4	1	2	0	4	0	6	2	3	7
C. Total no. of units inspected for 12 successive calendar months	3	8	8	11	15	16	18	18	22	22	28	30	30	37
D. Total no. of PM Points (Category A only) scored in the month	0	0	0	0	0	0	0	<u>15</u> <sup>(3)</sup>	0	0	0	0	0	0
E. Total no. of PM points (excluding Category A) scored in the months	6	9	0	30	21	<u>15</u> <sup>(2)</sup>	24	0	30	0	12	4	3	1
F. Total no. of PM points (excluding category A) scored for 12 successive calendar months	6	15	15	45	66	81	105	105	135	135	147	151	148	149
G. Moving average PM points (excluding category A) scored for 12 successive calendar months (G= F/C)	<u>(N/A N/A N/A)</u> <sup>(1)</sup>			4.1	4.4	5.1	5.8	5.8	<u>6.1</u> <sup>(4)</sup>	<u>6.1</u> <sup>(5)</sup>	5.3	5.0	<u>4.9</u> <sup>(6)</sup>	4.0

### Notes:

- (1) As no. of units inspected in the first 3 months is only 8, moving average is not calculated.
- (2) In June 2001, a single unit inspected has scored 15 PM points (not from category A). Action is taken against the RC/RE.
- (3) In Aug 2001, another single unit inspected has scored 15 PM points from category A. Action is taken against the RC/RE, but such PM points are not used to calculate moving average.
- (4) In Sept 2001, the moving average PM points (excluding category A) has reached 6.1 PM points and no. of units inspected is accumulated to 22. Action is taken against the RC/RE.
- (5) As no inspection has been made in Oct 2001, no action is taken though the moving average PM points is maintained at 6.1 PM points, as at Sept 2001.
- (6) When we step into Jan 2002 the data in Jan 2001 is excluded, since we are interested in 12 successive calendar months in calculating moving average.