

# **CHAPTER 6**

**Electrical and Mechanical Services Department**

**Monitoring of safe operation  
of lifts and escalators**

**Audit Commission  
Hong Kong  
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# MONITORING OF SAFE OPERATION OF LIFTS AND ESCALATORS

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# 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.

## **PART 1: INTRODUCTION**

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

### **Background**

1.2 The Lifts and Escalators Ordinance (Cap. 618 — L&E Ordinance — Note 1) came into force and repealed the former Lifts and Escalators (Safety) Ordinance (Cap. 327) on 17 December 2012. The L&E Ordinance regulates the installation, maintenance and operation of lifts or escalators (L/Es), including those owned by the Government and the Housing Authority, with the exception of installations listed in Appendix A.

1.3 The Electrical and Mechanical Services Department (EMSD) 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.

1.4 The L&E Ordinance specifies the duties and responsibilities of the following persons:

- (a) ***Responsible Person (RP)***. Every L/E should have an RP who is the owner or a person responsible for its management (such as an owners' corporation) or having the control of it (such as a property management agency). The RP of an L/E is mainly responsible for ensuring that the L/E in operation is kept in a proper state of repair and in safe working order. The RP must ensure that the L/E is not used or operated if there is no use permit in force;

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**Note 1:** *Two Regulations were enacted under the L&E Ordinance, namely the Lifts and Escalators (General) Regulation (Cap. 618A) and the Lifts and Escalators (Fees) Regulation (Cap. 618B).*

## Introduction

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- (b) **Registered Contractor (RC).** The RP of an L/E should appoint an RC for installation and maintenance of the L/E. An RC is a company having recruited registered engineers, registered workers and general workers. An RP shall cause an RC to carry out periodic maintenance of an L/E at least once a month;
- (c) **Registered Engineer (RE).** The RP of an L/E should also appoint an RE for conducting examination and certification of the safe working condition of it before putting it into use and operation, of a lift on an annual basis and of an escalator on a bi-annual basis, and after completion of major alteration work as specified in the L&E Ordinance; and
- (d) **Registered Worker (RW).** An RW, an employee of an RC, is responsible for performing L/E work under the supervision of an RC.

1.5 Under the L&E Ordinance, the EMSD has issued a code of practice (CoP) which provides practical guidance to registered persons (comprising RCs, REs and RWs) and RPs in respect of the installation, maintenance, use and operation of L/Es. Every registered person needs to meet the registration requirements under the L&E Ordinance, register with the EMSD and renew his registration every five years. As of December 2015, 40 RCs, 332 REs and 5,311 RWs were providing L/E maintenance and examination services.

1.6 **Use permit.** For an L/E newly installed by an RC and certified to be in a safe working condition by an RE, the RP concerned needs to apply to the EMSD for a new use permit before the L/E is put into use and operation, and to apply to the EMSD for the renewal of a use permit for a lift annually and for an escalator bi-annually. Every L/E should be maintained by an RC at least once a month with details of maintenance recorded in a log book. In applying for renewal of a use permit for an L/E, the RP shall cause an RE to conduct examination and certify that the L/E is in a safe working condition.

1.7 ***Prohibition order.*** Under the L&E Ordinance, the EMSD may issue a prohibition order to prohibit an L/E from being used or operated if it has reasonable grounds to believe that the L/E is, among others:

- (a) having no use permit in force;
- (b) not complying with the monthly-maintenance requirement; or
- (c) not in safe working order.

1.8 ***Improvement order.*** Under the L&E Ordinance, the EMSD may issue an improvement order to the RP of an L/E if the L/E is in a state that will cause or be likely to cause a risk of injury to any person or damage to any property, demanding the RP to take necessary actions within a given timeframe.

1.9 ***Warning letter and advisory letter.*** The EMSD may issue a warning letter to an RC if a safety-related non-compliance issue is found during an EMSD site inspection, or 12 performance monitoring (PM) points (see para. 2.8) or more are accorded to the RC. The EMSD may also issue an advisory letter to the RP of an L/E if an unsatisfactory but not safety critical issue is found during an EMSD site inspection, requesting the RP to take remedial actions within a given timeframe.

1.10 ***Reportable incident.*** The L&E Ordinance specifies six types of lift incidents and three types of escalator incidents (known as reportable incidents — see Appendix B), and the RP of an L/E needs to report to the EMSD within 24 hours after a reportable incident relating to the L/E has come to his knowledge. In 2015, there were 439 reportable lift incidents involving 457 injuries and 1,590 reportable escalator incidents involving 1,780 injuries (Note 2).

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**Note 2:** *According to the EMSD, the majority of these incidents were caused by passenger behaviours and external factors, such as a hand being trapped due to it being placed too close to the gap between the lift door and the door frame of a lift, and wedging of foreign objects at escalator comb plates. Of these incidents, 11 lift incidents involving 10 injuries and 8 escalator incidents involving 12 injuries were caused by equipment failure in 2015.*

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### *Responsible government bureau and department*

1.11 Under the policy directives of the Development Bureau (DEVB), the EMSD is responsible for implementing policies and strategies on the safe operation of L/Es, and taking actions to enforce compliance with requirements of the L&E Ordinance by registered persons and RPs. The EMSD's roles in these areas include:

- (a) registration of RCs, REs and RWs;
- (b) approval of new brands and models of L/E equipment;
- (c) preparation of CoP to provide guidance on matters relating to the safety of L/Es for reference of trade practitioners;
- (d) conduct of site inspections of examination work carried out by REs;
- (e) investigation of L/E complaints and incidents, and taking enforcement actions on cases involving non-compliance with the L&E Ordinance; and
- (f) carrying out publicity work, such as conducting seminars and exhibitions, and informing registered persons and RPs of their duties and obligations under the L&E Ordinance.

1.12 In 2015, the EMSD processed 82,559 applications for new and renewal of L/E use permits, conducted 11,798 site inspections, carried out investigations of 269 reportable incidents (13% of the total 2,029 reportable incidents in the year), and handled 1,289 related public enquiries and complaints.

1.13 The General Legislation Division (Note 3) of the Gas and General Legislation Branch of the EMSD is responsible for enforcing compliance with the requirements of the L&E Ordinance by registered persons and RPs. For 2015-16,

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**Note 3:** *The Division is also responsible for performing other duties, such as administration and enforcing compliance with the requirements of various ordinances related to builders' lifts and tower working platforms, aerial ropeways and amusement rides.*



the budgeted expenditure of the General Legislation Division is \$36 million. As of December 2015, the General Legislation Division had 40 staff (Note 4), comprising senior engineers, engineers and inspectors. Appendix C shows an extract of the organisation chart of the EMSD.

### *Management information system*

1.14 The EMSD has maintained a computerised management information system for L/Es, known as the Lift and Escalator Ordinance System (LEO System). The System maintains information of L/Es in operation and performance records of registered persons and RPs. The EMSD has also maintained an e-platform system which is an on-line facility into which RCs and REs are required to input their RE examination schedules for facilitating the EMSD's surprise site inspections. In addition, the EMSD also makes use of an electronic document system to keep some of the operation data.

### *Lift and Escalator Safety Advisory Committee*

1.15 The Lift and Escalator Safety Advisory Committee is a non-statutory body set up in July 2013 to collect advice from the trade and members of the public on the administration and enforcement of L/E safety measures. The Committee comprises representatives from the EMSD, the Home Affairs Department, the L/E trade, professional bodies, the property management sector and laypersons. The chairman and members of the Committee, each with a two-year term, are appointed by the Secretary for Development. The Committee normally meets bi-annually.

## **Audit review**

1.16 In April 2015, the Audit Commission (Audit) commenced a review to examine the EMSD's work in monitoring the safe operation of L/Es. The duties and responsibilities of registered persons and RPs are stipulated in the L&E Ordinance and CoP. In this regard, the EMSD has established mechanisms and systems to facilitate and monitor the proper discharge of responsibilities of

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**Note 4:** *Of the 40 posts, 9 (23%) were created for undertaking additional duties subsequent to the L&E Ordinance coming into effect in December 2012. The 9 posts would lapse in April 2016.*

## **Introduction**

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registered persons and RPs. In addition, the EMSD also conducts site inspections and takes regulatory actions, including issuing prohibition orders, improvement orders, warning letters and advisory letters, and conducting investigation of L/E incidents. This review focuses on the following areas:

- (a) monitoring work of registered persons (PART 2);
- (b) site inspections and other regulatory actions (PART 3);
- (c) management information system (PART 4); and
- (d) way forward (PART 5).

Audit has identified areas where improvements can be made by the EMSD in the above areas, and has made a number of recommendations to address the issues.

## **Acknowledgement**

1.17 Audit would like to acknowledge with gratitude the cooperation of the staff of the DEVB and the EMSD during the course of the audit review.

## **PART 2: MONITORING WORK OF REGISTERED PERSONS**

2.1 This PART examines the actions taken by the EMSD in monitoring the work of RCs and REs (Note 5) in discharging their duties under the L&E Ordinance and the CoP for ensuring safe operation of L/Es, focusing on:

- (a) monitoring RCs' work (see paras. 2.4 to 2.35); and
- (b) monitoring REs' work (see paras. 2.36 to 2.50).

### **Responsible Persons**

2.2 Under the L&E Ordinance, the RP of an L/E, who is normally the related property owner, the owners incorporation or the property management agency, must ensure that the L/E and its associated equipment or machinery are kept in a proper state of repair and in safe working order. The major duties of the RP of an L/E as stipulated in the L&E Ordinance include:

- (a) causing an RC to undertake the maintenance works of the L/E and ensuring that maintenance works are carried out at least once a month;
- (b) causing an RE to thoroughly examine the L/E before it is put into use at an interval not exceeding one year for a lift and six months for an escalator;
- (c) if there is a reportable incident related to the L/E, notifying the EMSD and the RC in writing within 24 hours after the incident comes to the RP's knowledge; and

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**Note 5:** *RWs are employees of RCs and their work is under the supervision of RCs. Therefore, the EMSD monitors RWs' work mainly through monitoring RCs' work.*

## **Monitoring work of registered persons**

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- (d) keeping a log book for the L/E in a specified form containing information (Note 6) as stipulated in the L&E Ordinance.

2.3 For the purpose of assisting RPs to better understand their roles and responsibilities, the EMSD has issued guidebooks and organised talks and seminars for RPs on their roles and responsibilities. Appendix D shows details of EMSD actions to enhance RPs' knowledge of their roles and responsibilities.

## **Monitoring Registered Contractors' work**

2.4 Under the L&E Ordinance, a person or a company meeting related requirements (Note 7) may be approved by the EMSD for registration as an RC. An RC needs to apply to the EMSD for renewal of his registration every 5 years. As of December 2015, there were 40 RCs. The major duties of an RC as stipulated in the L&E Ordinance include:

- (a) carrying out L/E works properly and safely;
- (b) taking safety precaution measures to prevent injuries to any person or damage to any property while works are being carried out;
- (c) maintaining sufficient workforce and adequate equipment and tools for carrying out L/E works;
- (d) causing an RE to investigate a reportable incident and prepare and complete a full investigation report and submit it to the EMSD within seven days after the date on which the RC is notified;

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**Note 6:** *Information that is required to be recorded in an L/E log book includes the name of the RC responsible for the maintenance work, names of RWs participating in the L/E work, the name of the RE participating in the RE examination, and details of L/E works carried out.*

**Note 7:** *Among other things, an RC must be capable of (a) maintaining the necessary facilities, resources and workforce to carry out L/E works; and (b) obtaining necessary technical assistance or support from related persons, including L/E manufacturers.*

## **Monitoring work of registered persons**

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- (e) notifying the EMSD if he is unable or unwilling to continue to undertake the maintenance works of an L/E in a specified form within 14 days after the date on which he ceases to undertake the works; and
- (f) entering into an L/E log book information as stipulated in the L&E Ordinance, such as lift failure events.

An RC failing to comply with pertinent requirements under the L&E Ordinance commits an offence and is liable on conviction to a fine of up to \$100,000 and imprisonment for up to one year.

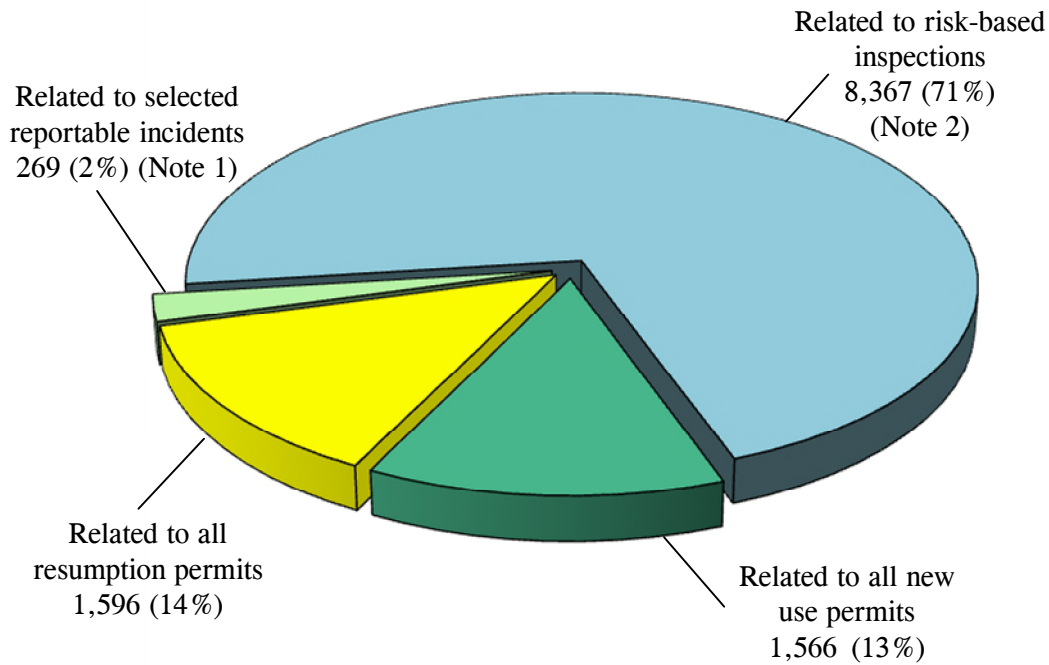
2.5 Under the L&E Ordinance, a registered person (an RC, RE or RW) commits a disciplinary offence if he:

- (a) commits misconduct or neglect in any professional respect; or
- (b) has been convicted of an offence under the Ordinance.

2.6 ***EMSD site inspections.*** The EMSD monitors the work of RCs and REs mainly through conducting site inspections by adopting a risk-based approach. In 2015, the EMSD conducted 11,798 site inspections. Details are shown in Figure 1.

Figure 1

11,798 EMSD site inspections of L/Es  
(2015)



Source: EMSD records

Note 1: In 2015, the EMSD selected 269 (13%) of the total 2,029 reportable incidents for site inspections.

Note 2: Of these 8,367 site inspections, 3,200 (38%) were surprise inspections to check the physical attendance of REs in conducting examinations and observe their examination work.

2.7 ***EMSD surveillance audits.*** The EMSD also carries out surveillance audits on RCs to examine their manpower resources, facilities available, work scheduling systems and readiness for handling emergency situations. This is an administrative measure aiming to enhance RC performance.

2.8 ***Performance Assessment Scheme.*** The EMSD has set up the Performance Assessment Scheme (PA Scheme), which is an administrative system to facilitate assessment of the performance of RCs and help RPs to choose appropriate RCs. Under the PA Scheme, 2 to 15 PM points would be accorded to an RC for defined types of non-compliance issues found during EMSD site inspections or revealed in other circumstances to reflect the performance shortfalls of RCs in carrying out L/E works. For example, 15 PM points would be accorded for noting an ineffective machine brake of a lift, and 4 PM points for noting an ineffective ventilation fan. PM points accorded in periods longer than preceding 12 months are discarded. Examples of PM points accorded for non-compliance issues are shown in Appendix E.

2.9 ***RCs' Performance Rating System.*** The EMSD has established an administrative Registered Lift and Escalator Contractors' Performance Rating System (CPR System) for assisting RPs to choose appropriate RCs for the provision of L/E maintenance and repair services. The CPR System makes use of a formula to convert PM points into quality star ratings (depicted by blue stars). The lower the PM points accorded to an RC, the more blue stars will be awarded to the RC. Up to five blue stars will be awarded to an RC if there is no non-compliance issues observed in both the safety and service quality aspects in two consecutive quarters. In addition, a green safety star will be awarded to an RC if no safety non-compliance issues have been found during the recent 12 months' site inspections of L/Es under the RC's maintenance. In case of any non-compliance issue found in relation to safety, no safety nor quality star will be awarded to the RC. The EMSD publishes on its website the green and blue stars awarded to each RC on a quarterly basis. Historical performance records of RCs and information on warning letters issued to RCs are also published on the EMSD's website.

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### *Delays in considering disciplinary actions against RCs (RCs 1 to 7)*

2.10 *Convicted cases.* Under the L&E Ordinance:

- (a) if an RC has been convicted of an offence under the Ordinance, he is considered having committed a disciplinary offence; and
- (b) the EMSD may refer the case to the DEVB for establishing a disciplinary board (Note 8) to consider taking disciplinary actions (e.g. reprimand, fine, or suspension or cancellation of registration) against the related RC.

2.11 From December 2012 (effective date of the L&E Ordinance) to December 2015, the EMSD had completed prosecution actions against seven RCs, three REs (Note 9), six RWs (Note 10) and one RP (see Case 1 in para. 3.27) for malpractices. Of the seven RCs, five (RCs 1 to 5) were convicted and two were acquitted by the court. Details relating to the five convicted RCs are as follows:

- (a) in December 2013, RC 1 of two escalators of a building in North Point was convicted for not properly maintaining the escalators, and he was fined \$9,900;
- (b) in December 2014 and April 2015, RC 2 of a lift of a building in North Point was convicted for unauthorised subcontracting lift work and failure in maintaining suspension ropes, and he was fined \$2,000 and \$50,000 respectively;

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**Note 8:** *A disciplinary board comprises members from the Hong Kong Institute of Engineers, RCs, REs, RWs and lay persons appointed by the DEVB.*

**Note 9:** *Of the three REs, two were respectively involved in cases relating to RCs 1 and 2 (see 2.11(a) and (b)). They were convicted and were respectively fined \$16,000 and given a sentence of five-month imprisonment. The remaining RE involving in another case was acquitted.*

**Note 10:** *Of the six RWs, four were acquitted. The remaining two RWs were convicted and were fined \$2,500 and \$3,000 respectively.*



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- (c) in March 2014, RC 3 of a lift of a building in Sai Ying Pun was convicted for failure to notify the EMSD of major alteration works of the lift, and he was fined \$5,000;
- (d) in January 2015, RC 4 of a lift of a building in Tsuen Wan was convicted for not recording information of a lift failure event in a log book, and he was fined \$3,000; and
- (e) in July 2015, RC 5 of a lift of a building in Sham Tseng was convicted for not taking adequate safety precautions to prevent injuries to persons while carrying out the maintenance work of the lift, and he was fined \$6,000.

2.12 **Warning letters.** According to an EMSD circular issued in March 2013 on performance assessment of RCs:

- (a) the EMSD will issue a warning letter to an RC if, during an EMSD site inspection, a safety-related non-compliance issue is found, or 12 PM points or more are accorded to the RC; and
- (b) if an RC has received three or more warning letters within a 12-month period, the EMSD may refer the case to the DEVB for setting up a disciplinary board under the L&E Ordinance to hear the case and consider taking necessary disciplinary actions (see para. 2.10(b)) against related persons.

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2.13 From January 2013 to September 2015, the EMSD had issued 32 warning letters to 16 RCs. Audit examination revealed that, during the 33-month period, three RCs (RCs 1, 6 and 7) each had received three or more warning letters within a 12-month period, as follows:

RC	Period	No. of warning letters received
1	February to June 2013	3
6	July to August 2014	3
7	June to September 2015	4

2.14 In April 2015, the EMSD set up a Disciplinary Action Review Panel (DAR Panel) to review:

- (a) the seriousness of misconduct of related RCs (see paras. 2.10(b) and 2.12(b)); and
- (b) whether an RC had repeatedly committed misconduct, and whether the RC had been prosecuted and convicted, in deciding whether a disciplinary hearing should proceed.

From April to December 2015, the DAR Panel had referred an RC (Note 11) to the DEVB for setting up a disciplinary board for hearing the case.

2.15 Regarding the cases involving RCs 1 to 7 (see paras. 2.11 and 2.13), up to 31 December 2015, the EMSD DAR Panel had reviewed three (RCs 3, 4 and 6) of the seven RCs and decided to take disciplinary action against RC 3. The EMSD considered that no further action was needed for RCs 4 and 6, but it had not taken action to review RCs 1, 5 and 7. Table 1 shows the details.

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**Note 11:** *The RC was involved in a lift incident occurring at an industrial building in Kwun Tong in late 2014. This case did not involve prosecution nor issuing three or more warning letters.*

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**Table 1**

**DAR Panel review of seven RCs (RCs 1 to 7)  
(31 December 2015)**

RC	Date		
	Convicted by court	Warning letters issued	Reviewed by DAR Panel
1	December 2013	3 warning letters from February to June 2013	Not yet reviewed
2	December 2014 and April 2015	1 warning letter in March 2013	Not applicable (Note 1)
3	March 2014	1 warning letter in September 2014	Reviewed in April 2015 and decided to take disciplinary action against RC 3 (Note 2)
4	January 2015	1 warning letter in January 2015	Reviewed in April 2015 and concluded that no disciplinary action was required
5	July 2015	1 warning letter in July 2015	Not yet reviewed
6	Not applicable	3 warning letters in July and August 2014	Reviewed in April 2015 and concluded that no disciplinary action was required
7	Not applicable	4 warning letters from June to September 2015	Not yet reviewed

*Source: EMSD records*

*Note 1: According to the EMSD, disciplinary proceedings are not applicable to de-registered RCs under the L&E Ordinance.*

*Note 2: The EMSD referred RC 3 to the DEVB in February 2016 for setting up a disciplinary board (see para. 2.35(a)).*

*Remarks: The DAR Panel reviewed the cases related to RCs 1, 5 and 7 in February 2016 (see para. 2.35(a)).*

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2.16 According to the EMSD:

- (a) the EMSD was duty bound to review each case before a case was referred to the DEVB for setting up a disciplinary board under the L&E Ordinance, and it was not a mandatory requirement for the EMSD to refer each case relating to disciplinary offences to the DEVB for establishing a disciplinary board; and
- (b) each case would be reviewed by the DAR Panel to decide whether a disciplinary hearing should proceed. The Department of Justice's view might also be sought on individual cases where necessary.

2.17 As of December 2015, the DAR Panel had not conducted reviews of the need for disciplinary hearings for RCs 1, 5 and 7 (see Table 1 in para. 2.15). Audit considers that the EMSD needs to 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 related RCs should be referred to the DEVB for hearing by disciplinary boards.

### ***PM Points not accorded on significant non-compliance issues (RCs 8 and 9)***

2.18 The EMSD has stipulated the number of PM points to be accorded to an RC for different types of non-compliance issues found during an EMSD site inspection (see Appendix E). From January 2013 to September 2015, the EMSD had issued 32 warning letters to 16 RCs for non-compliance with the L&E Ordinance and the CoP. However, Audit examination revealed that, notwithstanding warning letters had been issued to two RCs (RCs 8 and 9) for unsatisfactory performance, owing to the fact that the issues were not covered under the PA Scheme, no PM points were accorded to RCs 8 and 9. Details are as follows:

- (a) under the L&E Ordinance, an RC has to ensure that lift work is carried out properly and safely, and he has sufficient workforce to carry out the lift work. The CoP has also stipulated that certain periodic maintenance work (for example, checking of electrical and mechanical interlocks for car doors and landing doors) should be carried out by two or more RWs so as to ensure that the workers would receive prompt support and help in

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case of an accident. However, during an EMSD site inspection of a building lift in Mong Kok in April 2013, the EMSD found that only one RW of RC 8 had signed against most of the maintenance work entries in a log book in the preceding 12 months. In June 2013, the EMSD issued a warning letter to RC 8 on the issue; and

- (b) in January 2014, the EMSD issued a warning letter to RC 9 who was responsible for maintaining 48 lifts at a residential complex in Kowloon Bay for not complying with the L&E Ordinance on:
  - (i) notifying the EMSD on carrying out major lift alteration works and engaging an RE to test and examine the lifts; and
  - (ii) obtaining prior approval from the EMSD before resumption of use and operation of the lifts.

The EMSD considered the non-compliance acts highly unacceptable.

2.19 In March 2016, the EMSD informed Audit that:

- (a) PM points were not applicable for the non-compliance acts mentioned in paragraph 2.18(a) and (b); and
- (b) issuing warning letters to RCs 8 and 9 was an appropriate and more serious sanction for the non-compliance acts.

2.20 In Audit's view, in order to effectively reflect RCs' performance in the PA Scheme for reference by members of the public, PM points should be accorded to RCs who have conducted serious non-compliance acts and received warning letters from the EMSD. While the issuance of warning letters may lead to disciplinary actions (see para. 2.12(b)), the EMSD should review the PA Scheme with a view to including all significant RC non-compliance issues in the Scheme. For example, issues attracting the issuance of warning letters (which are serious sanctions — see para. 2.19(b)) should be accorded PM points.

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### ***Delays in according PM points (RC 10)***

2.21 In August 2013, during site inspections of 44 lifts at two housing estates in Sheung Shui and Fanling, the EMSD found that the responsible RC (RC 10) had not updated the log books of the L/Es for the maintenance work carried out. According to EMSD guidelines, the RC of each L/E not complying with this requirement should be accorded 2 PM points, namely a total of 88 PM points should be accorded to RC 10. However, at that time, the EMSD only issued a warning letter to RC 10 for the non-compliance issues but did not accord PM points to him. In October 2015, the EMSD retrospectively accorded 88 PM points to RC 10.

2.22 The EMSD informed Audit in February 2016 that:

- (a) the above case was a one-off special case; and
- (b) PM points were accorded to RC 10 after noting the omission.

In Audit's view, the EMSD needs to take measures to ensure that PM points are accorded to RCs for non-compliance issues in a timely manner.

### ***Need to strengthen actions on EMSD surveillance audits (RCs 11 to 17)***

2.23 In November 2013, the EMSD commenced conducting surveillance audits (see para. 2.7) on RCs with a target of reviewing all RCs in a two-year period. However, Audit noted that, during the two-year period from November 2013 to October 2015, the EMSD had only completed surveillance audits on 20 (49%) of the total 41 RCs. Details are as follows:

<b>Progress of surveillance audits as of October 2015</b>	<b>RC (No.)</b>
Audit work completed and reports issued	20
Audit work in progress	6
Audit work not yet commenced	15
Total	41

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2.24 In Audit's view, the EMSD needs to strengthen actions with a view to meeting EMSD target on conducting surveillance audits on all RCs within a two-year period as far as possible.

2.25 Furthermore, Audit also noted that, during seven surveillance audits conducted by the EMSD from November 2013 to December 2014, the EMSD made recommendations on implementing 73 improvement measures to 7 RCs (RCs 11 to 17). However, as of December 2015, of the 73 improvement measures, 36 (49%) had not been fully implemented (see Table 2).

**Table 2**  
**Implementation of improvement measures arising**  
**from EMSD surveillance audits**  
**(as of December 2015)**

RC	Date of surveillance audit (Month/Year)	Improvement measures (No.)	Dates of EMSD follow-up reminders (Month/Year)	Improvement measures not fully implemented (No.)
11	11/2013	8	4/2015 1/2016	4
12	12/2013	8	4/2015	3
13	2/2014	18	Not applicable (Note)	Not applicable (Note)
14	2/2014	6	4/2015 1/2016	4
15	3/2014	12	4/2015 1/2016	11
16	4/2014	10	4/2015 1/2016	4
17	12/2014	11	1/2016	10
Total		73		36

*Source: Audit analysis of EMSD records*

*Note: The RC ceased business in 2015.*

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2.26 In February 2016, the EMSD informed Audit that the 73 improvement measures in Table 2 were related to RCs' service quality rather than L/E safety, and the RCs were not bound by the L&E Ordinance to implement such measures.

2.27 In Audit's view, the EMSD needs to keep in view implementation of the improvement measures and consider taking appropriate follow-up actions, such as issuing advisory letters in warranted cases.

### ***Omissions and delays in submitting RC change-over examination reports (RCs 18 to 20)***

2.28 According to the CoP, the outgoing RC of an L/E needs to inform the EMSD of his withdrawal of service within 14 days from the effective date, and the incoming RC needs to inform the EMSD of his assumption of maintenance service at least 7 days before the effective date and submit a change-over examination report (certified by an RE) to the EMSD within one month after taking over the maintenance work. From January 2014 to September 2015, the RPs of 2,974 L/Es had approved change-over of RCs.

2.29 Of the 2,974 RC change-over cases from January 2014 to September 2015, Audit randomly selected 70 cases for examination. Of the 70 change-over cases examined by Audit, Audit noted that, as of December 2015, the incoming RCs (RCs 18 to 20) of three cases had not submitted the change-over examination reports to the EMSD. The time lapses from the change-over dates to 31 December 2015 were:

- (a) RC 18 : 729 days;
- (b) RC 19 : 729 days; and
- (c) RC 20 : 548 days.

Regarding the 67 (70 less 3) change-over examination reports submitted to the EMSD, Audit noted that 15 (22%) were submitted to the EMSD more than one month after the RCs taking over the maintenance work, ranging from 32 to 110 days (on average 59 days) after the change-over dates.



- 2.30 In February and March 2016, the EMSD informed Audit that:
- (a) the CoP requirements for an RC to arrange an examination after taking-over the maintenance of an L/E and to submit to the EMSD a change-over examination report were not statutory requirements but guidance to the RCs and RPs for them to set aside resources to arrange examinations so as to minimise possible contractual disputes involving L/E defects; and
  - (b) there were cases in which change-over examinations were not conducted and no change-over examination reports were provided to the EMSD due to various reasons. For instance, the RP and/or the RC of an L/E might consider a change-over examination being unnecessary or not financially viable, or the L/Es concerned were in good condition and there were no disputes in the handing over of maintenance work. The RP of an L/E might not ask the RC to carry out a change-over examination or might only ask the incoming RC to conduct some checking in the routine inspections or annual examinations. These could be reasons for the concerned parties not complying with the CoP.

In Audit's view, the EMSD needs to take measures with a view to ensuring that change-over examinations are timely carried out in accordance with the CoP, and issue advisory letters to RPs and RCs in warranted cases.

***No EMSD follow-up actions on defects identified in RC change-over examination reports***

2.31 Audit noted that 16 (24%) of the 67 change-over examination reports contained L/E defects requiring rectification, such as the presence of rusty suspension cables, intercom equipment being out of service and oil leakage from gearboxes. However, the EMSD did not take follow-up actions on the defects disclosed in change-over examination reports.

- 2.32 In February and March 2016, the EMSD informed Audit that:
- (a) in case there were critical safety issues involved, it was the statutory duty of the RE of an L/E to notify the RP and the EMSD in writing in accordance with the L&E Ordinance. In the circumstances, the RP should cease operation of the L/E; and

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- (b) for other defects found in a handover of maintenance service, it was the responsibility of the RC and the RP to follow up the rectification of the defects.

2.33 Audit considers that change-over examinations are an effective tool for monitoring the safe operation of L/Es. Therefore, the EMSD needs to:

- (a) request RCs taking over L/E maintenance work to highlight safety-related defects and monitor rectification of such defects; and
- (b) take enforcement actions on L/Es having safety-related defects.

## **Audit recommendations**

2.34 **Audit has *recommended* that the Director of Electrical and Mechanical Services should:**

- (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;**
- (b) **periodically review the PA Scheme with a view to including all significant RC non-compliance issues in the Scheme;**
- (c) **strengthen actions with a view to meeting EMSD target on conducting surveillance audits on all RCs within a two-year period as far as possible;**
- (d) **keep in view implementation of improvement measures arising from EMSD surveillance audits and consider taking appropriate follow-up actions in warranted cases; and**
- (e) **request RCs taking over L/E maintenance work to:**

- (i) **highlight safety-related defects and monitor rectification of such defects; and**
- (ii) **take enforcement actions on L/Es having safety-related defects.**

## **Response from the Government**

2.35 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) for the recommendation in paragraph 2.34(a), in February 2016, the DAR Panel conducted reviews of the malpractices of RCs 1, 5 and 7 (see Table 1 in para. 2.15) and considered that no disciplinary proceedings were required for these three RCs. The EMSD referred RC 3 to the DEVB in February 2016 for setting up a disciplinary board. The EMSD will continue the current established practice to document justifications for not referring RCs to the DEVB for hearing by disciplinary boards;
- (b) for the recommendation in paragraph 2.34(b), the EMSD will continue the current established practice to periodically review the PA Scheme with a view to according PM points on significant RC non-compliance acts. The last review was conducted in December 2015 and the revised Scheme has been adopted with effect from February 2016;
- (c) for the recommendation in paragraph 2.34(c), the EMSD had taken action to expedite conducting surveillance audits to ensure their completion in December 2015, two months behind the target two-year cycle. The EMSD will continue to strengthen action with a view to meeting EMSD target on conducting surveillance audits on all RCs within a two-year period as far as possible;
- (d) for the recommendation in paragraph 2.34(d), the EMSD will continue to monitor RCs in implementing improvement measures arising from EMSD surveillance audits and take appropriate follow-up actions in warranted cases; and
- (e) for the recommendations in paragraph 2.34(e), the EMSD will take appropriate enforcement action on safety-related defects of L/Es.

### Monitoring Registered Engineers' work

2.36 Under the L&E Ordinance, a person meeting the related requirements (Note 12) may be approved by the EMSD for registration as an RE. An RE needs to apply for renewal of his registration every five years. As of December 2015, there were 332 REs, of whom 302 (91%) were employees of RCs. The major duties of the RE of an L/E as stipulated in the L&E Ordinance include:

- (a) carrying out L/E work properly and safely;
- (b) conducting examination and certification of the L/E upon its installation, of the lift on an annual basis and of the escalator on a bi-annual basis; and
- (c) notifying the related RP and the EMSD within 24 hours if the L/E, after an examination, is found to be not in a safe operating condition.

2.37 An RE failing to comply with pertinent requirements under the L&E Ordinance commits an offence and is liable on conviction to a fine of up to \$100,000 and imprisonment for up to six months. For an RE who has committed misconduct or neglect in any professional respect, the EMSD may refer the case to the DEVB for setting up a disciplinary board for hearing and taking disciplinary actions. From January 2013 to December 2015, one related disciplinary board had been convened. The case was related to a lift incident occurring in January 2009 in Ma On Shan. The disciplinary board hearing was completed in September 2013 and the RE concerned was reprimanded and required to pay the cost of the disciplinary proceedings of \$56,100.

### *Need to strengthen actions on conducting EMSD surprise inspections*

2.38 Before applying for renewal of the use permit of a lift on an annual basis and of an escalator on a bi-annual basis, the related L/E must be examined and certified by an RE that it is in a safe working condition. According to EMSD

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**Note 12:** *An RE must: (a) be a registered professional engineer in related disciplines and have at least 2 years' relevant working experience; (b) hold a bachelor degree in related disciplines and have at least 4 years' relevant working experience; or (c) hold any other equivalent qualifications recognised by the EMSD and have at least 3 to 5 years' (subject to the qualification held) relevant working experience.*

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guidelines to REs, an RE is required to notify the EMSD of his RE examination schedule at least seven days in advance of the related examinations and of any change of the schedule at least one day in advance of an examination. The EMSD has provided an on-line e-platform system for REs to input their examination schedules. Based on the examination schedules, the EMSD would select RE examinations by adopting a risk-based approach for conducting surprise inspections. During surprise inspections, the EMSD would:

- (a) check the physical attendance of the REs in conducting RE examination;
- (b) observe RE examination work; and
- (c) examine the L/E log books.

2.39 In 2015, the EMSD conducted 8,367 site inspections by adopting a risk-based approach (see Figure 1 in para. 2.6). Of these 8,367 inspections, 3,200 (38%) were surprise inspections of RE examinations. According to the EMSD, from January to September 2015:

- (a) the EMSD was notified by REs of their schedules for 63,112 RE examinations; and
- (b) of the 63,112 RE examinations, 3,639 (6%) were carried out on dates (Note 13) other than the original scheduled dates. Of the 3,639 examinations, the REs of 2,100 (58%) examinations only notified the EMSD after the original scheduled dates of changes of the examination dates.

2.40 Furthermore, according to the EMSD, from January to December 2015:

- (a) EMSD staff conducted 3,200 surprise inspections and they were unsuccessful in finding the REs on site in 81 (3%) inspections; and
- (b) of these 81 unsuccessful inspections:

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**Note 13:** *The actual RE examination dates were notated in L/E permit application documents.*

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- (i) 62 (77%) were carried out from January to May 2015 where the EMSD inspectors left the sites after noting that the REs were not on site; and
- (ii) for the remaining 19 (23%) unsuccessful inspections, they were carried out from June to December 2015 where the EMSD inspectors continued the inspections in the absence of the REs.

2.41 In Audit's view, changes of examination dates without prior notifying the EMSD would undermine the efficiency and effectiveness of the EMSD's surprise inspections of RE examinations. However, the EMSD did not take any follow-up actions on the changes of examination dates.

2.42 According to the EMSD:

- (a) the submission of examination schedules by REs to the EMSD was an administrative measure instead of a statutory requirement. The actual dates of RE examinations may differ from the scheduled dates due to L/Es not being ready for examination and personal health issues of REs;
- (b) changes of examination dates did not affect the EMSD's surprise inspections of the L/Es concerned because the inspections also aimed at checking the conditions of the L/Es. From June 2015, if an RE did not show up according to his schedule, EMSD staff would continue the inspection of an L/E in the absence of the RE; and
- (c) the EMSD had found no evidence that REs changed the examination dates intentionally to evade the EMSD's surprise inspections.

2.43 Audit noted that the main purposes of the EMSD's surprise inspections were to check the physical attendance of the REs in conducting examination and observe their examination work (see para. 2.38). Continuing an EMSD inspection of an L/E in the absence of an RE (see para. 2.42(b)) will render the inspection ineffective in achieving its objectives. In Audit's view, the EMSD needs to keep in view REs who repeatedly change the examination dates without promptly notifying the EMSD and take appropriate actions against these REs.

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2.44 Moreover, of the scheduled 63,112 RE examinations carried out from January to September 2015, 51,147 (81%) were scheduled to be carried out during EMSD office hours (namely Monday to Friday (except public holidays) from 8:30 am to 6:00 pm) and the remaining 11,965 (19%) outside office hours. According to EMSD guidelines, its surprise inspections should be carried out both during and outside EMSD office hours. However, Audit noted that, of the 2,611 EMSD surprise inspections carried out during the period, 2,591 (99%) were carried out during EMSD office hours and the remaining 20 (1%) outside office hours. Audit considers that, with a view to enhancing the effectiveness of EMSD surprise inspections, it needs to increase the proportion of surprise inspections of RE examinations outside EMSD office hours.

### ***Inadequate monitoring of excessive number of L/Es examined by REs on a single day***

2.45 Audit noted that, from January 2014 to September 2015, the EMSD had issued letters to four REs requesting them to provide explanations for conducting seven or more lift examinations on a single day. However, the EMSD had not issued similar letters to REs of escalators. Audit noted that, other than the four letters requesting explanations on conducting “seven or more lift examinations on a single day”, there was no EMSD guideline on the criteria for issuing letters to request REs to provide explanations for conducting excessive number of RE examinations on a single day. From January 2014 to September 2015, based on information maintained in LEO System, Audit noted that 62 REs had conducted lift examination and certification work on seven or more lifts on a single day on a total of 146 occasions. Details are as follows:

<b>Lifts examined by an RE on a single day (No.)</b>	<b>Occasions from January 2014 to September 2015 (No.)</b>
7	112
8	27
9	3
10	1
11	1
12	1
13	1
Total	146

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2.46 The four REs mentioned in paragraph 2.45 subsequently submitted their explanations and supporting documents to the EMSD. The explanations included working overtime and the lifts concerned were in close locations. The EMSD accepted the explanations and took no further action. However, the EMSD did not issue letters to request the remaining 58 (62 less 4) REs to provide explanations and supporting documents.

2.47 In February and March 2016, the EMSD informed Audit that:

- (a) depending on the proximity and complexity of the lifts to be examined, an RE with the assistance of supporting workers could have adequate time to examine up to eight lifts on a single day; and
- (b) the EMSD adopted “nine lifts or more on a single day” instead of “seven lifts or more on a single day” as the current benchmark for follow-up action. Moreover, some RE examinations conducted after major alterations only covered certain components of a lift and were not counted for the “nine lifts or more on a single day” purpose. Thus, only four REs whose work had exceeded the “nine lifts or more on a single day” benchmark were required to provide explanations.

2.48 To uphold high standards of REs’ examination and certification work, Audit considers that the EMSD needs to monitor the number of L/Es examined by an RE on a single day to ensure that the work load is not excessive and would not compromise the quality of examination. In this connection, the EMSD needs to issue guidelines on the maximum number of L/Es to be examined and certified by an RE on a single day, and take follow-up actions on REs who regularly perform excessive number of RE examinations on a single day.



## **Audit recommendations**

2.49 **Audit has *recommended* that the Director of Electrical and Mechanical Services should:**

- (a) **monitor changes of RE examination dates and consider issuing advisory letters to REs who repeatedly change their examination dates without promptly notifying the EMSD;**
- (b) **increase the proportion of EMSD surprise inspections of RE examinations outside EMSD office hours; and**
- (c) **issue guidelines on the maximum number of L/Es to be examined and certified by an RE on a single day, and take follow-up actions on REs not following the guidelines without acceptable justifications.**

## **Response from the Government**

2.50 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) the EMSD will monitor changes of examination dates by REs and consider issuing advisory letters to REs who repeatedly change their examination dates without justifications within a specified time period;
- (b) surprise inspections carried out outside EMSD office hours from October to December 2015 had increased to about 5%. There is no evidence showing that RE examinations carried out outside office hours are of lower quality. The proportion of surprise inspections conducted outside EMSD office hours will be regularly reviewed, taking into account special findings during inspections, by adopting a risk-based approach; and
- (c) the EMSD would consider issuing guidelines on the maximum number of L/Es to be examined and certified by an RE on a single day.

## **PART 3: SITE INSPECTIONS AND OTHER REGULATORY ACTIONS**

3.1 This PART examines direct actions taken by the EMSD on ensuring safe operation of L/Es, focusing on the following areas:

- (a) conduct of site inspections (see paras. 3.2 to 3.13);
- (b) issuance of prohibition orders (see paras. 3.14 to 3.32);
- (c) monitoring of reportable incidents (see paras. 3.33 to 3.42); and
- (d) retrofitting new lift safety devices (see paras. 3.43 to 3.49).

### **Conduct of site inspections**

3.2 From 2011 to 2015, the EMSD conducted 9,107 to 12,273 site inspections of L/Es each year, including surprise inspections of RE examinations (see para. 2.38). Details of the inspections are shown in Table 3.

## Site inspections and other regulatory actions

**Table 3**

**EMSD site inspections of L/Es  
(2011 to 2015)**

Year	L/Es at year end  (No.)	Target inspections  (No.)	Actual inspections	
			(No.)	Percentage of total L/Es
2011	58,650	9,100	9,107	16%
2012	63,954	9,100	9,173	14%
2013	70,170 (Note)	9,400	10,564	15%
2014	71,161	11,800	12,273	17%
2015	72,486	11,800	11,798	16%

*Source: EMSD records*

*Note: Since the effective date of the L&E Ordinance on 17 December 2012, L/Es installed in government buildings and public housing estates have been regulated under the Ordinance. Hence, there was a 10% increase in the number of L/Es in 2013 compared with that in 2012.*

*Remarks: The target and actual numbers of L/E site inspections were published in EMSD Controlling Officer's Reports.*

## Site inspections and other regulatory actions

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3.3 The EMSD conducts site inspections of L/Es under the following circumstances:

- (a) the EMSD has pledged to issue a use permit for a new L/E within 13 working days from the time of receipt of an application if it is satisfied that the L/E is in a safe working condition and all the necessary supporting documents have been submitted and in order. The EMSD would conduct a site inspection to ascertain the safety condition of the L/E;
- (b) when an L/E needs to undergo major works (as defined under the L&E Ordinance), the RC concerned needs to inform the EMSD of the works. Upon completion of the works, the RP needs to apply to the EMSD for a resumption permit. The EMSD has also pledged to issue a resumption permit within 13 working days from the time of receipt of an application if it is satisfied that the L/E is in a safe working condition and all the necessary supporting documents have been submitted and in order. The EMSD would conduct a site inspection to ascertain the safety condition of the L/E;
- (c) upon occurrence of a reportable incident (see para. 1.10), the RP concerned needs to report it to the EMSD and inform the RC concerned within 24 hours after the incident comes to his knowledge. The RC would cause the RE concerned to conduct an investigation and submit an incident report to the EMSD within 7 days after the date on which the RC is notified. The EMSD would select some incidents for conducting site inspections. Table 4 shows an analysis of reportable incidents received by the EMSD from 2013 to 2015; and
- (d) every year, the EMSD selects some L/Es for conducting inspections by adopting a risk-based approach, taking into account the age of L/Es, related public complaints, any change-over of RCs and the past performance of the responsible RCs (see Figure 1 in para. 2.6).

## Site inspections and other regulatory actions

**Table 4**

**Reportable incidents  
(2013 to 2015)**

L/E incidents	2013 (No.)	2014 (No.)	2015 (No.)
<b>Reportable lift incidents</b>			
Caused by passenger behaviour	319	437	427
Caused by equipment fault	5	4	11
Occurred during lift works	6	5	1
Total (a)	330	446	439
Injuries due to passenger behaviour (b)	360	496	446
Injuries due to equipment fault (c)	12	2	10
Injuries of workers during lift works (d)	6	5	1
EMSD investigations (e)	Not available (Note 1)	101	98
<b>Reportable escalator incidents</b>			
Caused by passenger behaviour	1,383	1,530	1,477
Caused by equipment fault	3	0	8
Caused by external factors (Note 2)	30	109	105
Total (f)	1,416	1,639	1,590
Injuries due to passenger behaviour (g)	1,690	1,869	1,768
Injuries due to equipment fault (h)	3	0	12
EMSD investigations (i)	Not available (Note 1)	169	171
Total reportable L/E incidents ((a)+(f))	1,746	2,085	2,029
Total injuries ((b)+(c)+(d)+(g)+(h))	2,071	2,372	2,237
Total EMSD investigations ((e) +(i))	271	270	269

*Source: EMSD records*

*Note 1: The EMSD did not maintain breakdown statistics on the numbers of EMSD investigations on lift and on escalator incidents before 2014.*

*Note 2: For example, the landing comb plate of an escalator was jammed by an external object which triggered the safety devices to stop the escalator, leading to loss of balance of passengers.*

*Remarks: The L&E Ordinance, effective from December 2012, has expanded statutory controls to cover L/Es owned by the Government and the Housing Authority.*

## **Site inspections and other regulatory actions**

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3.4 In 2015, the EMSD conducted 11,798 site inspections, of which 8,367 (71%) were related to risk-based inspections (see Figure 1 in para. 2.6). Of these 8,367 site inspections, 3,200 (38%) were surprise inspections of RE examinations (see para. 2.38).

### ***Need to maintain proper use-permit records in LEO System***

3.5 As stated in paragraph 3.3(a) and (b), the EMSD pledged to issue a use permit or a resumption permit within 13 working days from the time of receipt of an application if it was satisfied that the L/E was in a safe working condition and all the necessary documents were in order. Audit examination of all the 705 applications for new use permits and 704 applications for resumption permits submitted to the EMSD from January to June 2015 revealed that, of the 1,409 (705 plus 704) applications, the EMSD issued 104 (7%) use/resumption permits more than 13 working days after receipt of the applications (88 cases for 14 to 20 working days, 7 cases for 21 to 26 working days and 9 cases for 27 to 39 working days).

3.6 According to the EMSD:

- (a) in all these 104 cases, the related RPs/RCs took additional time to furnish the required information to the EMSD, or to rectify defects identified in the EMSD's inspections, to satisfy the EMSD that the L/Es were in a safe working condition and all the necessary documents were in order;
- (b) the EMSD informed the RPs/RCs by letters or by telephone of outstanding documents and defects to be rectified within the pledged timeframe; and
- (c) the EMSD issued use permits and resumption permits within 13 working days counting from the time of satisfying with the safe working condition of the L/Es concerned and receiving all necessary documents.

However, the LEO System did not keep records on the dates and details of EMSD requests made to RPs/RCs on rectification of defects and submission of additional information before issuing use permits and resumption permits. The EMSD needs to make improvement in this area.

***Need to establish criteria for issuing improvement orders and advisory letters***

3.7 Under the L&E Ordinance, the EMSD may issue an improvement order to the RP of an L/E if the L/E is in a state that will cause or be likely to cause a risk of injury to any person or damage to any property. The improvement order demands the RP to take necessary actions within a given timeframe. A person not complying with the requirements of an improvement order, without reasonable excuse, commits an offence and is liable on conviction to a fine of \$25,000 and imprisonment of six months. Furthermore, the EMSD may issue an advisory letter to the RP of an L/E if unsatisfactory but not safety critical issues are found during an EMSD site inspection, requesting the RP to take remedial actions within a given timeframe. From January 2014 to September 2015, the EMSD had issued 26 improvement orders and 1,103 advisory letters. According to the EMSD, all the 26 improvement orders had been complied with by the RPs.

3.8 Audit noted that the EMSD had not issued internal guidelines specifying the criteria for issuing improvement orders and advisory letters. In Audit's view, the EMSD needs to issue such guidelines.

***Need to strengthen actions on non-compliance with advisory letters***

3.9 Audit randomly selected 50 of the 1,103 advisory letters issued from January 2014 to September 2015 (see para. 3.7) for examination. Audit examination revealed that, as of December 2015:

- (a) the RPs concerned had informed the EMSD that rectification works specified in 27 (54%) advisory letters had been completed, albeit the works of five cases were completed 1 to 35 days after the specified timeframes; and
- (b) the RPs of the remaining 23 (46%) cases had not informed the EMSD of whether the rectification works had been carried out. The specified timeframes had been exceeded by 2 to 21 months (on average 10 months).

## Site inspections and other regulatory actions

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3.10 According to the EMSD:

- (a) issuing advisory letter was an administrative measure instead of a statutory measure; and
- (b) it was not EMSD practice to follow up each advisory letter and the EMSD did not have the authority to require RPs and RCs to carry out works which were not safety critical.

3.11 Audit noted that some advisory letters were issued because rusty stain had been found on main suspension ropes, and rubbish had been found in the lift pit which might pose fire hazard. In Audit's view, when issuing internal guidelines on criteria for issuing improvement orders and advisory letters (see para. 3.8), the EMSD needs to address unsatisfactory conditions which might develop into situations affecting the safe operation of L/Es.

## Audit recommendations

3.12 **Audit has *recommended* that the Director of Electrical and Mechanical Services should:**

- (a) **consider taking measures to enhance the LEO System to keep records on dates and details of EMSD requests made to RPs/RCs on rectification of defects and submission of additional information before issuing use permits and resumption permits; and**
- (b) **issue guidelines on the criteria for issuing improvement orders and advisory letters, and to address unsatisfactory conditions which might develop into situations affecting the safe operation of L/Es.**



## **Response from the Government**

3.13 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) the EMSD will make enhancements to the LEO System to keep records of requests made to RPs/RCs on outstanding issues or documents; and
- (b) in March 2016, the EMSD issued internal guidelines specifying criteria for issuing improvement orders and advisory letters. The EMSD will classify issues stated in advisory letters which might develop into situations affecting the safe operation of L/Es and monitor rectification of such situations.

## **Issuance of prohibition orders**

3.14 Under the L&E Ordinance, the EMSD may issue a prohibition order to prohibit an L/E from being used or operated if it has reasonable grounds to believe that the L/E is, among others:

- (a) having no use permit in force, e.g. an expired use permit of an L/E not being timely renewed (see paras. 3.17 to 3.21);
- (b) not complying with the requirement that periodic maintenance works are carried out at least once a month (see paras. 3.22 to 3.26); or
- (c) not in a safe working order.

3.15 Any person not complying with a prohibition order on an L/E (i.e. allowing the L/E to continue to operate) commits an offence and is liable on conviction to a fine of up to \$200,000 and imprisonment for up to 12 months. According to the EMSD, there was no case involving non-compliance with requirements of prohibition orders from 2006 to 2015.

## **Site inspections and other regulatory actions**

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3.16 From January 2014 to June 2015, the EMSD had issued 678 prohibition orders to RPs. Of these 678 prohibition orders issued:

- (a) 401 orders (59%) related to non-compliance with:
  - (i) periodic maintenance works by RCs;
  - (ii) periodic examinations by REs; or
  - (iii) examinations of lifts with load by REs (Note 14);
- (b) 265 orders (39%) related to L/Es having no use permit in force; and
- (c) the remaining 12 orders (2%) related to other non-compliance issues.

### ***Delays in issuing prohibition orders on L/Es having expired use permits***

3.17 According to EMSD procedure manual, the EMSD would issue a prohibition order 12 hours before the expiry date of a use permit and serve it on an L/E before the expiry of its use permit. This action would help ensure that an L/E without a valid use permit is not put into operation. According to the EMSD, it has taken the following actions to remind RPs to timely renew their use permits:

- (a) sending reminder cards to RPs two months and one month respectively before the permit expiry dates;
- (b) reminding RPs by telephone two weeks before the permit expiry dates; and
- (c) issuing prohibition orders to ensure that the concerned L/Es are not put into use when no valid use permits are in force.

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**Note 14:** *Under the L&E Ordinance, the RP of a lift must cause an RE to examine the lift by operating the lift with full rated load once every five years.*

## Site inspections and other regulatory actions

3.18 Audit conducted a data analysis of all the 69,073 use permits renewed from July 2014 to June 2015 by comparing the permit renewal dates with the permit expiry dates. Audit analysis found that the renewal dates of 185 use permits were 1 to 279 days (on average 79 days) later than their expiry dates.

3.19 Of the 185 L/Es having their use permits renewed after their expiry dates, up to 31 December 2015, the EMSD had issued prohibition orders on 113 (61%) L/Es. For the remaining 72 (39%) L/Es, no prohibition order was issued because the RPs concerned had notified the EMSD in writing of the suspension of L/E service before the permit expiry dates. For the 113 prohibition orders issued, Audit examination revealed that three orders had been issued one to three days after the permit expiry dates. Of the three orders:

- (a) according to remarks recorded in the LEO System, the EMSD had obtained telephone notifications on the suspension of service of two L/Es at the same location for building renovation works. The two prohibition orders were issued one day after the use permit expiry dates and the orders were served two days after order issuing dates; and
- (b) for the remaining L/E (an escalator), the EMSD had record of a log book (not a prior notification) showing that the L/E had been suspended from operation after the permit expiry date. The prohibition order was issued three days after the use permit expiry date. The EMSD did not have record of the order serving date.

3.20 In March 2016, the EMSD informed Audit that:

- (a) it was RPs' responsibility to ensure that an L/E was not used or operated if there was no valid use permit in force;
- (b) the EMSD might not issue prohibition orders in some cases if there were no reasonable grounds to believe that the L/Es had been used or likely to be used without valid use permits, and might issue the orders before or after the order effective dates; and
- (c) the EMSD would review its practice on issuing prohibition orders.

## **Site inspections and other regulatory actions**

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3.21 While the RP of an L/E has a responsibility to cease the operation of the L/E upon the expiry of its use permit, EMSD procedure to issue a prohibition order on an L/E not having its use permit timely renewed provides a safeguard against unlawful use of an L/E without a valid use permit. In Audit's view, unless written notifications on L/E suspensions have been received before the expiry dates of use permits, the EMSD needs to take measures to ensure that:

- (a) its staff comply with EMSD procedure manual to issue and serve prohibition orders on L/Es before expiry of their use permits; and
- (b) written notifications on L/E suspensions are recorded in the LEO System.

### ***Delays and omissions in issuing prohibition orders on L/Es not complying with the monthly maintenance requirement***

3.22 Under the L&E Ordinance, an L/E is required to be subject to maintenance by an RC at least once every month (see para. 2.2(a)). Failing to comply with this requirement commits an offence and the EMSD may issue a prohibition order to suspend the operation of the related L/E. Therefore, if the RC of an L/E withdraws from service, a new RC should be engaged within one month from the date of termination of service of the outgoing RC. Otherwise, the L/E concerned would not be able to meet the monthly maintenance requirement. On this basis, Audit conducted a data analysis of all the 2,974 L/Es involving change-over of RCs during the 21 months from January 2014 to September 2015 by comparing the service termination dates of the outgoing RCs with the service assumption dates of the incoming RCs (see para. 2.28). The results are shown in Table 5.

## Site inspections and other regulatory actions

**Table 5**

**Issuance of prohibition orders on L/Es  
not complying with monthly maintenance requirement  
(January 2014 to September 2015)**

	L/E (No.)
L/Es involving RC change-over	2,974
Period from service termination to service resumption exceeding 31 days	137
Less: Cases where written suspension notifications had been received	48
Cases where prohibition order had been issued within 31 days from service termination	<u>32</u>
Non-compliance cases	57
— prohibition orders issued after 31 days from service termination:	36 (63%)
• 1 case for 34 days	
• 34 cases from 56 days to 88 days	
• 1 case for 298 days	
— prohibition orders not yet issued as of December 2015	21 (37%)

*Source: Audit analysis of EMSD records*

## **Site inspections and other regulatory actions**

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3.23 As shown in Table 5, for the 36 L/Es having prohibition orders issued after 31 days from service termination, and 21 L/Es not having prohibition orders issued, written L/E suspension notifications had not been received by the EMSD on these 57 (36+21) L/Es.

3.24 In February and March 2016, the EMSD informed Audit that:

- (a) under the current practice of the EMSD, if a notification of commencement of maintenance service by the incoming RC of an L/E was not received within 3 days after receiving the notification of termination of maintenance service from the outgoing RC, the RP would be contacted by the EMSD about the maintenance service of the concerned L/E. If the RP could not be contacted, the EMSD would deploy inspectors to conduct site inspections. Prohibition orders would be issued, and the related RPs would be contacted depending on EMSD manpower resources available;
- (b) for the 36 L/Es having prohibition orders issued, 5 L/Es were under major alterations and 31 L/Es were new installations in a new housing estate in Yuen Long in which the residents were yet to move in and the lifts had been suspended; and
- (c) for the 21 L/Es having no prohibition orders issued, 10 L/Es were under suspension for building renovation works, 9 L/Es were having the outgoing RCs continuing their maintenance work after termination of service contracts, one L/E (an escalator) was under suspension for repair and one L/E (a lift) of which the RP had ceased business. The situations of these 21 L/Es were confirmed during EMSD inspections in January and February 2016.

3.25 Regarding the 36 L/Es having prohibition orders issued (see para. 3.24(b)), Audit examination of EMSD records revealed that:

- (a) for 33 L/Es, the EMSD had issued letters to the related RPs/RCs/REs to state that the EMSD had been notified by telephone of suspension of L/E service. However, Audit noted that the dates of the telephone contacts were not specified in the letters, and the 33 letters were issued 45 to 79 days after service termination dates of the outgoing RCs; and

## Site inspections and other regulatory actions

- (b) for the remaining 3 L/Es, there was no EMSD record showing that prior L/E suspension notifications had been received by the EMSD. For one case, a written notification on lift suspension at the time of maintenance service termination was received by the EMSD about four months after the service termination date. For another case, the EMSD only had the record of a log book (not a prior notification) of an L/E (a lift) showing that lift service had been suspended within 31 days after the termination of the maintenance service contract with the outgoing RC.

3.26 Regarding the 21 L/Es having no prohibition orders issued (see para. 3.24(c)), Audit examination of EMSD records revealed that:

- (a) there was no EMSD record on the suspension of service of 10 L/Es which were said to be under suspension for building renovation works;
- (b) for the 9 L/Es having the outgoing RCs continuing their maintenance work after termination of the service contracts, the EMSD only had records of the L/E log books (not prior notifications) of 3 L/Es showing that the L/Es concerned were subject to monthly maintenance after the termination of the maintenance service contracts with the outgoing RCs;
- (c) for the escalator under suspension for repair, there was no EMSD record showing that prior escalator suspension notification had been received by the EMSD. The EMSD only had the record of a log book (not a prior notification) showing that the escalator service had been suspended after the outgoing RC ceased maintenance service; and
- (d) for the lift of which the RP had ceased business, there was no EMSD record showing that prior lift suspension notification had been received by the EMSD.

In Audit's view, the EMSD needs to issue prohibition orders in a timely manner on L/Es not complying with the monthly maintenance requirement.

## Site inspections and other regulatory actions

### *Delays in serving prohibition orders*

3.27 With a view to ensuring that an L/E ceases operation from the effective date of a prohibition order, the order needs to be served on the L/E concerned before the effective date. The LEO System maintains information on dates of issuance of prohibition orders and the related scanned documents. However, Audit sample check of 50 prohibition orders issued from January 2014 to June 2015 found that many prohibition orders on L/Es were served after the effective dates of the orders (see Table 6).

**Table 6**  
**Delays in serving prohibition orders on L/Es**  
**(January 2014 to June 2015)**

	L/E (No.)
Prohibition orders issued	678
Prohibition orders randomly selected by Audit for checking	50
— prohibition orders served before order effective dates	0 (0%)
— prohibition orders served 1 to 63 days after the effective dates of the orders (see Case 1 for illustration):	41 (82%)
• 35 orders for 1 to 15 days	
• 3 orders for 16 to 30 days	
• 2 orders for 31 to 45 days	
• 1 order for 63 days	
— prohibition order without serving dates (Note 1)	4 (8%)
— prohibition order without effective dates (Note 2)	5 (10%)

*Source: Audit analysis of EMSD records*

*Note 1: The EMSD did not have records showing the serving dates of four prohibition orders.*

*Note 2: The effective dates of five prohibition orders were not stated in the orders.*



### Case 1

#### **Prohibition order served on a lift of a building at Yau Tong (March 2015)**

1. The use permit of a lift (Lift A) of a government quarters at Yau Tong managed by a property management company (RP 1) expired on 22 March 2015 (Sunday). Noting that RP 1 had not timely applied for renewal of the use permit, on 20 March 2015 (Friday), the EMSD issued a prohibition order with an effective date of 23 March 2015 (Monday).
2. In the morning of 23 March 2015 (Monday), four lift passengers were trapped in Lift A for 25 minutes before being rescued by the lift contractor. One passenger trapped by Lift A subsequently lodged a complaint to the EMSD.
3. At noon on 23 March 2015, the EMSD served and posted the prohibition order issued on 20 March 2015 (see para. 1) outside Lift A.
4. The EMSD subsequently took prosecution actions against RP 1 for continuing operation of Lift A without a valid use permit. In the event, the RP pleaded guilty and was fined \$10,000.

#### ***Audit comments***

5. Audit considers it unsatisfactory that the EMSD only served and posted a prohibition order outside Lift A about 12 hours after: (a) expiry of the use permit; and (b) the order effective date. In the event, four passengers were trapped in the lift for 25 minutes during the 12-hour period.

*Source: EMSD records*

## Site inspections and other regulatory actions

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3.28 According to the EMSD:

- (a) except for Case 1, all the remaining 49 cases mentioned in Table 6 in paragraph 3.27 were undergoing major alteration works, waiting for demolition or having been suspended from operation due to operational reasons, and they were not available for use by the public during the pertinent periods; and
- (b) the EMSD had clarified by telephone enquiries that these L/Es would not be put into use after the effective dates of the prohibition orders. Therefore, there was no urgency to issue prohibition orders for these 49 cases. The EMSD would review its practice on issuing prohibition orders.

3.29 Regarding the 49 L/Es having prohibition orders served after their effective dates or without serving/effective dates, Audit examination of EMSD records revealed that:

- (a) for 36 (73%) L/Es, prior written L/E suspension notifications had been received by the EMSD;
- (b) for 10 (21%) L/Es, the EMSD had issued letters to the related RPs/RCs/REs to state that the EMSD had been notified by telephone about suspension of L/E service. However, Audit noted that the dates of telephone contacts were not specified in the letters; and
- (c) for the remaining 3 (6%) L/Es, the LEO System had remarks stating that the related L/Es were suspended from operation. However, Audit noted that the dates of the notifications were not specified in the LEO System.

3.30 In Audit's view, with a view to avoiding recurrence of situations as described in Case 1, all prohibition orders should be served before their effective dates. Any delay in serving prohibition orders would undermine the effectiveness of issuing the orders. The EMSD should also 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 (see Table 6 in para. 3.27).

## **Audit recommendations**

3.31 **Audit has *recommended* that the Director of Electrical and Mechanical Services should:**

- (a) **take measures to ensure that written notifications on L/E suspensions are recorded in the LEO System; and**
- (b) **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.**

## **Response from the Government**

3.32 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) there is room for enhancement in keeping written notification records and telephone response records in the LEO System; and
- (b) preliminary findings show that the missing records were due to omissions of inputting information of prohibition orders into the LEO System, and the lack of a mechanism in the System to highlight omissions of data. The EMSD will take improvement measures in this regard.

## Site inspections and other regulatory actions

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### Monitoring of reportable incidents

3.33 Under the L&E Ordinance, the RP of an L/E involved in a reportable incident (see Appendix B) must, within 24 hours after the time the incident has come to his knowledge, report the incident to the EMSD. In 2015, of the 2,029 reportable incidents, the EMSD carried out investigations of 269 (13%).

### *Need to consider expanding the scope of reportable L/E incidents*

3.34 Audit noted 5 escalator incidents from media reports from June to September 2015 which were later determined by the EMSD that they were non-reportable incidents and did not cause injuries (see Table 7).

**Table 7**

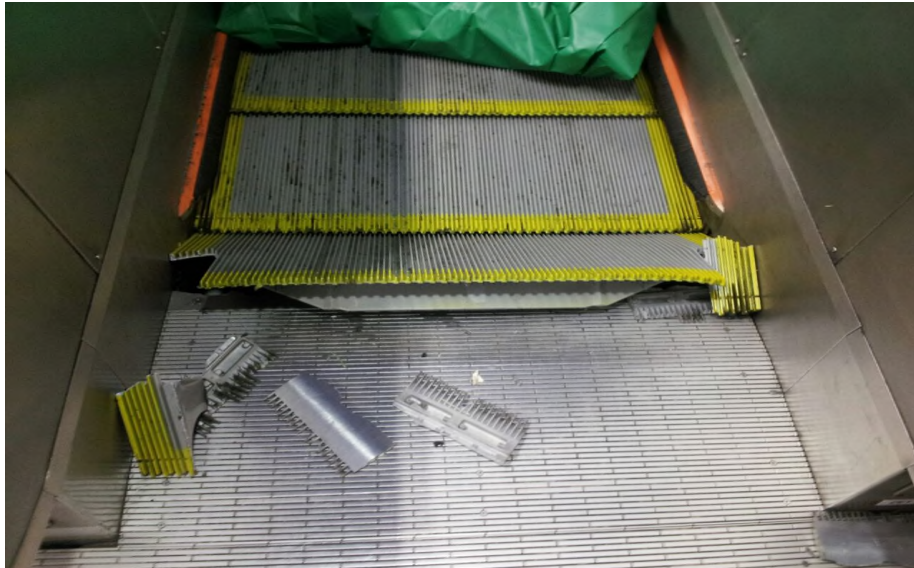
**Non-reportable escalator incidents reported in the media  
(June to September 2015)**

<b>Incident</b>	<b>Date</b>	<b>Location</b>	<b>Particulars</b>
A (see Photograph 1)	6 June 2015	Shau Kei Wan	Damages to an escalator step caused by an external object being jammed into a comb teeth at the escalator landing
B	2 August 2015	Causeway Bay	
C (see Photograph 2)	17 September 2015	Quarry Bay	
D	20 September 2015	Wong Tai Sin	
E	26 September 2015	Tsuen Wan	

*Source: EMSD records*

**Photograph 1**

**A non-reportable escalator incident occurred in Shau Kei Wan  
(June 2015)**



*Source: EMSD records*

**Photograph 2**

**A non-reportable escalator incident occurred in Quarry Bay  
(September 2015)**



*Source: EMSD records*

## **Site inspections and other regulatory actions**

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3.35 Members of the public at times inform the EMSD of both reportable and non-reportable L/E incidents. Normally, the EMSD would only take actions on reportable L/E incidents (see para. 3.3(c)). Nevertheless, the EMSD also keeps watch of media reports on L/E incidents (including non-reportable incidents) and carries out investigations of significant cases by using an EMSD checklist.

3.36 In February and March 2016, the EMSD informed Audit that:

- (a) the number and details of non-reportable L/E incidents that had come to EMSD notice in 2015 either through public reports or media reports were not readily available because these records were not centrally maintained in the LEO System; and
- (b) the EMSD conducted investigations of 23 non-reportable L/E incidents in 2015, comprising:
  - (i) 9 incidents involving fire occurrences;
  - (ii) 6 incidents involving damage to escalator steps caused by an external object jamming into a comb teeth at escalator landing;
  - (iii) 2 incidents caused by overhear or short-circuit of lift motors; and
  - (iv) 6 incidents caused by various reasons, e.g. a passenger deliberately forcing the opening of a lift door, and failure of a cable connector of a lift.

3.37 In Audit's view, the EMSD needs to keep records in the LEO System on non-reportable L/E incidents that have come to EMSD notice, and keep in view whether some significant non-reportable incidents posing safety risk to passengers warrant classifying them as reportable incidents, and take necessary improvement measures.

***Delays in submitting incident reports***

3.38 Under the L&E Ordinance, after occurrence of a reportable incident, the related RP must, within 24 hours after the incident comes to his knowledge, notify the EMSD and the RC of the incident. The RC must cause the RE concerned to conduct an investigation of the incident and submit an incident report to the EMSD within seven days after the date on which the RC is notified of the incident.

3.39 In 2015, a total of 2,029 reportable incidents were reported to the EMSD. According to the EMSD, its LEO System could not produce reports showing the dates of occurrence and submission of incident reports of reportable incidents. Audit examined all the 561 incident reports submitted to the EMSD from April to June 2015 and found that 41 reports (7%) were submitted to the EMSD 8 to 36 days after the related RCs having been notified, at variance with the seven-day requirement. However, the EMSD did not take any follow-up actions on these cases.

3.40 In Audit's view, the EMSD needs to take measures to make enhancements to its LEO System for provision of reports showing the dates of occurrence and dates of submission of incident reports of reportable incidents. The EMSD also needs to conduct a review of the incident reports to ascertain the extent of non-compliance with the reporting timeframe and take appropriate enforcement actions on cases not complying with the seven-day requirement where warranted.

**Audit recommendations**

3.41 **Audit has recommended that the Director of Electrical and Mechanical Services should consider:**

- (a) **keeping in view whether some significant non-reportable incidents posing safety risk to passengers warrant classifying them as reportable incidents, and taking necessary improvement measures;**
- (b) **taking measures to make enhancements to the LEO System for provision of reports showing the dates of occurrence and dates of submission of incident reports of reportable incidents;**

## **Site inspections and other regulatory actions**

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- (c) **conducting a review of incident reports to ascertain the extent of non-compliance with the seven-day incident reporting requirement; and**
- (d) **taking appropriate actions against RCs for not complying with the seven-day incident reporting requirement.**

## **Response from the Government**

3.42 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) the EMSD has kept in view whether some significant non-reportable incidents posing safety risk to passengers warrant classifying them as reportable incidents, and will take improvement measures if necessary;
- (b) the LEO System will be enhanced to provide reports showing the dates of occurrence and dates of submission of incident reports of reportable incidents;
- (c) the EMSD is monitoring the non-compliance with the seven-day incident reporting requirement and will take appropriate actions if the situation warrants; and
- (d) since 1 February 2016, PM points have been awarded to RCs for late submissions of incident reports.



## **Retrofitting new lift safety devices**

3.43 In 2011, with a view to bringing existing lifts to up-to-date safety standards, the EMSD issued the “Guidelines for Modernising Existing Lifts” to encourage and assist lift owners to retrofit their lifts with seven new safety devices (Note 15). The seven devices were: (a) mechanical door lock and door safety edge; (b) obstruction switch to protect suspension ropes; (c) intercom and closed-circuit television system; (d) double brake system; (e) ascending overspeed protective device; (f) unintended lift movement protection device; and (g) automatic rescue device. According to the EMSD:

- although existing lifts with proper maintenance are safe without the seven new safety devices, retrofitting these devices can further enhance the safety, reliability and passenger comfort of aged lifts; and
- as the requirements to retrofit these enhancement devices cannot be imposed retrospectively on existing lifts, RPs of these lifts may retrofit their lifts with these devices on a voluntary basis.

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**Note 15:** *As of December 2015, the EMSD had not issued similar guidelines for escalators.*

## Site inspections and other regulatory actions

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3.44 Details of the seven new lift safety devices are shown in Appendix F. Table 8 shows the years of installation of 61,655 lifts as of April 2015.

**Table 8**  
**Years of installation of lifts**  
**(April 2015)**

Year of installation	Projected age as of December 2015  (Year)	Lift	
		(No.)	(Percentage)
1980 and before	35 or more	12,086	20%
1981 to 1989	26 to 34	11,548	19%
1990 to 1999	16 to 25	15,569	25%
2000 to 2009	6 to 15	16,345	26%
2010 and after	5 or less	6,107	10%
Total		61,655 (Note)	100%

*Source: EMSD records*

*Note: As of December 2015, there were 63,561 lifts.*

***Delays in retrofitting new safety devices for government lifts***

3.45 In 2012, EMSD survey found that 1,496 government lifts should be retrofitted with one or more of the seven new safety enhancement devices (see para. 3.43). Of the 1,496 lifts, 574 (38%) required major retrofitting works and the remaining 922 (62%) required minor retrofitting works (Note 16). In 2012, in seeking funding in the resource allocation exercise for carrying out major retrofitting works for the 574 government lifts, the EMSD stated that the retrofitting works were expected to be carried out between 2013-14 and 2015-16. From 2012 to 2015, the EMSD had incurred \$175 million in carrying out the retrofitting works. According to the EMSD, minor retrofitting works for the 922 government lifts would be carried out by the government bureaux and departments (B/Ds) concerned.

3.46 In July 2014, the EMSD revised the time of completing the retrofitting works for 574 government lifts from between 2013-14 and 2015-16 to between 2015-16 and 2017-18. According to the EMSD, it had taken into account the requirements of some departments having to revise the work implementation schedules to suit their operational needs and availability of sufficient workforce. Audit noted that, as of December 2015, retrofitting works for 54 of the 574 lifts would be carried out by the user B/Ds, leaving 520 lifts to be retrofitted by the EMSD. Of the 520 lifts, as of December 2015:

- (a) works on 261 lifts (50%) had been completed;
- (b) works on 106 lifts (20%) were in progress; and
- (c) works on the remaining 153 lifts (30%) had not commenced.

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**Note 16:** *Of these 574 lifts which required major retrofitting works, 140 were managed by the Government Property Agency, 83 by the Leisure and Cultural Services Department, 56 by the Food and Environmental Hygiene Department and the remaining 295 by 21 government bureaux and departments. For the 922 lifts which required minor retrofitting works, 193 were managed by the Government Property Agency, 102 by the Hong Kong Police Force, 99 by the Food and Environmental Hygiene Department and the remaining 528 by 27 government bureaux and departments.*

## **Site inspections and other regulatory actions**

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3.47 Audit considers that, with a view to enhancing the safety standards of government lifts, the EMSD needs to expedite actions on completing major retrofitting works on government lifts. Furthermore, according to the EMSD, it did not have information on the progress of retrofitting works on 976 (922 plus 54) lifts carried out and funded by B/Ds. Audit considers that the EMSD needs to coordinate with and provide necessary technical assistance to B/Ds to complete the minor lift retrofitting works as soon as possible.

### **Audit recommendations**

3.48 **Audit has recommended that the Director of Electrical and Mechanical Services should:**

- (a) **expedite actions on completing major retrofitting works for government lifts; and**
- (b) **coordinate with and provide necessary technical assistance to B/Ds to complete minor lift retrofitting works as soon as possible.**

### **Response from the Government**

3.49 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) the EMSD would coordinate with the B/Ds concerned and L/E contractors to expedite the work implementation; and
- (b) the EMSD has provided technical assistance to B/Ds on lift works and will continue to do so.

## **PART 4: MANAGEMENT INFORMATION SYSTEM**

4.1 This PART examines the EMSD's LEO System in supporting the EMSD in monitoring the safe operation of L/Es.

### **Lift and Escalator Ordinance System**

4.2 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. The major functions of the LEO System include maintaining information relating to:

- (a) registration and renewal of RCs, REs and RWs;
- (b) performance monitoring of RCs, REs and RWs; and
- (c) issuance of L/E use permits.

### ***Lack of periodic management reports on long-outstanding cases***

4.3 According to the EMSD, the LEO System was not equipped to generate management reports on the following types of long-outstanding cases which may require directives from EMSD senior management:

- (a) RCs having been issued with large number of warning letters (see paras. 2.12 to 2.15);
- (b) long delays in complying with advisory letters (see paras. 3.9 to 3.11);
- (c) long delays in issuing and serving prohibition orders (see paras. 3.17 to 3.30);
- (d) L/Es having no RCs responsible for maintenance work for prolonged periods (see para. 3.22); and

## **Management Information System**

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- (e) long delays in submitting incident reports to the EMSD (see paras. 3.38 to 3.40).

4.4 In Audit's view, the EMSD needs to make enhancements to the LEO System with a view to generating management reports on long-outstanding cases mentioned in paragraph 4.3 on a regular basis. These reports will assist EMSD senior management in monitoring significant areas of L/E safety and in providing timely directives where necessary.

### ***Incomplete data in LEO System***

4.5 The EMSD's procedure manual stipulates that the model number and name of manufacturer of every L/E in operation should be input into the LEO System. However, Audit examination revealed that, of the 70,277 L/Es as of April 2015, the LEO System did not maintain records of:

- (a) the model numbers of 1,062 L/Es (2%);
- (b) the manufacturer names of 36,776 L/Es (52%); and
- (c) both the model numbers and manufacturer names of 15,604 L/Es (22%).

In Audit's view, the EMSD needs to take measures to ensure that essential information is input into the LEO System.

### ***Inconsistent L/E data***

4.6 According to the LEO System database, the EMSD had carried out inspections of 10,111 lifts and 1,215 escalators in 2014. However, in the EMSD 2015-16 Controlling Officer's Report, the numbers of inspections carried out for lifts and escalators in 2014 were 10,850 and 1,423 respectively, which were respectively 7% and 17% greater than the numbers reflected in the LEO System. In February 2016, the EMSD informed Audit that:

- (a) the records of EMSD inspections carried out in 2014 were kept under another management system; and
- (b) from 2015 onwards, all related records would be kept in the LEO System.

In Audit's view, the EMSD needs to take measures to ensure that essential information is input into the LEO System.

### **Audit recommendations**

**4.7 Audit has recommended that the Director of Electrical and Mechanical Services should:**

- (a) **make enhancements to the LEO System with a view to periodically generating management reports to inform EMSD management of significant issues relating to the safe operation of L/Es; and**
- (b) **take measures to ensure that essential information is input into the LEO System.**

### **Response from the Government**

**4.8** The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that:

- (a) the EMSD would continue to make enhancements to the LEO System with a view to periodically generating management reports on significant issues relating to the safe operation of L/Es; and
- (b) the L/E information is at present kept in various computerised systems. Following the enactment of the L&E Ordinance, the EMSD started an exercise in 2014 to enhance system integration of the LEO system and to capture related L/E information in the LEO system, including model numbers and manufacturers' names. The information has been gradually uploaded onto the LEO System and the whole upgrading exercise is scheduled for completion in 2016.

## **PART 5: WAY FORWARD**

5.1 This PART outlines the major audit observations and examines the way forward.

### **Major audit observations**

5.2 Subsequent to the L&E Ordinance coming into effect in December 2012 which expanded the scope of statutory control to cover also L/Es owned by the Government and the Housing Authority, and with the commissioning of new L/Es in recent years, the number of L/Es regulated under the L&E Ordinance had increased by 24% from 58,650 (comprising 51,191 lifts and 7,459 escalators) in 2011 to 72,486 (comprising 63,561 lifts and 8,925 escalators) in 2015. Furthermore, the number of L/E reportable incidents had also increased by 24% from 1,632 in 2011 to 2,029 in 2015. According to the EMSD, with a view to reducing the number of incidents related to passenger behaviour and external factors, it will continue its work in promotion and education on safe use of L/Es by passengers. In view of the growth in the number of L/E incidents, the EMSD needs to strengthen actions with a view to reducing L/E incidents and consequential injuries. The EMSD's work in facilitating and ensuring the safe operation of L/Es is mainly carried out through monitoring the work of registered persons (see PART 2), and through site inspections and other regulatory actions (see PART 3).

5.3 PART 2 of this Audit Report revealed that the EMSD needed to strengthen actions against RCs and REs who did not properly discharge their duties and responsibilities. In PART 3, Audit identified areas for improvement in the EMSD's work in processing use-permit applications, conducting site inspections, issuance of prohibition orders, monitoring L/E incidents and retrofitting new safety devices for government lifts. Audit has made recommendations for the EMSD to make improvements in the related areas. In Audit's view, timely implementation of the audit recommendations will help maintain safe operation of L/Es.



## Way forward

### *Need to address the manpower need for L/E maintenance and examination*

5.4 According to the Long Term Housing Strategy Implementation Milestones published by the Transport and Housing Bureau in December 2014, the Government has set a target of supplying 480,000 residential units in the coming ten years from 2015-16 to 2024-25. Hence, there will be a significant increase in the coming ten years in the number of new buildings and new L/Es, and a consequential increase in the demand for L/E maintenance work.

5.5 In February and March 2016, the EMSD informed Audit that:

- (a) the Government had been collaborating with the L/E industry to monitor the adequacy of manpower for L/E maintenance and taking appropriate measures to address the increasing manpower need. The EMSD had regularly conducted RC surveys to monitor the manpower situation;
- (b) in 2014, the EMSD together with the trade and the Vocational Training Council (VTC — Note 17) established a working group to collaborate on matters related to L/E maintenance including exploring measures to attract new workers to join the L/E trade. The VTC would launch a new part-time certificate course on L/E engineering in 2016;

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**Note 17:** *The Vocational Training Council, established in 1982, is the largest vocational professional education and training provider in Hong Kong. Its main functions comprise instituting, developing and operating programmes for training workforce in order to sustain and improve industries, and reviewing the availability of trained manpower to meet the needs of industries.*

## Way forward

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- (c) the Construction Industry Council (Note 18) had included the L/E trade under their “Contractors Cooperative Training Scheme”, under which trainees would be employed by participating contractors before receiving formal training; and
- (d) the VTC had introduced the “Pilot Training and Support Scheme” which offered vocational education and training by integrating structured apprenticeship training programmes with clear career progress pathways. The number of new intake apprentices for the L/E trade had increased from less than 100 in previous years to 225 in 2015.

5.6 In Audit’s view, the EMSD needs to closely monitor the adequacy of manpower supply for REs and RWs, and liaise with the trade and local training institutions with a view to ensuring that adequate REs and RWs are trained to meet the increasing L/E maintenance and examination work requirements arising from the significant increase in the number of new buildings and new L/Es in coming years.

### *Need to promulgate guidelines for retrofitting new safety devices for escalators*

5.7 As stated in paragraphs 3.43 to 3.47, with a view to enhancing the safety standards of existing lifts, the EMSD has taken action to retrofit new safety devices for government lifts and encourage owners of private lifts to implement similar retrofitting works. Audit noted that, as of April 2015, 2,008 (23% of the total 8,622 escalators) escalators were installed in or before 1989 i.e. more than 25 years of age (see Table 9).

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**Note 18:** *The Construction Industry Council, formed in February 2007, comprises representatives from industry employers, professionals, academics, contractors, workers and independent persons. Its main functions are to forge consensus on long-term strategies, convey the industry's needs and provide training and registration for the construction workforce.*

**Table 9**  
**Years of installation of escalators**  
**(April 2015)**

Year of installation	Projected age as of December 2015 (Year)	Escalator	
		(No.)	(Percentage)
1980 and before	35 or more	331	4%
1981 to 1989	26 to 34	1,677	19%
1990 to 1999	16 to 25	2,530	29%
2000 to 2009	6 to 15	2,931	34%
2010 and after	5 or less	1,153	14%
Total		8,622	100%

} 2,008  
(23%)

*Source: EMSD records*

5.8 While the EMSD promulgated a set of guidelines in 2011 to encourage lift owners to consider retrofitting new safety devices for their lifts (see paras. 3.43 to 3.47), it has not promulgated similar guidelines for escalators. According to the EMSD, because the number of enhancement devices introduced in recent years for escalators is much smaller than that for lifts, it has given priority to promulgating guidelines for lift modernisation. Audit noted from EMSD records that escalators installed in or after 2012 were required to have:

- (a) a braking system that could be operated automatically in the event of an escalator being trapped by an external object; and
- (b) a device to stop an escalator when a missing step is detected.

With a view to enhancing the safety and reliability of escalators, the EMSD needs to consider promulgating guidelines for retrofitting new safety devices for escalators.

### *Need to enhance the impartiality of REs*

5.9 As of December 2015, there were 332 REs. According to the EMSD, 302 (91%) of these REs were employees of RCs, and they were responsible for examining and certifying the safe working condition of L/Es maintained by their RC employers.

5.10 In 2009, EMSD research found that:

- (a) in European Union countries, examination and certification of safe operation of L/Es were carried out by persons independent of persons responsible for L/E maintenance work; and
- (b) in Canada and the USA, examination and certification of safe operation of L/Es were mainly conducted by government employees.

5.11 In December 2014, in a review report of the Corruption Prevention Department of the Independent Commission Against Corruption (ICAC) on Regulation of L/Es, the ICAC:

- (a) stated that, as many practising REs were employed by RCs, they were duty bound to be loyal to their employers. Given their role conflicts, compromised REs might collude with unscrupulous RCs by undermining their professional standards; and
- (b) recommended that the EMSD should take measures to enhance the impartiality of REs in examining and certifying the work of RCs.

5.12 In March 2015, the EMSD informed the ICAC that it accepted the ICAC recommendation. In June 2015, the EMSD informed the ICAC that it would prepare a sample contract for RPs to engage independent REs for RE examination work.

- 5.13 In February and March 2016, the EMSD informed Audit that:
- (a) there was insufficient number of independent REs in the market. Under the L&E Ordinance, REs were not prohibited from carrying out examination of L/Es maintained by their own RC employers;
  - (b) the EMSD had implemented measures to promote the independence of REs. For example, independent REs had been engaged to inspect government lifts and, in consultation with ICAC, it had promulgated related guidelines; and
  - (c) a sample contract for engagement of independent REs for lift maintenance was published and uploaded onto EMSD website for RPs' reference in January 2016.

Audit considers that the EMSD needs to, taking into account good overseas practices, work with the L/E industry and consider taking measures to enhance the impartiality of REs in examining and certifying the safe operation of L/Es.

## **Audit recommendations**

5.14 **Audit has *recommended* that the Director of Electrical and Mechanical Services should:**

- (a) **take measures to implement audit recommendations in this Audit Report in a timely manner;**
- (b) **consider promulgating guidelines for retrofitting new safety devices for escalators; and**
- (c) **taking into account good overseas practices, consider taking measures to enhance the impartiality of REs in examining and certifying the safe operation of L/Es.**

### **Response from the Government**

5.15 The Director of Electrical and Mechanical Services agrees with the audit recommendations. He has said that the EMSD will:

- (a) continue to take actions with reference to the recommendations in this Audit Report;
- (b) consider promulgating guidelines for retrofitting new safety devices for escalators; and
- (c) consider to take further measures to enhance/promote the impartiality of REs in examining and certifying the safe operation of L/Es.

**Installations not regulated under  
the Lifts and Escalators Ordinance**

<b>Installation type</b>	<b>Responsible Government Department</b>	<b>Related Ordinance/ Code of Practice</b>
Amusement devices	EMSD	Amusement Rides (Safety) Ordinance (Cap. 449)
Hoists on construction sites	Labour Department	Factories and Industrial Undertakings Ordinance (Cap. 59)
Lifts in ships	Marine Department	Code of Safe Working Practice for Merchant Seafarers (an international convention adopted for vessels registered in Hong Kong)
Lifts in aircrafts	Civil Aviation Department	Civil Aviation Ordinance (Cap. 448)
Lifts provided in connection with buildings under construction	EMSD	Builders' Lifts and Tower Working Platforms (Safety) Ordinance (Cap. 470)
Service lifts in industrial undertakings	Labour Department	Factories and Industrial Undertakings Ordinance (Cap. 59)

*Source: EMSD records*

## **Reportable lift and escalator incidents**

### **Lifts**

1. A person dies or is injured and the death or injury involves a lift or any associated equipment or machinery of a lift.
2. A failure of the main drive system of a lift occurs other than by reason of the failure of the main power system of the lift.
3. A breakage of any suspension rope of a lift.
4. A failure of any brake, overload device, safety component or safety equipment of a lift.
5. A failure of any interlocking device for any door of the lift-way of a lift occurs other than by reason of a failure of the making of electrical contact of safety contacts.
6. A failure of any interlocking device for any door of the carrier of a lift occurs other than by reason of a failure of the making of electrical contact of safety contacts.

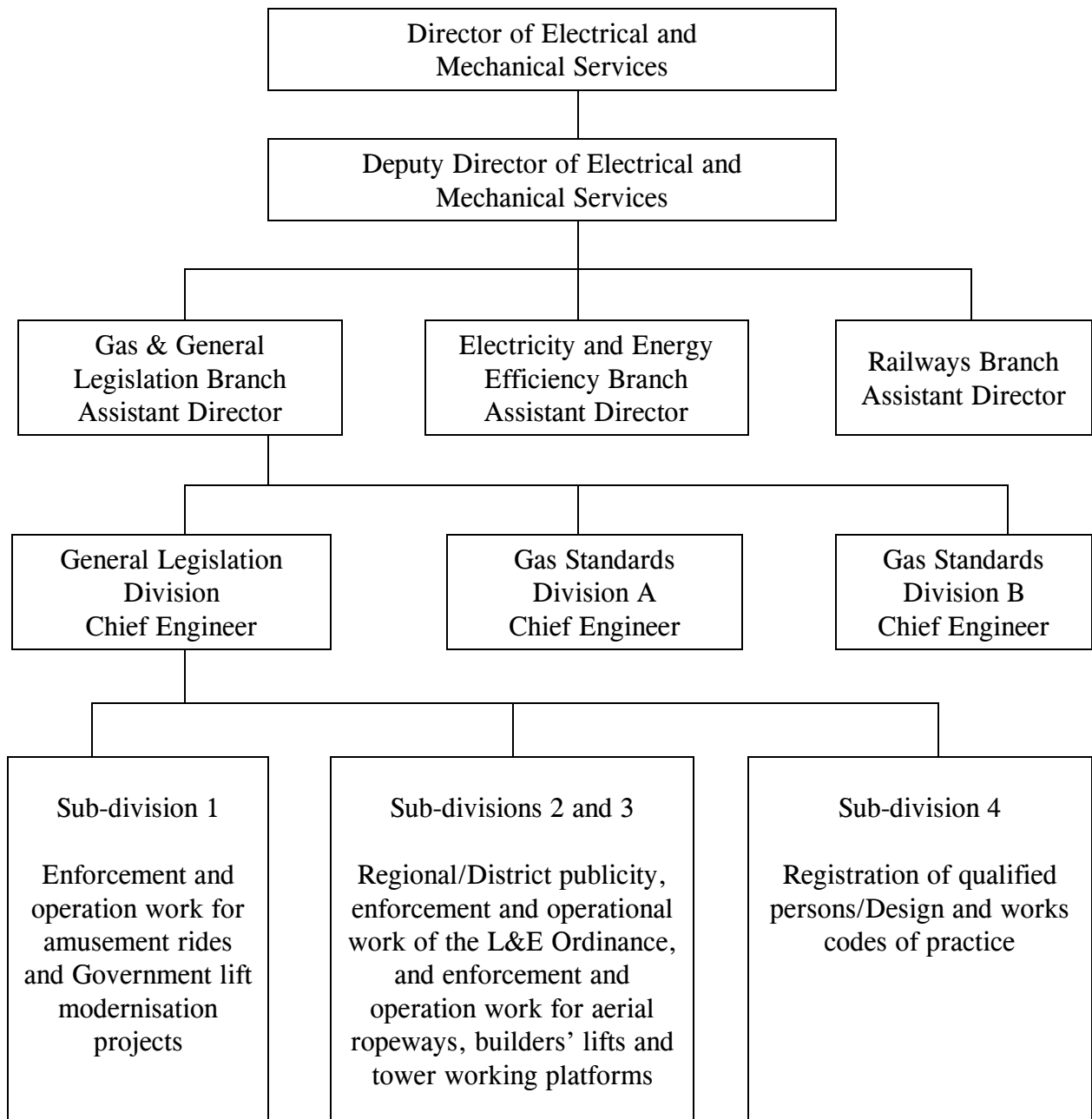
### **Escalators**

1. A person dies or is injured and the death or injury involves an escalator or any associated equipment or machinery of an escalator.
2. A failure of the main drive system of an escalator occurs other than by reason of the failure of the main power system of the escalator.
3. A failure of any brake, step chain, drive chain, safety component or safety equipment of an escalator.

*Source: EMSD records*



**Electrical and Mechanical Services Department  
Organisation chart (extract)  
(31 December 2015)**



Source: EMSD records

**EMSD actions to enhance Responsible Persons’  
knowledge of their roles and responsibilities**

1. ***Guidebook for Responsible Persons for Lifts/Escalators.*** The EMSD published in 2012 the “Guidebook for Responsible Persons for Lifts/Escalators” to assist RPs to keep L/Es in a proper state of repair and in safe working order. It also provided guidelines on the daily maintenance of L/Es, selection of maintenance contractors and handling of emergencies.
2. ***Organising talks, seminars and events.*** The EMSD organised 73 talks/seminars/events for RPs with 10,760 attendees from 2013 to 2015, covering various topics related to RPs’ duties.
3. ***Surveys on the maintenance price of lifts.*** The EMSD conducted surveys on the maintenance costs of lifts in commercial and residential properties and published the information on EMSD website.
4. ***Ambassador visits.*** The EMSD conducted ambassador visits to around 100 buildings which did not have any Incorporated Owners Corporation, Owners’ Committee or property management agent. EMSD ambassadors provided residents and lift owners with information relating to the L&E Ordinance and tips on managing their lifts.
5. ***RPs’ Corner on EMSD website.*** The EMSD launched the RPs’ Corner on EMSD website to provide information to facilitate RPs in managing their L/Es.
6. ***Announcement in the Public Interest.*** Announcements in the Public Interest were broadcast to introduce information of the L&E Ordinance, lift modernisation measures and information on safe use of lifts and escalators. The EMSD produced promotional videos to help RPs to understand their duties under the L&E Ordinance.
7. ***Lift and Escalator Newsletter.*** The EMSD published Lift and Escalator Newsletter in 2015 to provide latest L/E information to RPs.
8. ***Quality Lift Service Recognition Scheme.*** In December 2015, the EMSD launched the pilot Quality Lift Service Recognition Scheme for RPs of lifts at 100 private buildings/estates. Under the scheme, participating RPs meeting the assessment standards would be awarded a certificate. The assessment standards included the extent of implementation of new safety devices to enhance lift safety, the level of compliance with CoP requirements by the RPs, and the suspension time of lift operation due to lift failure.

Source: EMSD records

## **Performance monitoring points for non-compliance issues**

**(a) Examples of common non-compliance issues for lifts**

*Category A.* Ineffective landing door interlock device, ineffective safety gear, and ineffective machine brake (15 PM points).

*Category B.* Incorrect setting of car overload device/overspeed governor and ineffective emergency alarm device (6 PM points).

*Category C.* Ineffective landing door automatic closing function and ineffective car ventilation fan (4 PM points).

*Category D.* Ineffective landing door emergency unlocking function and excessive door closing force (3 PM points).

*Category E.* Blocked ventilation slots and inoperative car lighting (2 PM points).

**(b) Examples of common non-compliance issues for escalators**

*Category A.* Ineffective machine main brake and broken step chain (15 PM points).

*Category B.* Ineffective emergency stop switch (6 PM points).

*Category C.* Excessive clearance between comb and step and exposed machinery, moving parts or electrical parts (4 PM points).

*Category D.* Excessive deviation of the speed of handrail from the speed of the steps (3 PM points).

*Category E.* No provision of brake release instruction, and logbook not updated in accordance with the CoP (2 PM points).

*Source: EMSD records*

### **Seven new lift safety devices**

- (a) ***Mechanical car door lock and door safety edge*** (1984). The benefit of installing a mechanical car door lock is to prevent a lift car door from being opened forcibly. The installing of a door safety edge is to automatically initiate re-opening of the door of a lift should a passenger be struck by the door when it is closing.
- (b) ***Obstruction switch to protect suspension ropes*** (1984). Such a switch can prevent the excessive wear and tear of suspension ropes and sheaves during a lift breakdown, which can happen when the movement of a lift or its counterweight is obstructed while the motor is still in operation.
- (c) ***Intercom and closed-circuit television system*** (1997). Such a system makes it possible for trapped passengers to communicate directly with management office staff. Management office staff may also monitor the lift situation during an emergency.
- (d) ***Double brake system*** (2002). Older lifts were usually fitted with a single brake system. If the system fails, the lift cannot be stopped effectively. With a double brake system, in the event that a brake system fails, the other system will ensure the safe operation of the lift.
- (e) ***Ascending overspeed protective device*** (2003). Such a device can protect an ascending lift from accidentally over-speeding, thereby reducing the risk of the lift car from hitting the top of the lift well.
- (f) ***Unintended lift movement protection device*** (2007). It can be dangerous and may cause injuries if there is an unintended movement of a lift whilst passengers are entering or exiting the lift. A protective device can prevent such unintended lift movements.
- (g) ***Automatic rescue device*** (not a compulsory device). When normal power supply stops, the device uses back-up battery power to stop the lift at the nearest landing floor and opens the door to release the passengers. The lift will remain out of service until normal power supply resumes. Such a device is not a compulsory safety device.

*Source: EMSD records*

*Remarks: Lifts installed in or after the years indicated in the brackets are required to be installed with the respective safety devices.*

**Acronyms and abbreviations**

Audit	Audit Commission
B/Ds	Government bureaux and departments
CoP	Code of practice
CPR System	Registered Lift and Escalator Contractors' Performance Rating System
DAR Panel	Disciplinary Action Review Panel
DEVB	Development Bureau
EMSD	Electrical and Mechanical Services Department
ICAC	Independent Commission Against Corruption
LEO System	Lift and Escalator Ordinance System
L/E	Lift or escalator
L&E Ordinance	Lifts and Escalators Ordinance
PA Scheme	Performance Assessment Scheme
PM	Performance monitoring
RC	Registered Contractor
RE	Registered Engineer
RP	Responsible Person
RW	Registered Worker
VTC	Vocational Training Council