



Our reference 本署檔號 :

(96) in EMSD/LESD 7-2/4A

Telephone 電話號碼 : 2808 3651

Your reference 來函檔號 :

Facsimile 圖文傳真 : 2504 5970

21 March 2017

To: All Registered Lift/Escalator Contractors

Dear Sirs,

## **Circular No. 2/2017**

### **Written Examination for Candidates**

### **Applying for Registration as Lift and/or Escalator Engineers in 2017**

Please be informed that written examinations for candidates applying for registration as lift engineers and/or escalator engineers ("RE") in 2017 will be arranged by the Examination Board formed with representatives from this department and three local universities. Details of the arrangement are given in the information leaflet as attached.

In view of the registration pathway of RE on possession of higher certificate or higher diploma qualification plus five years of relevant working experience is a transitional arrangement and will be terminated by December 2017 tentatively, the written examination in 2017 is advanced to May 2017 allowing more time for affected applicants to apply for the RE application interview before the termination. As indicated in the leaflet, the examinations will be held on 27 May 2017 (Saturday) and the application period is from 3 April to 5 May 2017.

Please bring up this circular to all potential applicants and post on the bulletin board of your company. Should you wish to recommend any of your staff members to apply for the examination, please make sure that applications are submitted within the above-mentioned period. Photocopy of the application form is also acceptable.

Yours faithfully,



(LAI Chun-fai, Alex)  
for Director of Electrical and Mechanical Services

Encl.

c.c.      The Lift and Escalator Contractors Association  
            The Registered Elevator and Escalator Contractors Association Limited  
            International Association of Elevator Engineers (HK-China Branch)



**Information Leaflet on**

**Written Examinations for Candidates Applying for**

**Registration as Lift Engineers and Escalator Engineers**

**under the Lifts and Escalators Ordinance**

**(February 2017)**

**by**  
**The Examination Board (Registration of lift engineers and escalator engineers)**

## **Written Examinations for Candidates Applying for Registration as Lift Engineers and Escalator Engineers under the Lifts and Escalators Ordinance**

### **1.0 Preface**

- 1.1 In 1998, the Lifts and Escalators Sub-division of the Electrical and Mechanical Services Department (EMSD) formed the Examination Committee (Registration of lift engineers and escalator engineers). Under the Examination Committee, the Examination Board (Registration of lift engineers and escalator engineers) was formed. From 1998 onwards, the Examination Board arranged written examinations for candidates applying for registration as lift engineers and escalator engineers, to replace similar examinations which were organized by EMSD alone.
- 1.2 The Examination Committee is formed with representatives from EMSD, universities, lift and escalator contractor associations, and the International Association of Elevator Engineers (HK-China Branch).
- 1.3 The Examination Board is formed with representatives from EMSD and universities.

### **2.0 Objectives**

The Examination serves to assess the candidate's abilities, statutory knowledge, theoretical knowledge and technical knowledge in design, installation, commissioning, testing and maintenance works on lifts/escalators (whichever is appropriate).

### **3.0 Recognition of the Examination**

Anyone who has passed the Examination may apply within 2 years for registration as lift/escalator engineers (whichever is appropriate) if they satisfy other application requirements. They will only be registered if they also pass the interviews conducted by EMSD.

### **4.0 Structure**

Examination questions are essay type. Candidates are allowed to bring relevant Ordinances, Standards, Codes of Practice and Circular Letters into the examination hall. Any kind of "model answers" will not be allowed. The Examination will be divided into two parts - the lift part and the escalator part. Each candidate may select to take only the lift part or only the escalator part. However, he/she may select to take both parts in one examination.

*Lift part:* This part consists of 7 questions, of which 4 are compulsory questions. Each question carries 20 marks. Each candidate has to attempt 5 questions. The duration of examination is 3 hours from 10:00 a.m. to 1:00 p.m., and the passing mark is 50%.

*Escalator part:* This part consists of 6 questions, of which 3 are compulsory questions. Each question carries 25 marks. Each candidate has to attempt 4 questions. The duration of examination is 2 hours from 2:30 p.m. to 4:30 p.m., and the passing mark is 50%.

### **5.0 Syllabuses and sample questions**

Please refer to Appendices A & B for the syllabuses and sample questions for the Examination.

### **6.0 Date of the Examination in 2017**

In 2017, the Examination will be held once. The date is Saturday, 27 May 2017. On the date of examination, the morning session (10:00 a.m. to 1:00 p.m.) is for the lift part, and the afternoon session (2:30 p.m. to 4:30 p.m.) is for the escalator part.

## **7.0 Application procedures**

**7.1 Entry Prerequisite** - There is no minimum entry prerequisite. However, the application has to be signed by a proposer who must be a Registered Lift/Escalator Engineer/Contractor, or the applicant's employer.

**7.2 Application period** - The application period for the Examination in 2017 are the office hours on:

- 3 April to 5 May 2017 for the examination on 27 May 2017.

**7.3 Obtaining application form** - During the application period, application forms and these leaflets can be obtained free of charge from the following locations (Note: photocopies of application forms are acceptable):

- City University of Hong Kong: School of Continuing and Professional Education (SCOPE), Lower Ground Floor, Academic Exchange Building, City University of Hong Kong, Tat Chee Avenue, Kowloon. Tel.: 3442 7423.
- SCOPE Admiralty Learning Centre, 8/F, United Centre, 95 Queensway, Admiralty, Hong Kong. Tel: 3442 2111.
- Electrical & Mechanical Services Department: General Legislation Sub-division 4, 3 Kai Shing Street, Kowloon, Hong Kong. Tel.: 2808 3623.

**7.4 Submission of application form** - During the application period, candidates may submit their completed application forms in person or by mail to the following location:

- City University of Hong Kong: School of Continuing and Professional Education (SCOPE), Lower Ground Floor, Academic Exchange Building, City University of Hong Kong, Tat Chee Avenue, Kowloon Tong, Kowloon.  
Tel.: 3442 7423.

**Note:** The log-in dates of mailed applications are judged by post marks.

**7.5 Items to be included in each application** - Each candidate has to include all the following in his/her application:

- A signed and completed application form.
- A cross cheque of HK\$1,000 or HK\$500 which should be made payable to “City University of Hong Kong” (HK\$1,000 for an application to enter both the lift part and the escalator part, HK\$500 for an application to enter only one of the two parts.)

**Note:** Incomplete or unpaid applications will not be processed.

**7.6 After the application** - 1 week before the date of the examination, each applied candidate should receive an acknowledgement letter (or fax/phone message, in urgent cases) to inform him/her of the venue of examination and his/her examination number. A copy of instructions to candidates and examination regulations will be attached in that letter or fax/phone message. Candidates should follow the instructions to attend the examination. Candidates have not received the above information by 4 days before the scheduled examination date should make an enquiry to SCOPE, City University of Hong Kong at 3442 7423.

**Note:** The acceptance of an application into the Examination is at the discretion of the Examination Board.

## **8.0 Notification of examination results**

An examination result will normally be informed to all candidates within 6 weeks after the examination. The examination result is in form of “a pass” or “a fail”, not marks or grades.

Passed candidates are required to come in person to sign on and collect the pass certificates. If candidates have not received their results after the 6 weeks period, they may contact the Examination Board.

### **9.0 Appeals**

If a candidate is dissatisfied with the examination result, he/she may lodge an appeal to the Examination Board within 14 days after the issuing of the examination result. Such an appeal must be made in writing to the Examination Board via the following address and must be accompanied by a cheque of HK\$300 (made payable to “*City University of Hong Kong*”).

The Examination Board (Registration of lift engineers and escalator engineers)  
c/o Mr. Arthur WONG  
School of Continuing and Professional Education,  
City University of Hong Kong,  
Tat Chee Avenue, Kowloon.

Each appeal will be handled directly and carefully by the Examination Board and then the Board will inform the concerned candidate about the result of the appeal, which is only in form of “the original result stands” or “the original result does not stand”. Neither details of the appeal procedure nor the marks of the candidate will be released to the candidate. That decision of the Examination Board will be final. The appeal fee paid will not be refunded if the original result stands.

### **10.0 Web site**

This information leaflet, the attached application form, any other relevant information can be found in the following web site:

<http://www.cityu.edu.hk/ce/rleee>

*The Examination Board (Registration of lift engineers and escalator engineers)*

*February 2017*

## **Appendix A : Syllabuses of the written examination**

The syllabuses cover the following areas:-

- 1) Comprehension of relevant Ordinances, International Standards and codes of practice:
  - a) Lifts and Escalators Ordinance (Chapter 618);
  - b) Code of Practice on the Design and Construction of Lifts and Escalators;
  - c) Code of Practice for Lift Works and Escalator Works;
  - d) Relevant International Standards (e.g. BS 5655(EN81) / BS5656(EN115));
  - e) Requirements of Fireman's Lift;
  - f) Factories and Industrial Undertakings (Goods Lifts) Regulations (Chapter 59) and Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department;
  - g) Code of Practice on Building Works for Lifts and Escalators, relevant parts of Code of Practice for Fire Safety in Buildings and Design Manual — Barrier Free Access issued by the Building Authority.
  - h) Guidelines on Safety of Lift Shaft Works issued by Construction Industry Council.
  
- 2) Knowledge of:
  - a) Lift/escalator theories –  
these include, but not limited to:
    - Mechanics of lifts and escalators
    - Calculations and formula derivation for clearance distances required for lift car and counterweight under various situations.
    - Calculations and formula derivation for braking load required.
    - Calculations and formula derivation for gravity stopping distance.
    - Calculations and formula derivation for coefficient of friction and wrapping angle on traction sheaves required.
    - Calculations and formula derivation for type tests of various critical components of lift and escalator systems as required in BS5655/EN81, BS5656/EN115.
    - Calculations on capacity of lift and escalator systems.
    - Calculations on dead weight loading on supporting structure & deflection values of escalator systems.
    - Other lift and escalator knowledge
  - b) Circular letters from EMSD related to Lifts and Escalators.
  
- 3) Practical experience in connection with the installation, commissioning, testing, maintenance and operation of machinery and safety equipment of lifts/escalators.

## **Appendix B : Sample questions of the written examination**

### ***Lift part:***

- Q.1(a) For a traction drive lift of 1.5 m/s rated speed, determine the required minimum height above the roof of the car enclosure when the counterweight rests on a fully compressed buffer. Your answer should be accompanied with appropriate sketches.
- Q.1(b) Explain the meaning of “gravity stopping distance at 115% of rated speed” and clarify its importance.
- Q.1(c) In case reduced stroke buffers are used for a high speed lift (for example, rated speed faster than 4 m/s), does the calculation of top clearances have still to follow that of part (a) of above, or it can be reduced? If it can be reduced, explain why and how.
- Q.2 Please explain and describe the complete procedure in the periodic examination and testing of an existing lift. Your answer shall include, but not limited to the following points:
- Tests and examinations required and their appropriate timing.
  - Components and devices to be examined or tested.
  - The expected outcome of these test and examinations under normal situations.
  - Certificates and reports involved.
  - The process in handling unsatisfied circumstances.

### ***Escalator part:***

- Q.1(a) Suppose you are now granted a contract to supply an escalator of 10 metre rise which is used to connect a street (outdoor situation) and a shopping mall, state and explain the constraints on the choice of speed, the angle of inclination and any other additional appropriate requirements.
- Q.1(b) For some events stipulated in the Clause 10.3.2.4 in the Part 4 of Section E of the Code of Practice on the Design and Construction of Lifts and Escalators, some electrical safety devices of escalators should operate, which may cut off the supply to contactors or relay contactors. Describe and explain:
- The construction requirements of such a safety contacts.
  - The resulting action on the escalator equipment after the operation of any such devices.
- Q.2 State ‘True’ or ‘False’ with your justifications for each of the following statements. No mark will be given for answers without justifications.

- (i) The safety factor for any part of the driving machine constructed of cast iron, based on the static load, shall be not less than 10.
- (ii) The radius of curvature of a passenger conveyer in the upper transition from incline to horizontal shall be at least 1 m for rated speed at or below 0.5 m/s and at least 1.5 m for rated speed exceeding 0.5 m/s.
- (iii) .....
- (iv) .....





## Application Procedures

**Application period** - The application period in 2016 are the office hours on:

- 3 April to 5 May 2017 for the examination on 27 May 2017.

**Submission of application form** - During the application period, candidates may submit their completed application forms in person or by mail to the following location:

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**Items to be included in each application** - Each candidate has to include all the following in his/her application:

- A signed and completed application form.
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**Note:** Incomplete or unpaid applications will not be processed.

**After the application** - 1 week before the date of the examination, each applied candidate should receive an acknowledgement letter (or fax/phone message, in urgent cases) to inform him/her the venue of examination and his/her examination number. A copy of instructions to candidates and examination regulations will be attached in that letter or fax/phone message. Candidates should follow the instructions to attend the examination. Candidates have not received the above information by 4 days before the scheduled examination date should make an inquiry to the office where the application was logged.

**Note:** The acceptance of an application into the Examination is at the discretion of the Examination Board.

## Examination Regulations

1. Each candidate must bring his/her HKID card to the examination session and the HKID card will be checked by the invigilators. Candidate who cannot present his/her HKID card is not allowed to sit for the examination.
2. Candidates should reach the examination room at least 10 minutes before the start of the examination sessions. Candidates who arrive later than half of the examination time of the session (i.e. after 10:30am or 3:00pm) are not allowed to enter the examination room.
3. Each candidate is allowed to bring in Ordinances, Codes of Practice (as listed below) and Circular Letters for his/her own reference (not for other candidates) in the examinations:
  - a) Lifts and Escalators Ordinance (Chapter 618);
  - b) Code of Practice on the Design and Construction of Lifts and Escalators;
  - c) Code of Practice for Lift Works and Escalator Works;
  - d) Relevant International Standards (e.g. BS 5655(EN81) / BS5656(EN115));
  - e) Requirements of Fireman's Lift;
  - f) Factories and Industrial Undertakings (Goods Lifts) Regulations (Chapter 59) and Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department;
  - g) Code of Practice on Building Works for Lifts and Escalators, relevant parts of Code of Practice for Fire Safety in Buildings and Design Manual - Barrier Free Access issued by the Building Authority.
  - h) Guidelines on Safety of Lift Shaft Works issued by Construction Industry Council.

Only clean legal copies of the above mentioned materials are allowed. Written notes, additional printed text or any other paper/notes stapled or added to the clean legal copies are not allowed. However, key words or phrases can be highlighted or underlined and small tabs may be used. Any kind of "model answers", sample answers or similar will not be allowed. Candidate if found to bring in any unauthorized materials will be disqualified at the judgement of the Chief Invigilator. The unauthorized material (if found) will be collected by the Chief Invigilator and return to the candidate after making a copy.

4. Candidates are allowed to bring in calculators, provided that the calculators are self-contained, operate silently, and have no printers. It is the candidate's responsibility to ensure his/her calculator meets the requirements and operates satisfactorily.
5. Computers (including notebook type, lap-top, palm-top etc.)/PDAs (personal digital assistants)/Smartphones/Mobile Phones are not allowed in the examinations. The invigilators have the right to make the final decision on whether an electronic device of a candidate is a computer/PDA/Smartphones/Mobile Phones or not.
6. During the examinations, candidates are not allowed to communicate with other candidates in the room or any other bodies outside the room. All communication devices including smartphones, mobile phones, pagers, etc must be in OFF mode and are not allowed to be used in the examination venue.
7. Cheating is strictly prohibited in the examination. Cheating may lead to permanent banning from the examination and/or criminal prosecution.

8. In the first 30 minutes and in the last 30 minutes of each examination session, candidates are not allowed to leave the examination venue.
9. Invigilators will not answer any inquiries relating to the examination questions. Candidates are expected to use their own interpretations and make their assumptions on the examination questions.
10. Invigilators have the right to keep order in the venue, and may stop anybody from doing any action that may disturb the order.
11. For the adverse weather arrangements, please visit CityU website at:  
<http://www.cityu.edu.hk/cdfo/awa/index.htm>