

# MONITORING OF SAFE OPERATION OF LIFTS AND ESCALATORS

## Executive Summary

1. The Lifts and Escalators Ordinance (Cap. 618 — the L&E Ordinance), effective from 17 December 2012, regulates the installation, maintenance and operation of lifts or escalators (L/Es). The Electrical and Mechanical Services Department (EMSD), under the policy directives of the Development Bureau (DEVB), is responsible for administration and enforcement of the L&E Ordinance. As of December 2015, Hong Kong had 72,486 L/Es (comprising 63,561 lifts and 8,925 escalators) which were regulated under the L&E Ordinance.

2. The L&E Ordinance stipulates that every L/E should have a Responsible Person (RP) who is the owner or a person responsible for its management. The RP of an L/E should appoint a Registered Contractor (RC) for installation and maintenance of the L/E, and a Registered Engineer (RE) for conducting examination and certification of the safe working condition of the L/E. An L/E needs to be maintained by an RC at least once a month, and a use permit needs to be renewed annually for a lift and bi-annually for an escalator. An RC needs to employ Registered Workers (RWs) to perform L/E work (RCs, REs and RWs are hereinafter referred to as registered persons). As of December 2015, 40 RCs, 332 REs and 5,311 RWs were providing L/E examination and maintenance services. In 2015, there were 439 reportable lift incidents involving 457 injuries and 1,590 reportable escalator incidents involving 1,780 injuries. The Audit Commission (Audit) has recently conducted a review to examine the EMSD's work in monitoring the safe operation of L/Es.

### Monitoring work of registered persons

3. *Delays in considering disciplinary actions against RCs.* The L&E Ordinance (effective from 17 December 2012) and an EMSD circular issued in March 2013 have respectively stipulated that if an RC has been convicted of an offence under the Ordinance, or has received three or more warning letters within a 12-month period, the EMSD may refer the RC to the DEVB for establishing a disciplinary board to consider taking disciplinary actions. However, the EMSD only set up a Disciplinary Action Review Panel (DAR Panel) in April 2015 to

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review the seriousness of misconducts of related RCs and to decide whether a disciplinary hearing should proceed. In addition, Audit examination revealed that, up to 31 December 2015, the DAR Panel had not conducted reviews of the need for disciplinary hearings for two RCs who had been convicted of offences under the L/E Ordinance in December 2013 and July 2015 respectively, and for another RC who had received four warning letters from June to September 2015 (paras. 2.10 to 2.17).

4. ***Performance monitoring points not accorded on significant non-compliance issues.*** The EMSD has set up the Performance Assessment Scheme (PA Scheme) to facilitate assessment of the performance of RCs and help RPs to choose appropriate RCs. Under the PA Scheme, performance monitoring (PM) points would be accorded to an RC for defined types of non-compliance issues. However, Audit examination revealed that, notwithstanding that warning letters had been issued to two RCs for non-compliance with significant EMSD requirements, no PM point was accorded to them because the non-compliance issues were not covered under the PA Scheme. Audit examination also revealed that in one case, the EMSD only accorded 88 PM points to an RC 26 months after noting that the RC had not complied with an EMSD requirement on updating L/E log books with details of maintenance works carried out (paras. 2.8 and 2.18 to 2.22).

5. ***Need to strengthen actions on EMSD surveillance audits.*** The EMSD conducted surveillance audits on RCs to examine their manpower resources, facilities available, work scheduling systems and readiness for handling emergency situations. The EMSD had set a target of conducting surveillance audits on all RCs within a two-year period from November 2013 to October 2015. However, Audit examination revealed that surveillance audits on only 20 or 49% of the total number of RCs had been completed during the two-year period (paras. 2.7 and 2.23 to 2.27).

6. ***Omissions and delays in submitting RC change-over examination reports.*** According to EMSD Code of Practice, the incoming RC of an L/E needs to submit a change-over examination report to the EMSD within one month after taking over the maintenance work. Audit sample checks of 70 change-over examination reports revealed that three incoming RCs had not submitted to the EMSD change-over examination reports as of December 2015. The time lapses from the change-over dates to 31 December 2015 ranged from 548 to 729 days. For the remaining 67 change-over examination reports submitted to the EMSD, Audit noted that 15 (22%) were submitted 32 to 110 days after the RCs taking over the maintenance work, at variance with the one-month requirement (paras. 2.28 to 2.30).

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7. *Need to strengthen actions on conducting EMSD surprise inspections.* From January to September 2015, the EMSD was notified by REs of their schedules for 63,112 L/E examinations. However, 3,639 (6%) of the 63,112 examinations were carried out on dates other than the original scheduled dates. Moreover, from January to December 2015, EMSD staff conducted 3,200 surprise inspections and they were unsuccessful in finding REs on site in 81 inspections (3%). Changes of RE examination dates without prior notifying the EMSD would undermine the efficiency and effectiveness of EMSD surprise inspections to check the physical attendance of REs in conducting examinations (paras. 2.38 to 2.43).

8. *Inadequate monitoring of excessive number of L/Es examined by REs on a single day.* From January 2014 to September 2015, according to EMSD records, 62 REs had conducted lift examination and certification work covering 7 to 13 lifts on a single day on a total of 146 occasions. The EMSD had issued letters to 4 of the 62 REs requesting them to provide explanations and the EMSD subsequently accepted the explanations provided. However, the EMSD had not issued guidelines on the maximum number of L/Es to be examined and certified by an RE on a single day (paras. 2.45 to 2.48).

### Site inspections and other regulatory actions

9. *Need to strengthen actions on non-compliance with advisory letters.* From January 2014 to September 2015, the EMSD had issued 26 improvement orders and 1,103 advisory letters requesting the RPs concerned to take remedial actions within a given timeframe. However, Audit sample examination of 50 advisory letters revealed that, as of December 2015, the RPs of 23 (46%) L/Es concerned had not informed the EMSD of whether the rectification works as specified in the advisory letters had been carried out, with time lapses ranging from 2 to 21 months. Moreover, the EMSD had not issued guidelines specifying the criteria for issuing improvement orders and advisory letters (paras. 3.7 to 3.11).

10. *Delays and omissions in issuing prohibition orders.* Under the L&E Ordinance, an L/E is required to be subject to maintenance by an RC at least once a month, and the EMSD may issue a prohibition order to suspend the operation of an L/E for non-compliance with this requirement. Audit examination revealed that, from January 2014 to September 2015, 137 L/Es involving changes of RCs where the incoming RCs assumed maintenance service more than one month after termination of service contracts of the outgoing RCs. Of these 137 L/Es, the EMSD had only promptly issued prohibition orders or had received written L/E

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suspension notifications within one month from service termination of the outgoing RCs on 80 L/Es (59%). However, the EMSD had issued prohibition orders on 36 L/Es (26%) 34 to 298 days after termination of the original maintenance contracts, and had not issued prohibition orders on 21 L/Es (15%) as of December 2015 (paras. 3.22 to 3.26).

11. ***Delays in serving prohibition orders.*** From January 2014 to June 2015, the EMSD had issued 678 prohibition orders on L/Es. However, Audit sample check of 50 prohibition orders issued during the period revealed that 41 orders had been served 1 to 63 days after the effective dates of the orders, and there were no EMSD records on the serving dates of 4 orders and on the effective dates of 5 orders (paras. 3.27 to 3.30).

12. ***Need to consider expanding the scope of reportable L/E incidents.*** The L&E Ordinance specifies six types of lift incidents and three types of escalator incidents as reportable incidents. For non-reportable L/E incidents that had come to EMSD notice either through public reports or media reports, their number and details were not readily available because these records were not centrally maintained in the Lift and Escalator Ordinance System (LEO System). In 2015, the EMSD conducted investigations on 23 non-reportable incidents, of which 9 incidents involved fire occurrence, 6 involved damage to escalator steps caused by an external object, 2 were caused by overheat or short-circuit of lift motors, and 6 were caused by various reasons, including a passenger deliberately forcing the opening of a lift door, and failure of a cable connector of a lift. Some significant non-reportable incidents may pose safety risk to passengers and may warrant classifying them as reportable incidents (paras. 3.34 to 3.37).

13. ***Delays in submitting incident reports.*** Under the L&E Ordinance, after occurrence of a reportable incident, the RC concerned needs to submit an incident report to the EMSD within seven days after the date on which he is notified of the incident. Audit examination of all the 561 incident reports submitted to the EMSD from April to June 2015 revealed that 41 reports (7%) were submitted to the EMSD 8 to 36 days after the related RCs having been notified of the incidents, at variance with the seven-day reporting requirement. However, the EMSD did not take any follow-up action on these cases (paras. 3.38 to 3.40).

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14. *Delays in retrofitting new safety devices for government lifts.* Notwithstanding that the EMSD had set a target to complete retrofitting 520 government lifts with one or more of the seven new safety enhancement devices by 2015-16, as of December 2015, works on 106 lifts (20%) were in progress and works on 153 lifts (30%) had not commenced (paras. 3.45 to 3.47).

### Management Information System

15. *Lack of periodic management reports on long-outstanding cases.* The LEO System was first developed in 1989 to support the EMSD in monitoring the safe operation of L/Es and enforcing compliance with the requirements of the L&E Ordinance. It was however not equipped to generate periodic management reports on long-outstanding cases on issuance of prohibition orders, warning letters and advisory letters, and on submission of incident reports which may require directives from the EMSD's senior management (paras. 4.2 to 4.4).

16. *Incomplete data in LEO System.* Audit examination revealed that 76% of the model numbers and/or manufacturer names of L/Es had not been input into the LEO System, at variance with an EMSD requirement. Furthermore, the numbers of EMSD inspections of lifts and escalators conducted in 2014 as published on the Controlling Officer's Report were respectively 7% and 17% greater than those reflected in the LEO System (paras. 4.5 and 4.6).

### Audit recommendations

17. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has recommended that the Government should:**

#### *Monitoring work of registered persons*

- (a) **take measures to ensure that all convicted RCs and RCs having been issued with three or more warning letters within a 12-month period are reviewed by the DAR Panel in a timely manner to decide whether the related RCs should be referred to the DEVB for disciplinary hearing (para. 2.34(a));**
- (b) **periodically review the PA Scheme with a view to including all significant RC non-compliance issues in the Scheme (para. 2.34(b));**

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- (c) **strengthen actions with a view to meeting EMSD target on conducting surveillance audits on all RCs within a two-year period (para. 2.34(c));**
- (d) **monitor changes of RE examination dates and consider issuing advisory letters to REs who repeatedly change their examination dates without promptly notifying the EMSD (para. 2.49(a));**
- (e) **issue guidelines on the maximum number of L/Es to be examined and certified by an RE on a single day (para. 2.49(c));**

### *Site inspections and other regulatory actions*

- (f) **take follow-up action to ascertain the reasons for not keeping records on the serving dates of four prohibition orders and on the effective dates of five prohibition orders (para. 3.31(b));**
- (g) **keep in view whether some significant non-reportable incidents posing safety risk to passengers warrant classifying them as reportable incidents (para. 3.41(a));**
- (h) **take appropriate actions against RCs for not complying with the seven-day incident reporting requirement (para. 3.41(d));**
- (i) **expedite actions on completing major retrofitting works for government lifts (para. 3.48(a)); and**

### *Management Information System*

- (j) **make enhancements to the LEO System with a view to periodically generating management reports on safe operation of L/Es to EMSD senior management and take measures to ensure that essential information is input into the LEO System (para. 4.7(a) and (b)).**

## Response from the Government

18. The Government agrees with the audit recommendations.