

**CODE OF PRACTICE
FOR
LIFT WORKS
AND
ESCALATOR WORKS**

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LIFT WORKS
AND
ESCALATOR WORKS

Electrical and Mechanical Services Department
The Government of the Hong Kong Special Administrative Region

2021 Edition

Foreword

The Lifts and Escalators Ordinance (“the Ordinance”) (Cap. 618) was introduced with an aim to enhancing the regulatory control over the safety of lifts and escalators. The major modifications include the expansion of scope of application of the legislation, the strengthening of the shared responsibility principle, and introduction of streamlining procedures. Apart from the aforementioned, there is also the introduction of the workers registration system giving due recognition to the skills and competency of trade practitioners.

With the changes brought about by the new legislation, a new code of practice to give guidance on matters relating to the safety of lifts and escalators, in particular on lift works and escalator works including installation, commissioning, examination, maintenance, repair, alteration or demolition of a lift, an escalator, or any associated equipment or machinery of a lift or an escalator is necessary. The new code of practice will also provide guidelines on procedural requirements relating to the aforementioned activities.

The new code of practice, namely the Code of Practice for Lift Works and Escalator Works (the Works Code), is mainly for the reference of trade practitioners. The Works Code is issued by the Director of the Electrical and Mechanical Services (the Director) under the provisions of the Ordinance. In drafting the provisions under the Works Code, the Director has consulted the trade on the proposed contents of the Works Code. The guidance given in the Works Code sets out the minimum industry standard in satisfying the requirements under the Ordinance, taking into account the trade skills and risk perception of the general practitioners.

Throughout this Code, we have made reference to the relevant safety standards of the European Standards Institution. However, if there are some other national, international standards or provisions which are equivalent, they would be acceptable as alternatives.

The Electrical and Mechanical Services Department (the Department) acknowledges the valuable suggestions made by the Task Force for Legislative Amendments to the Lifts and Escalators (Safety) Ordinance on the draft Works Code. The Works Code will be under regular review. The Department welcomes suggestions for improving the Works Code.

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Warning Sign

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Part 1

Introduction

- 1.1 This Code of Practice for Lift Works and Escalator Works (hereinafter referred to as **the Works Code**) is issued by the Director of the Electrical and Mechanical Services (**the Director**) under the provisions of the Lifts and Escalators Ordinance (hereinafter referred to as **the Ordinance**).
- 1.2 The definitions of “lift”, “escalator”, “lift works”, and “escalator works” have been provided in section 2(1) of the Ordinance. Lift works or escalator works, in general, cover any kind of work concerning the installation, commissioning, examination, maintenance, repair, alteration or demolition of a lift or an escalator or any associated equipment or machinery of a lift or an escalator.
- 1.3 The Ordinance stipulates that only **qualified persons**¹ (QPs), specified persons, or persons under the direct supervision of QPs at the place at which where the lift works or escalator works are carried out are allowed to carry out lift works or escalator works personally. The Ordinance further requires that **responsible persons for a lift or an escalator** (RPs) must ensure that certain lift works or escalator works are to be carried out by **registered contractors** (RCs) and thorough examinations of the lift or the escalator upon completion of installation, following major alteration and before the normal use and operation of the lift or the escalator is resumed, and at regular intervals are carried out by **registered engineers** (REs). There are other regulatory controls under the Ordinance to make up the regulatory framework.

¹ The definition of QP is provided in section 2(1) of the Ordinance.

Code of Practice for Lift Works and Escalator Works

Part 1 – Introduction

- 1.4 The Works Code provides practical guidance for reference of registered persons with a view to satisfying the legislative requirements and advises on procedural requirements in relation to carrying out lift works or escalator works under the Ordinance. Section 107 of the Ordinance states that the registered person commits misconduct or neglect in any professional respect is considered as a disciplinary offence which may lead to disciplinary proceedings. It should be noted that the registered person carrying out any works or activities that are in conflict with the practical guidance related to safety requirements provided by the Works Code may be considered as misconduct or neglect in a professional respect.
- 1.5 Moreover, the Works Code recommends approaches for certain matters so as to enhance operational efficiency and effectiveness with a view to streamlining workflow and eliminating unnecessary interruptions to lift services or escalator services which are of great concern to the users.
- 1.6 In view of the variety of types of lifts and escalators, and the changing circumstances, where any trade practitioner is in doubt of the appropriateness for direct application of the guidance quoted in the Works Code, he or she is recommended to consult **the Electrical and Mechanical Services Department (EMSD)**.
- 1.7 The Works Code is made up of six parts. Part 1 is the Introduction. Part 2 lists the abbreviations, definitions, and references which have been used or referred to in the Works Code. Part 3 gives an overview of duties and relationship of stakeholders, in particular registered persons, under the Ordinance. Part 4 outlines the general requirements in relation to the carrying out of lift works, escalator works and ancillary matters under the Ordinance. Part 5 gives account to the specific requirements relating to lift works and escalator works. Part 6 is on miscellaneous issues.

Part 2

Abbreviations, Definitions, and References

2.1 Abbreviations

AP	Authorized person as defined under the Buildings Ordinance, Cap. 123
EMSD	Electrical and Mechanical Services Department
FRR	Fire resisting rating
O&M	Operation and maintenance
QP	Qualified person
RC	Registered lift contractor or registered escalator contractor
RE	Registered lift engineer or registered escalator engineer
RP	Responsible person for a lift or an escalator
RSE	Registered structural engineer as defined under the Buildings Ordinance, Cap. 123
RW	Registered lift worker or registered escalator worker
The Design Code	The Code of Practice on the Design and Construction of Lifts and Escalators issued by the Director by virtue of section 145 of the Ordinance
The General Regulation	The Lifts and Escalators (General) Regulation, Cap. 618A
The Fees Regulation	The Lifts and Escalators (Fees) Regulation, Cap. 618B
The Ordinance	The Lifts and Escalators Ordinance, Cap. 618
The Works Code	The Code of Practice for Lift Works and Escalator Works issued by the Director by virtue of section 145 of the Ordinance

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Part 2 – Abbreviations, Definition and References

2.2 Definitions

The definitions provided in this section, except the RP's Guidebook, are replicated from section 2(1) of the Ordinance with a view to facilitating comprehension of the guidance shown in the Works Code. Terms shown with an asterisk (*) are the simplified versions to give the intended meaning or interpretation of the terms used in the Works Code. Readers are recommended to refer to section 2(1) of the Ordinance for the exact interpretation of the individual terms.

building means a building as defined by section 2(1) of the Buildings Ordinance (Cap. 123);

carrier means a car, cage or platform intended for carrying any person or thing;

escalator means –

- (a) an inclined, continuous stairway that is driven by mechanical power and is used for (i) raising passengers; (ii) lowering passengers; or (iii) both raising and lowering passengers; or
- (b) a passenger conveyor that is a continuous walkway driven by mechanical power and is used for conveying passengers on the same or between different traffic levels;

escalator works includes any kind of work concerning the installation, commissioning, examination, maintenance, repair, alteration or demolition of an escalator or any associated equipment or machinery of an escalator;

incident means any of the incidents specified in Schedule 7 to the Ordinance;

lift means –

- (a) a lifting machine or appliance having a carrier the direction of movement of which is restricted by one or more guides; or
 - (b) a mechanized vehicle parking system,
- but does not include an escalator;

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Part 2 – Abbreviations, Definition and References

lift works includes any kind of work concerning the installation, commissioning, examination, maintenance, repair, alteration or demolition of a lift or any associated equipment or machinery of a lift;

maintenance works means the following works –

- (a) in relation to a lift, works that are for the purposes of keeping the lift or any of its associated equipment or machinery in safe working order, including any inspection, cleaning, oiling, adjusting, repair, replacement and alteration of the lift or any of its associated equipment or machinery for those purposes; and
- (b) in relation to an escalator, works that are for the purposes of keeping the escalator or any of its associated equipment or machinery in safe working order, including any inspection, cleaning, oiling, adjusting, repair, replacement and alteration of the escalator or any of its associated equipment or machinery for those purposes;

major alteration means –

- (a) in relation to a lift, any major alteration as defined by section 1 of Schedule 1 to the Ordinance; and
- (b) in relation to an escalator, any major alteration as defined by section 2 of Schedule 1 to the Ordinance;

periodic maintenance works means the following maintenance works –

- (a) in relation to a lift, the inspection, cleaning, oiling and adjusting of the lift and any of its associated equipment or machinery; and
- (b) in relation to an escalator, the inspection, cleaning, oiling and adjusting of the escalator and any of its associated equipment or machinery;

qualified person means an RE or an RW who are qualified to carry out the kind of lift works or escalator works and is in the capacity of the RC or under the employment of the RC undertaking the works;

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Part 2 – Abbreviations, Definition and References

rated load, in relation to a lift or an escalator, means the maximum load which the lift or the escalator is designed to carry and for which normal operation of the lift or the escalator is guaranteed by the manufacturer of the lift or the escalator;

rated speed –

- (a) in relation to a lift, means the speed of the carrier of the lift at which the lift is designed to travel in normal circumstances and at which normal operation of the lift is guaranteed by the manufacturer of the lift; and
- (b) in relation to an escalator, means the speed of the steps, the pallets or the belt of the escalator at which the escalator is designed to travel in normal circumstances and at which normal operation of the escalator is guaranteed by the manufacturer of the escalator;

registered person means –

- (a) a registered escalator contractor;
- (b) a registered escalator engineer;
- (c) a registered escalator worker;
- (d) a registered lift contractor;
- (e) a registered lift engineer; or
- (f) a registered lift worker;

registration card means a registration card issued under section 99 of the Ordinance or a duplicate card issued under section 100 of the Ordinance;

responsible person means –

- (a) in relation to a lift, (i) a person who owns the lift; or (ii) any other person who has the management or control¹ of the lift; and

¹ A person is not to be regarded as a responsible person who has the management or control of a lift only because the person (i) uses the lift; (ii) operates the lift; or (iii) carries out any lift works in relation to the lift.

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Part 2 – Abbreviations, Definition and References

- (b) in relation to an escalator, (i) a person who owns the escalator; or
(ii) any other person who has the management or control¹ of the escalator;

RP's Guidebook means the Guidebook for Responsible Persons for Lifts or the Guidebook for Responsible Persons for Escalators issued by the Director;

resumption permit means –

- (a) in relation to a lift, a permit issued under section 28 of the Ordinance in respect of the lift; and
- (b) in relation to an escalator, a permit issued under section 58 of the Ordinance in respect of the escalator;

safety component means –

- (a) in relation to a lift, a component or device or any other thing specified in Part 1 of Schedule 2 to the Ordinance; and
- (b) in relation to an escalator, a component or device or any other thing specified in Part 2 of Schedule 2 to the Ordinance;

safety equipment means –

- (a) in relation to a lift, a component or device or any other thing specified in Part 1 of Schedule 3 to the Ordinance; and
- (b) in relation to an escalator, a component or device or any other thing specified in Part 2 of Schedule 3 to the Ordinance;

use permit means –

- (a) in relation to a lift, a permit issued under section 26 of the Ordinance in respect of the lift; and
- (b) in relation to an escalator, a permit issued under section 56 of the Ordinance in respect of the escalator;

¹ A person is not to be regarded as a responsible person who has the management or control of an escalator only because the person (i) uses the escalator; (ii) operates the escalator; or (iii) carries out any escalator works in relation to the escalator.

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Part 2 – Abbreviations, Definition and References

2.3 References

The Works Code has made reference to guidance given in other codes of practice or guidelines. In case of conflict of requirements or guidance quoted in the Works Code with those stated in any other references, the requirements mentioned in the Works Code should prevail.

- (i) Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department
- (ii) Code of Practice on the Design and Construction of Lifts and Escalators issued by the EMSD
- (iii) Responsible Persons' Guidebook issued by the EMSD
- (iv) Code of Practice for Building Works for Lifts and Escalators issued by the Building Authority
- (v) Code of Practice for Fire Safety in Buildings issued by the Buildings Department
- (vi) Guidelines on Safety of Lift Shaft Works: Volume 2 – During Lift Installation Stage until Issue of Occupation Permit and Handing Over to Developer issued by the Construction Industry Council
- (vii) Guidelines on Safety of Lift Shaft Works: Volume 3 – Throughout the Occupation Stage of Building issued by the Construction Industry Council
- (viii) Guide on Safety in Lift Repair & Maintenance issued by the Labour Department
- (ix) Code of Practice for Minimum Fire Service Installations and Equipment issued by the Fire Services Department
- (x) Code of Practice for Energy Efficiency of Building Services Installation issued by the EMSD

Part 3

Overview of Duties

3.1 General

3.1.1 With the variety of lift and escalator designs and rapid advancement of lift and escalator technology, the Ordinance requires that only those who are qualified are allowed to carry out lift works or escalator works. The prime objective of the arrangement is to ensure the safety of lifts and escalators in order to safeguard members of the public using the facilities.

3.1.2 RPs have the ultimate responsibilities for the upkeep of a lift or an escalator in a proper state of repair and in safe working order. RPs are required to cause their lifts or escalators to respectively be maintained and examined by RCs and REs to fulfill the statutory requirements.

3.2 General duties of RPs¹

3.2.1 Among the various duties of RPs as stipulated in the Ordinance, RPs are required under section 12 and section 44 of the Ordinance to ensure that a lift or an escalator, and all the associated equipment or machinery of the lift or the escalator are kept in a proper state of repair and in safe working order.

3.2.2 RPs are required to ensure that lift works as specified in section 15 of the Ordinance and escalator works as specified in section 46 of the Ordinance are undertaken by RCs. RPs are also required to cause their lifts or escalators to be thoroughly examined by an RE upon completion of installation, completion of major alteration and

¹ Guidelines are given in the Responsible Persons' Guidebook for reference of RPs to discharge their duties under the Ordinance. RCs who have undertaken to perform the functions or discharge the duties for and on behalf of the RPs should observe the respective legislative requirements.

Code of Practice for Lift Works and Escalator Works

Part 3 – Overview of Duties

before the normal use or operation of the lift or the escalator is resumed, and at regular intervals.

3.2.3 RPs are required to report to the Director of any incident involving their lifts or escalators, which is of the nature stipulated in Schedule 7 to the Ordinance.

3.2.4 RPs are also required to keep a log-book for their lifts or escalators.

3.3 General duties of RCs

3.3.1 The general duties of an RC are stipulated in section 16 and section 47 of the Ordinance, and Divisions 2 and 6 of Part 2 of the General Regulation.

3.3.2 An RC who undertakes to carry out lift works or escalator works is required under section 3 or section 18 of the General Regulation to notify in the specified form the Director at least 7 days before the works are to commence.

3.3.3 An RC who undertakes to install a lift or an escalator must ensure that the installation of the lift or the escalator, and all safety components for the lift or the escalator is **not** commenced unless the RC has obtained from the Director **type approval** in respect of the lift, the escalator and safety components required for the lift works or escalator works. See **Part 4** for details of requirements and procedures for applying for type approval.

3.3.4 An RC who undertakes any lift works or escalator works, other than installation of a lift or an escalator, where safety components are required for the works, must ensure that the works are **not** to be carried out unless the RC has obtained from the Director type approval in respect of the safety components required for the works.

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See **Part 4** for details of requirements and procedures for applying for type approval.

- 3.3.5 An RC undertaking lift works or escalator works is required to ensure that the works are carried out safely and properly. To properly discharge the duties, RCs are required to follow the safety related requirements as stipulated in Part 4 and Part 5, and they are required to also –
- (a) establish a system of work¹ so as to ensure that the works be carried out in accordance with the requirements of the Ordinance;
 - (b) conduct risk assessment² to identify safety and health hazards associated with the works, formulate and implement necessary safety measures, including relevant method statements for implementation of the safety measures, and provide effective equipment, including personal protection equipment (PPE)³, and tools for carrying out the works;
 - (c) provide adequate training and instructions to the workers for them to carry out the works properly and in a safe manner. The RC is obliged to retain training records of his workers and to regularly review the competency of workers, in particular in occasions when a worker is deployed to undertake new tasks;
 - (d) provide the workers with all the necessary information, including the related layout drawings, method statements, findings of risk assessment related to the works with the identified safety hazards and the corresponding mitigation measures, instructions specific to the works, and corresponding

¹ See Clause 4.16.

² The requirement of conducting risk assessment for lift works or escalator works is also stipulated in **the Code of Practice for Safety at Work (Lift and Escalator)** issued by the Labour Department. See also Clause 4.15.

³ The PPE may include safety helmets, gloves, eye protectors, hearing protectors, respirators, face masks, safety shoes, safety harnesses/belts (with secure anchorage or independent lifeline provided) etc. Such equipment should be maintained in an efficient and serviceable condition.

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Part 3 – Overview of Duties

manuals issued by the manufacturer of the lift or the escalator;
and

- (e) supervise the works to ascertain that the measures are taken and instructions are followed.

3.3.6 An RC undertaking lift works or escalator works is required to take adequate safety precautions and provide sufficient workforce for carrying out the lift works or escalator works. The safety precautions and workforce is required to be in line with recommendations of the manufacturer of the lift or the escalator for the particular task of lift works or escalator works and the findings of risk assessment taking into account the environmental factors and skill level of the workforce.

3.3.7 An RC undertaking lift works or escalator works is required to ensure that there is adequate equipment and tools for carrying out the works taking into account the work environment, skill level of the workforce, and instructions and recommendations of the manufacturer of the lift or the escalator. In determining adequacy of equipment and tools, due regard must be taken into account of the nature of works, instructions and recommendations given by the manufacturer and results drawn from risk assessment for the works. All equipment and tools provided for carrying out the works are required to be in good conditions. For carrying out testing and commissioning works, all equipment and tools should be properly tested and calibrated. This should include suitable PPE for the hazards associated with the tasks to be carried out by the workers.

3.3.8 An RC undertaking demolition of a lift or an escalator is required to take measures in so far as reasonably practicable to minimize the impact the demolition works may have on the structural integrity of the building in which the lift or the escalator is installed, or of which the lift or the escalator is or forms a part.

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Part 3 – Overview of Duties

- 3.3.9 Pursuant to section 8 and section 42 of the Ordinance, an RC undertaking lift works and escalator works must ensure that the works are carried out by QPs¹, specified persons², or workers under the direct supervision of a QP at the place the works are carried out.
- 3.3.10 Pursuant to section 38 and section 68 of the Ordinance, unless with written approval from the Director, RCs should **not** subcontract lift works, escalator works, or any part of the works, other than the installation or demolition of a lift or an escalator, to any person who is **not** an RC.
- 3.3.11 An RC undertaking any lift works or escalator works is obliged to notify the RPs of irregularities of the lift or the escalator identified while lift works or escalator works are being carried out, e.g. during routine maintenance. The irregularities include failure of major components specified in Schedule 7 to the Ordinance, with which notification is required to be made to the Director by the RP. RCs are highly recommended to act on behalf of the RPs to notify the Director when they are aware of the existence of reportable incidents. Notification should be made sooner the better, and in any event it should be made within 24 hours from notice of the incident.
- 3.3.12 An RC who subcontracts any lift works or escalator works to any person is required under section 4 or section 19 of the General Regulation to notify the Director in the specified form before the works are to commence. The requirement covers notification for subcontracting of examination of a lift or an escalator within the scope of services of the RC to an RE who is not under the

¹ The definition of qualified persons is provided in section 2(1) of the Ordinance. In brief, qualified persons mean REs or RWs who are qualified to carry out the kind of work in question and are in the capacity of the RC or under the employment of the RC undertaking the works.

² Specified persons are persons who are authorized in writing by the Director under section 123 of the Ordinance to personally carry out any lift works or escalator works.

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Part 3 – Overview of Duties

employment of the RC responsible for the examination. See also Clause 3.6.3.

- 3.3.13 An RC is required under sections 5 and 6, or sections 20 and 21 of the General Regulation to keep technical documents of lifts or escalators installed and records of works undertaken by the RC. A list of information required to be kept by RCs is given in **Appendix I**.
- 3.3.14 An RC is required under section 7 of the General Regulation to post a notice signifying the suspension of service of a lift within the specified period if the normal use and operation of the lift cannot be resumed within 4 hours from the time at which an incident involving the lift has come to the knowledge of the RC.
- 3.3.15 An RC is required under section 8 of the General Regulation to attend to the failure of any emergency device of a lift within 4 hours from the time when it has knowledge of the failure. The RC is also required to notify in the specified form, within 24 hours after it has knowledge of the failure, the Director if it is unlikely that the failure can be rectified before the end of the 24-hour period.
- 3.3.16 An RC must notify the Registrar if there is a change in the address of their workshop within 14 days after the date on which the change takes place. The RC should undertake that the facilities/equipment in the new workshop is maintained at a level not less than that required under the registration.
- 3.3.17 RCs are required to observe and follow the probity guidelines given in **Annex A of Appendix XXIII**.

3.4 General duties of REs

- 3.4.1 The main duty of REs is to examine lifts, escalators, and the associated equipment or machinery of the lifts or escalators to

determine whether the installations are in safe working order or not. Having thoroughly examined¹ a lift and its associated equipment or machinery, or an escalator and its associated equipment or machinery, an RE may issue a safety certificate signifying his or her satisfaction that the lift or the escalator, and the associated equipment or machinery, are in safe working order.

- 3.4.2 If the RE is in the opinion that the lift, the escalator, or any associated equipment or machinery of the lift or the escalator is **not** in safe working order, he is required under section 24 or section 54 of the Ordinance to notify in the specified form the RP and the Director within 24 hours immediately following completion of the examination. Similar requirements are applicable to the examination of a lift or an escalator following completion of major alterations to the lift (under section 25 of the Ordinance) or escalator (under section 55 of the Ordinance).
- 3.4.3 An RE, who takes on the capacity as a QP to perform lift works or escalator works independently and to supervise others to carry out lift works or escalator works, is obliged to ascertain that the works are carried out properly and safely. According to section 17 and section 48 of the Ordinance, REs engaged in any lift works or escalator works must ensure that –
- (a) the works are carried out properly and safely. To properly discharge the duties, REs are required to follow the safety related requirements as stipulated in Part 4 and Part 5;
 - (b) adequate safety precautions, which should be in line with recommendations of the manufacturer for the particular task of works and the findings of risk assessment, are taken to

¹ If the thorough examination is conducted following major alteration of a lift or an escalator, the examination is to be made on such extent of the lift or the escalator so far as is necessary to determine the parts of the lift or the escalator, including any associated equipment or machinery of the lift or the escalator, affected by the major alteration are in safe working order. A certificate so issued would signify the findings of the examination.

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prevent injury to any person or damage to any property while the works are being carried out;

- (c) if the works are works concerning the installation of a lift, the works are **not** to be carried out unless the lift and all the safety components for the lift are respectively of a type in respect of which the registered lift contractor who undertakes the works has obtained approval from the Director;
- (d) if the works are works concerning the installation of an escalator, the works are **not** to be carried out unless the escalator and all the safety components for the escalator are respectively of a type in respect of which the registered escalator contractor who undertakes the works has obtained approval from the Director; and
- (e) if the works are works other than installation of a lift or an escalator, where any safety component is required for the works, the works are **not** to be carried out unless all the safety components for the works are respectively of a type in respect of which the RC who undertakes the works has obtained approval from the Director.

3.4.4 REs have the general duty of care for their own safety at work as well as for other workers working in the same site.

3.4.5 In carrying out lift works or escalator works, REs are obliged to observe the safety precautions and requirements mentioned in the Works Code. REs are also required to acquaint themselves with the instructions, guidelines, method statements, procedures, and other technical information provided by RCs or their immediate supervisors for carrying out the works. REs are required to –

- (a) observe risk assessment findings and ensure that the safety measures are duly implemented before commencing any work;

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- (b) follow closely the safe practices and any emergency procedures that have been specifically set down for the lift or the escalator;
- (c) update the log-book designated for the lift or the escalator with details of the work and findings; and
- (d) carry with him/her a card, with registration status, or other proof of registration as is specified by the Director and, upon request by an enforcement officer, produce for inspection. When requested, REs are also obliged to show the card to the RP for verification of his or her registration status.

3.4.6 Pursuant to section 12 or section 26 of the General Regulation, REs are required to keep records of safety certificates and examination reports prepared by them for a period of **not** less than 3 years.

3.4.7 To ensure the examination works (including examination after installation, major alteration and periodic examination of lifts and escalators) are carried out properly and safely, REs should plan their examination works with careful consideration of the time and manpower resources. It is considered that, in normal case, the number of lifts and escalators to be examined and certified by an RE should not be greater than 8 on a single day unless it is well justified with reasons. It is also understood that, in some situations, such as the lifts or escalators are rather low-rise and simple in design, or for examination after very simple major alteration works, the examination time required might be shorter such that more lifts or escalators can be examined in a particular day. Under such circumstances, the responsible RE may be able to complete a higher number of examinations in a day. The RE should keep proper records with justifications to support the higher number of lifts or escalators that have been examined.

3.4.8 REs are required to observe and follow the probity guidelines given in **Annex B of Appendix XXIII**.

3.5 General duties of RWs

3.5.1 RWs are the frontline tradesmen to perform one or all kinds of lift works or escalator works undertaken by the RC employing the RWs. In carrying out lift works or escalator works, RWs are obliged to observe the safety precautions and requirements mentioned in the Works Code. RWs should also acquaint themselves with the instructions, guidelines, method statements, procedures, and other technical information provided by RCs or their immediate supervisors for carrying out the works.

3.5.2 An RW¹ who takes on the capacity as a QP to perform lift works or escalator works independently and to supervise others to carry out lift works or escalator works, is obliged to ascertain that the works are carried out properly and safely. According to section 18 and section 49 of the Ordinance, RWs engaged in any lift works or escalator works must ensure that –

- (a) the works are carried out properly and safely. To properly discharge the duties, RWs are required to follow the safety related requirements as stipulated in Part 4 and Part 5; and
- (b) adequate safety precautions, which should be in line with recommendations of the manufacturer for the particular task of works and the findings of risk assessment, are taken to prevent injury to any person or damage to any property while the works are being carried out.

3.5.3 RWs have the general duty of care for their own safety at work as well as for other workers working in the same site.

¹ Subject to the classification of registration, certain RWs receive their registration only for performing certain kind of lift works or escalator works.

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- 3.5.4 RWs are recommended to attend training or briefing sessions arranged by their employer and maintain their training records properly.
- 3.5.5 Before conducting any lift works or escalator works, RWs should –
- (a) check the work contents to see if he or she is qualified to independently perform the task by virtue of the registration¹;
 - (b) understand his/her own responsibilities in the works and inform his/her supervisor if he/she judges himself/herself or any workers under his/her direct supervision to be unfit or incapable of carrying out such works; and
 - (c) prepare and check his/her own tools and equipment and report to his/her supervisor of any defects or abnormalities.
- 3.5.6 In carrying out any lift works or escalator works, RWs should –
- (a) observe risk assessment findings and ensure that the safety measures are duly implemented before commencing any work;
 - (b) follow closely the safe practices and any emergency procedures that have been specifically set down for the lift or the escalator;
 - (c) update the log-book designated for the lift or the escalator with details of the work and findings; and
 - (d) carry with him/her a card, with registration status, or other proof of registration as is specified by the Director and, upon request by an enforcement officer, produce for inspection. When requested, RWs are also obliged to show the card to the RP for verification of his or her registration status.

¹ The registration is made in accordance with the prevailing demarcation of the kinds of work undertaken by trade practitioners. The classification is made up of three classes, viz. Class A, Class B and Class C, of lift workers or escalator workers who have sought registration to become QPs qualified to personally carry out respectively (i) (under Class A), lift works or escalator works in respect of the lift or the escalator before the first use permit for a lift or an escalator is issued, excluding any examination; and demolition of a lift or an escalator; (ii) (under Class B) after the first use permit for a lift or an escalator is issued, any lift works or escalator in respect of the lift or the escalator, excluding any examination or demolition of the lift or the escalator; and (iii) (under Class C) any examination of a lift or an escalator.

- 3.5.7 RWs are required to observe and follow the probity guidelines given in **Annex C of Appendix XXIII**.

3.6 General relationship between registered persons

- 3.6.1 In ensuring the safety of lifts and escalators, the Ordinance requires that lift works and escalator works are carried out by qualified personnel¹. Commissioning and examination of a lift or an escalator can be carried out by REs independently or persons under the direct and proper supervision² of the RE³ at the place at which the examination takes place. Only REs are authorized to issue certificates to certify that a lift or an escalator is in safe working order.
- 3.6.2 In addition to the restriction under the regulatory scheme that commissioning and examinations are to be performed by REs, certain lift works or escalator works which are the subject of the regulatory scheme are required to be undertaken by RCs. **Table 1** shows the works which are to be undertaken by an RC and an RE.

¹ Qualified personnel means (i) QPs, (ii) specified persons, or (iii) persons who are under the direct supervision of a QP at the place at which the lift works or escalator works are carried out.

² Elaborations on the requirements of direct and proper supervision are given in Part 4.

³ Section 19 and section 50 of the Ordinance refer.

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Table 1

Party undertaking lift works or escalator works	Registered Contractor (RC)	Registered Engineer (RE)
Type of lift works or escalator works	Installation	
	Commissioning	Commissioning
	Examination	Examination*
	Maintenance	
	Repair	
	Alteration	
	Demolition	

* REs are authorized under the Ordinance to issue a certificate following thorough examination of a lift or an escalator to certify that the lift or the escalator is in safe working order or to report that the installation is **not** in safe working order.

3.6.3 Section 8 and section 42 of the Ordinance further requires that only QPs, specified persons¹, or persons who are under the direct supervision of a QP at the place at which the lift works or escalator works are carried out, are allowed to carry out the works personally. In other words, the works may be carried out by REs or RWs who are in the capacity of the RC undertaking the works or are under employment by the RC undertaking the works. There are restrictions on the subcontracting² of lift works or escalator works. **Table 2** summarizes the personnel who can carry out lift works or escalator works personally.

¹ Persons authorized by the Director under section 123 of the Ordinance to carry out lift works or escalator works.

² Section 38 and section 68 of the Ordinance prohibit subcontracting of lift works or escalator works, other than those concerning installation or demolition of a lift or an escalator, to a person who is not an RC unless with written approval of the Director.

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Table 2

	Personnel authorized to carry out lift works or escalator works personally	
	QP (RE or RW) in the capacity of the RC undertaking the work and workers under the supervision of the QP	QP (RE or RW under the employment of the RC undertaking the works) and workers under the supervision of the QP
Lift works or escalator works	Installation*	
	Commissioning	
	Examination	
	Maintenance	
	Repair	
	Alteration	
	Demolition*	

* Work that can be subcontracted to a person who is **not** an RC. The work is required to be carried out under the direct supervision of QP of the RC undertaking the work.

Part 4

General Requirements

4.1 General

- 4.1.1 Lifts and escalators are essential transportation means people use daily. There is regulatory control over the design and construction¹ of lifts and escalators to be installed in Hong Kong. Before the installation of a lift or an escalator, an RC must seek type approval from the Director for the lift, the escalator, safety components used for the lift or the escalator, if approval in respect of the lift or the escalator of a particular brand and model has **not** been granted to the RC.

4.2 Type approval

- 4.2.1 An RC who undertakes to install a lift or an escalator is required to ensure that the works are **not** to be commenced unless type approval for the lift or the escalator including every safety component of the lift or the escalator has been granted by the Director. Details of the procedures and requirements for applying for type approval are given in **Appendix II**.
- 4.2.2 There may be occasions that a tailor-made lift or escalator is to be built and it is **not** possible to seek type approval for the lift or the escalator concerned before commencement of installation. If that is the case, the RC is required to apply to the Director for an exemption under section 148 of the Ordinance for commencing installation without type approval. Full justifications covering at least the following information are required to be provided in the exemption application for the assessment of the Director –

¹ Lifts and escalators to be installed in Hong Kong are required to be of a brand and model which has been approved by the Director. In other words, type approval in respect of the lift, the escalator, and safety components of a particular brand and model by the Director to the RC is required to have been granted.

- (a) the reasons for **not** being able to seek type approval prior to commencement of installation and the work plan with installation programme;
- (b) necessary safety measures for putting in place the lift or the escalator in question;
- (c) substantiation of the competency of the workforce for installing the lift or the escalator and undertaking commissioning work;
- (d) the support that would be provided by the manufacturer of the lift or the escalator; and
- (e) the arrangement with an independent testing institute for conducting type-examination for the lift or the escalator.

4.2.3 The Director will base on the information to review the versatility of the design of the lift, the escalator, or safety components, and assess the sufficiency of the justifications for allowing installation of the lift or the escalator without type approval.

4.3 Granting type approval

4.3.1 In order to ensure the safe operation of a lift or an escalator, the Director may, in granting type approval, impose conditions as appropriate to the design and construction or to the operation, maintenance and examination of the lift or the escalator.

4.3.2 The RC responsible for installing a lift or an escalator is required to exercise good engineering practices and follow the instructions of the manufacturer of the lift or the escalator to complete the installation works. The RC is required to observe all the conditions given in the type approval of the lift or the escalator by the Director.

4.4 Change in design and construction

- 4.4.1 If there is any material change in the design and construction of a lift or an escalator after type approval has been granted in respect of the lift or the escalator, the RC is obliged to notify the Director of the changes and apply for a re-appraisal¹ of the type approval. Following the re-appraisal, the Director will update the type approval for the lift, the escalator, or safety components concerned to the RC.
- 4.4.2 The change in the design and construction covers any alteration of the specifications, change in mode of control and operating principle, reduction in operating range (rated load, rated speed, travel, etc.), and withdrawal of any major equipment or safety components for use in the lift or the escalator by the manufacturer. If there is any addition/deletion to the list of safety components to be installed with a lift / an escalator after type approval has been granted in respect of that lift/escalator and its list of associated safety components, the RC are obliged to notify the Director of the changes and to apply for the type approval by submitting a declaration document from the manufacturer of lift/escalator to prove that the new safety component is compatible with the lift/escalator system, and submitting a type-examination certificate of the new safety component for application of type approval.
- 4.4.3 RCs should note that new type approval application is required to be made if there is any extension of the operating range or inclusion of safety components which are outside the specifications stipulated in the original type approval granted for the brand and model of lifts, escalators, or safety components concerned.

¹ With clear justification and evidence explaining the change requirement, it is expected that the re-appraisal of the type approval can be completed in a shorter time frame as compared to the processing time required for type approval applications.

- 4.4.4 If there is any change in the manufacturer name or address of a lift or an escalator after type approval has been granted in respect of the lift or the escalator, the RC is obliged to notify the Director of the changes, provide a certified copy of the type-examination certificate, and apply for a re-appraisal of the type approval. Following the re-appraisal, the Director will update the type approval for the lift, the escalator, or safety components concerned to the RC.

4.5 Loading requirements of lifts and escalators

- 4.5.1 Most of the lifts and escalators are normally installed in a building or form part of a building. Particular attention should be paid to the loading of a lift or an escalator which may have on the building for works concerning the installation, modification or demolition of the lift or the escalator. Loading requirements of the lift or the escalator including the static and dynamic load, loading of anchoring points for installation, maintenance, or demolition operation, details of structural opening should be furnished to the **Authorized Person** (AP) or **Registered Structural Engineer** (RSE) appointed under the Buildings Ordinance, Cap. 123, for the works for assessment.

- 4.5.2 The RP should be notified of any change in loading requirements arising from any repair or alteration work which exceeds the tolerance of the original installation specification of a lift or an escalator and there is the need to engage an AP or RSE in accordance with the requirement of the Buildings Ordinance, Cap. 123, to review the impact of the change in loading on the building structure.

4.6 Lift, escalator, and the associated equipment or machinery

- 4.6.1 The definitions of “lift” and “escalator” under section 2(1) of the Ordinance give the generic nature of the facilities. When it refers to activities involving the lift or the escalator as a whole, ancillary devices

under the label of the “associated equipment or machinery”¹ of the lift or the escalator should also be taken into consideration.

4.6.2 Associated equipment or machinery represents peripheral equipment or devices such as overspeed governor, landing doors, buffers, counterweight screen, pressure mat, passenger sensors, emergency stops, etc., forming part of the system and the system as a whole should be taken as the lift and all the interconnected or interrelated equipment or machinery, same as for escalator.

4.6.3 Therefore when thorough examination of a lift or an escalator, and the associated equipment or machinery of the lift or the escalator is required to be made, the detailed examination is required to cover all the equipment and components of the lift system or escalator system² as a whole.

4.7 Works required to be undertaken by RCs

4.7.1 To ensure work quality in order to safeguard the public using lifts or escalators, the Ordinance requires that only qualified personnel³ are allowed to carry out lift works or escalator works personally. RPs are required under section 15 and section 46 of the Ordinance to ensure that works concerning the installation, major alteration, demolition of a lift or an escalator, or works that are likely to affect the safe operation of a lift or an escalator must **not** be carried out unless they are undertaken by an RC.

¹ Under section 2(1) of the Ordinance, “associated equipment or machinery” in relation to a lift or escalator, means any component, device, equipment or machinery for, of or connected with the lift or the escalator, including any safety component and safety equipment for the lift or the escalator.

² For examples, the examination of an escalator should include verification of the electrical interlock of gates installed adjacent to the escalator, where applicable, and the functioning of the electrical interlock between successive escalators without intermediate exits if the escalator is one of the successive escalators.

³ Qualified personnel means (i) QPs, (ii) specified persons, or (iii) persons who are under the direct supervision of a QP at the place at which the lift works or escalator works are carried out.

- 4.7.2 Repair, modification, alteration, maintenance, etc., which may affect the safe operation of a lift or an escalator are therefore required to be undertaken by an RC.
- 4.7.3 Where works **not** affecting the safe operation of the lift or the escalator, e.g. load test of the hoisting I-beam in the machine room, are carried out by persons other than an RC, the supervision of the work by a QP to safeguard the personnel undertaking the work, eliminate illegal interference or possible damage to the lift or the escalator is recommended. Where performance of certain tasks requiring access to restricted areas of a lift or an escalator, or the need to operate the lift or the escalator, e.g. cleaning the lift pit or machinery space of an escalator, the task, though **not** required to be carried out by an RC, is strongly recommended to be under the direct supervision of a QP of the RC responsible for the maintenance of the lift or the escalator, or of the RC undertaking any work on the lift or the escalator.
- 4.7.4 RCs are obliged to deploy their supervisory staff to check the workmanship of their workers in the field and verify the quality of works on a regular basis. The upkeep of work quality is essential for ensuring lifts or escalators under the maintenance of the RC are kept in a proper state of repair and in safe working order. Quality checking of lift or escalator maintenance works by RCs' supervisory staff should be done at 3-monthly intervals¹. The supervisory staff who conducts the quality checking is required to record his or her findings of the status of the lift or the escalator and maintenance workmanship on the log-book.

¹ The quality checking for lift and escalator maintenance at 3-monthly intervals has been established with the trade since 2017.

4.8 Supervision

- 4.8.1 RCs are required under section 16 and section 47 of the Ordinance to ensure that lift works or escalator works undertaken by the RC are carried out properly and safely. RCs undertaking any lift works or escalator works must therefore ensure that the works are carried out in compliance with the requirements of the Ordinance and to ensure that the works are carried out without causing injury to any person or damage to any property.
- 4.8.2 The Ordinance also imposes restriction on RCs from subcontracting works to others. Section 38 and section 68 of the Ordinance stipulate that, except with the written approval of the Director, no lift works or escalator works other than installation or demolition of a lift or an escalator are allowed to be subcontracted to a person other than an RC. An RC as a proprietor has a non-transferable duty to supervise the carrying out of lift works or escalator works by their employees. Where installation or demolition of a lift or an escalator is subcontracted, the RC is also obliged to duly supervise by its QP the installation or demolition of the lift or the escalator by the subcontractor.
- 4.8.3 To satisfy the requirement of direct supervision, the RC is required to ensure the immediacy of the supervising QP with the workers being supervised. The supervising QP is required to be conversant with the work and familiar with the work instructions and risk assessment results of the work. The QP is required to be able to oversee the work of the persons under his or her supervision. The supervising QP should be personally supervising and be able to communicate readily and clearly with the workers.
- 4.8.4 The supervising QP is responsible for the well-being of the workers as well as the quality of the work performed by the workers. The

workers should **not** be asked to undertake tasks beyond their competency or capability.

- 4.8.5 The number of workers being supervised by a QP should be controlled and the ratio should be clearly specified by the RC such that effective communication between the supervisor and the workers and effective control over the work being carried out can be ensured. The workers being supervised should be able to seek advice from the supervisor without undue hindrance. There should be at least one supervising QP to supervise the work at the workplace. Where there are concurrent works concerning lifts or escalators in a building, there should be at least one supervising QP within each zone¹ the lift works or escalator works take place.

4.9 Support to the working personnel

- 4.9.1 RCs and their supervisory staff should provide assistance and reasonable support to their QPs and the general workers. RCs are required to provide sufficient workforce for the carrying out of lift works or escalator works. Sufficiency of the workforce should be justified by detailed assessment of the complexity of the tasks to be undertaken and the skill level and capability of the staff deployed for performing the task.
- 4.9.2 All QPs should take into consideration the feasibility and risk associated with the respective work tasks. When a QP is in need of support, he or she should make the RC or his or her immediate supervisor aware of the circumstances.
- 4.9.3 The RC is required to have in place a management system² for safety and health in line with the requirements of the current edition of the

¹ The zone should be taken as a region or floors served by a lift or an escalator or a group of lifts or escalators.

² See Clause 4.16.

Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department in order to safeguard the work safety of the QPs.

4.10 Well-being of QP working alone

4.10.1 When it is unavoidable after assessing the risks involved, that a QP has to work alone on a lift or an escalator, the following procedures and provisions should be adopted –

- (a) Before commencing work, the QP should register his presence with the RP's representative at the place the works are to be carried out. The QP should also notify his or her immediate supervisor off-site upon his or her arrival to the workplace.
- (b) Suitable arrangements including regular contacts should be made to ensure that the continued well-being of the QP is confirmed periodically at intervals as determined by risk assessment. Regular contacts (communication) between the QP and the supervisor can be made by the use of mobile phones, walkie-talkies, etc., taking into consideration the effectiveness of the communication device in the work environment and the conversancy in the language used. In relation to lift works which are unavoidable to be carried out by a QP working alone inside a lift shaft¹ where no accompanied lift worker is within the workplace, effective motion (stay awake) alarm in addition to the communication device should be provided.
- (c) The supervisor checking the well-being of the QP working alone should have knowledge of how to organize assistance in the event of an emergency. The supervisor should also have at his disposal the emergency contact of the RP's representative.

¹ "Lift shaft" refers to the physical structure forming an enclosure within which the carrier of a lift travels from a landing to another landing. Unless otherwise specified, "lift shaft" and "lift well" share the same meaning in this Code.

- (d) The specific arrangements and frequency for confirming the well-being of the QP should be determined by risk assessment and described in the relevant safe working procedure make known to both the QP and the supervisor.
- (e) The QP working alone should inform his or her immediate supervisor off-site of the proposed movements during the period and completion of tasks. The QP should also notify the RP's representative when he or she leaves the workplace upon completion of tasks.

4.11 Work to be carried out by two or more lift / escalator workers

4.11.1 RCs must ensure that the following lift works (other than for stairlifts and vertical lifting platforms) are carried out by two or more lift workers as required –

- (a) Releasing passengers trapped in a lift car which stopped outside the unlocking zone;
- (b) Manually releasing the brake of the traction machine of an electric lift, or operating the manual emergency lowering or ascending device of a hydraulic lift;
- (c) Works in the lift pit;
- (d) Maintenance of the counterweight assembly;
- (e) Carrying out maintenance works, while the lift is in motion, which cannot be performed by the worker who is controlling the motion of the lift;
- (f) Lubricating wire ropes;
- (g) Inspecting the conditions of the car top sheave;
- (h) Manual measurement of the braking distance of an electric traction lift;
- (i) Disassembling and re-assembling the machine brake;

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- (j) Testing the electrical safety device of the landing door or car door lock;
- (k) Maintenance of anti-rebound device and switch;
- (l) Maintenance of buffer;
- (m) Maintenance of safety gear mechanism, speed reducing elements for ascending car overspeed protection means and unintended car movement protection means installed at bottom of lift car;
- (n) Maintenance of electric safety devices at lift pit;
- (o) Maintenance of the following components of a hydraulic lift:
 - safety gear, pawl and clamping devices;
 - anti-creep device and hand pump;
 - rupture valve, one way restrictor, manual lowering valve; and
 - hose/pipe work.

4.11.2 RCs must ensure that the following escalator works are carried out by two or more escalator workers as required –

- (a) Carrying out maintenance works, while the escalator is in motion, which cannot be performed by the worker who is controlling the motion of the escalator;
- (b) Manual lubricating chains; and
- (c) Disassembling and re-assembling the machine brake.

4.11.3 The above requirements represent the minimum industry standard in satisfying the requirements under the Ordinance, taking into account the trade skills and risk perception of the general practitioners.

4.12 Necessary support to RE in examination

4.12.1 In order to facilitate an RE appointed¹ to thoroughly examine a lift or an escalator to determine whether the lift or the escalator, including any associated equipment or machinery, is in safe working order, the RC responsible for the installation or maintenance of the lift or the escalator should provide necessary support to the RE in the following manner –

- (a) Make the technical documents, including all relevant documents related to the type approval of the lift or the escalator, the endorsement from AP or RSE on the loading requirements arisen from the lift works or escalator works on the building and relevant technical documents specified in **Appendix I** in respect of the lift or the escalator readily available for the inspection of the RE.
- (b) Arrange adequate workers including RW who is familiar with the testing procedure of the lift or the escalator to accompany and assist the examination of the lift or the escalator by the RE. The number of workers should be sufficient to provide support enabling the examination to be carried out properly and in a safe manner.
- (c) Provide special tools provided by the manufacturer, if any, and test weights necessary for the examination.

4.13 Relationship of lift works or escalator works with building works

4.13.1 “Lift works” is defined in section 2(1) of the Ordinance to include any kind of work concerning the installation, commissioning, examination, maintenance, repair, alteration or demolition of a lift or any associated equipment or machinery of a lift. Whereas “escalator works” is defined to include any kind of work concerning

¹ Independent RE may be appointed by the RP to undertake the thorough examination.

the installation, commissioning, examination, maintenance, repair, alteration or demolition of an escalator or any associated equipment or machinery of an escalator. There are occasions where certain building works (including minor works) as defined in section 2(1) of the Buildings Ordinance, Cap. 123, other than lift works or escalator works, are needed for completing the installation or ensuring the safe operation of a lift or an escalator. The carrying out of the building works must comply with the Buildings Ordinance and its regulations.

4.13.2 For the avoidance of doubt, preparation and backfilling of structural openings, provision of concrete plinths, provision of fire resistant lift shafts, machine room doors, machine room ventilating system, power sockets, lift pit waterproof works, lifting I-beams at the machine room, painting of landing door, works related to partitions for common lift shaft, fixed working platforms for lift pit, sprinklers underneath the escalators, escalator shelter wall, etc., are **not** regarded as lift works or escalator works. If the aforementioned works fall within the definition of building works under section 2(1) of the Buildings Ordinance, Cap. 123, the carrying out of the works must comply with the Buildings Ordinance and its regulations.

4.13.3 Although the works mentioned in **Clause 4.13.2** are **not** regarded as lift works or escalator works, any shortfall or non-compliance associated with such works may bring unwarranted hazards to the safe operation of a lift or an escalator, or risk of injury to the people using or maintaining the lift or the escalator. RC should closely liaise with contractors of other trade for ensuring the completion of the ancillary works before proceeding with the next step of lift works or escalator works.

4.14 Relevant codes of practice and guidelines

4.14.1 To safeguard persons, including workers, users and any persons in the vicinity of a lift or an escalator against the risk of any accident

such as a fire accident, where works involving the lift or the escalator are being carried out, any person undertaking lift works or escalator works is required to carry out the works in compliance with requirements in the current edition of the Code of Practice for Safety at Work (Lift and Escalator) and other relevant guidelines¹ from time to time issued by the Labour Department and the Construction Industry Council.

- 4.14.2 The individuals undertaking any lift works or escalator works are required to abide by relevant provisions under the Factories and Industrial Undertakings Ordinance, the Occupational Safety and Health Ordinance, the Buildings Ordinance, and relevant regulations made under the said ordinances. The individuals are also required to observe the technical requirements on building works associated with lift and escalator installations stipulated in the relevant practice notes and codes of practice issued by the Building Authority².

4.15 Risk Assessment

- 4.15.1 A risk assessment must be conducted in respect of the workplace and the tasks to be carried out by the RC or his representative who is competent to do so to ensure the safety of persons engaged in undertaking the work tasks and people affected by the tasks of work. The person who conducts the risk assessment should preferably be a registered safety officer³ or an experienced engineer / supervisor with

¹ Relevant guidelines include **A Guide to the Factories and Industrial Undertakings Ordinance (Section 6A) – General Duties of Proprietors** and **A Guide to the Factories and Industrial Undertakings Ordinance (Section 6B) – General Duties of Persons Employed** issued by the Labour Department. The guidelines can be downloaded from the Labour Department website at www.labour.gov.hk/eng/public/content2_8.htm.

² Relevant practice notes include **Practice Note for Authorized Persons, Registered Structural Engineers, and Registered Geotechnical Engineers** and **Practice Note for Registered Contractors**. For example, some fire resisting construction requirements for the maintenance and replacement works of lift installations are given under **Practice Note for Authorized Persons, Registered Structural Engineers, Registered Geotechnical Engineers** and **Practice Note for Registered Contractors**.

³ A person whose name is in the register of safety officers established and maintained by the Commissioner for Labour by virtue of regulation 6 of the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulation, Cap 59Z.

adequate experience and relevant qualifications of occupational safety and health in lift works and escalator works.

- 4.15.2 The risk assessment should be carried out before the commencement of the tasks of work and the RP should be involved if necessary¹. The risk assessment should be made up of identification of potential hazards, assessment of the risk of injury or harm arising from each identified hazard, and control of the risks through implementation of control measures to eliminate or reduce the risks to acceptable level.
- 4.15.3 Reference should be made to the guidance given in Clause 6.6 and relevant clauses of the **Code of Practice for Safety at Work (Lift and Escalator)** issued by the Labour Department on the items to be identified in an assessment relating to lift works or escalator works. Major hazards which are relevant to lift works or escalator works are listed as follows:
- (a) drawing in or trapping hazards;
 - (b) entanglement hazards;
 - (c) shearing hazards;
 - (d) cutting hazards;
 - (e) impact hazards;
 - (f) crushing hazards;
 - (g) hot hazards;
 - (h) fire hazards;
 - (i) falling objects hazards;
 - (j) fall-from-height hazards;
 - (k) hazards of collapse of platform/supporting structures for platform or lifting appliances;

¹ The involvement of the RP to conduct the risk assessment is of particular relevance for major modification of a lift or an escalator situated in an occupied building.

- (l) lifting and rigging hazards;
- (m) lighting and ventilation hazards;
- (n) hazards of electrocution;
- (o) other contact hazards; and
- (p) noise hazards.

4.15.4 Safety measures in the form of a method statement should be established and implemented in response to each hazard identified in the risk assessment. The safety measures so implemented should be adequate to reduce the risk to acceptable level.

4.15.5 The RC undertaking lift works or escalator works is required to ensure that re-assessment of the workplace be carried out periodically or whenever there is a significant change in the nature of works, conditions of the workplace, equipment or personnel undertaking the work tasks.

4.16 Safe system of work

4.16.1 The RCs undertaking lift works or escalator works is required to establish a safe system of work. In general, a safe system of work is required to include, but **not** limited to, the following –

- (a) In carrying out lift works or escalator works, a risk assessment as laid down in **Clause 4.15** is required to be conducted before commencement of the works. The specific safety practices and recommendations made by manufacturer of the lift or the escalator are required to be strictly adhered to.
- (b) For lift works, no passengers be allowed to stay in the lift carrier¹, and the door(s) of the lift car be always kept in the

¹ "Carrier" is defined in section 2(1) of the Ordinance to mean a car, cage or platform intended for carrying any person or thing.

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closed position, except in occasions where the particular tasks require the worker to stay in the carrier.

- (c) For escalator works, no passengers be allowed to stay in the escalator, except in occasions where the particular tasks require the worker to stay on the escalator.
- (d) For safety sake, persons involved in lift works or escalator works should always refer to the installation, operation and maintenance manuals, drawings, schematic diagrams, process flow charts, method statements, working procedures and checklists provided by or drawn up based on recommendations of the manufacturer of the lift or the escalator and issued by the RC undertaking the lift works or escalator works.
- (e) RCs should provide necessary instructions to the workers. The instructions should –
 - (i) where necessary, be in the form of written method statement which might already be included in training programmes; and
 - (ii) ensure safety of other persons who could be at risk even if they are **not** involved in the actual work being undertaken on a lift or an escalator.
- (f) Before any persons are authorised to work on a lift or an escalator, a full site-specific and task-specific risk assessment should be carried out such that safe working methods including method statements could be defined. Relevant control measures and safety precautions as identified in the risk assessment should be effectively communicated to parties involved in the works and fully implemented before commencement of the works.
- (g) RCs should supervise the workers to carry out the work properly and safely according to the method statement.

- (h) RCs should observe the Guide on Safety in Lift Repair & Maintenance issued by the Labour Department when carrying out lift repair and maintenance works.
- (i) It is **not** permissible to operate a lift or an escalator with control and monitoring devices (including safety equipment and safety components) defeated or by-passed, except for during testing, commissioning and maintenance of the lift or escalator. All the devices which have been defeated or by-passed for testing must be restored to their normal operating conditions prior to resuming the normal use and operation of the lift or the escalator.

4.17 Fire safety measures in carrying out lift works or escalator works in buildings with occupants

4.17.1 RCs are required to ensure that adequate fire safety measures are taken in carrying out lift works or escalator works, especially when hot work¹ are to be carried out.

4.17.2 A hot work supervisor is required to be a QP and who should be present at the site during the whole time while hot work relating to lift works or escalator works is being carried out. The hot work supervisor is required to –

- (a) perform the duties of a fire watch;
- (b) ensure that adequate fire safety measures are carried out and fire safety requirements are complied with;
- (c) be an RE or an RW; and
- (d) have the ability and experience to carry out fire prevention and safety work.

¹ For example, welding or frame cutting.

4.18 Safety training to hot work supervisors and workers

4.18.1 Hot work supervisors and workers should have received training on fire safety. Hot work supervisors should have attended fire safety training course organized by recognized institutions, e.g. the Occupational Safety and Health Council.

4.18.2 Welding workers who are to carry out welding work in relation to lift works or escalator works should have attended safety training courses covering fire safety aspects. The gas welding workers must have attained the age of 18 and possess the relevant certificate as required by the Factories and Industrial Undertakings (Gas Welding and Flame Cutting) Regulation, Cap. 59A1.

4.19 Welding and cutting

4.19.1 When gas or electric arc welding/cutting work is carried out, adequate safety precautionary measures should be taken to prevent fire and personal injuries. Reference should also be made to the Code of Practice: Safety and Health at Work for Manual Electric Arc Welding and Code of Practice: Safety and Health at Work for Gas Welding and Flame Cutting issued by the Labour Department.

4.19.2 RCs should require their welding workers to return the same number of spent welding electrodes as the number of electrodes issued to them after each day of work.

4.20 Fire resisting construction requirements for lift shafts

4.20.1 Detailed technical requirements on fire resisting construction for all building works including those associated with lifts and escalators are specified in the Code of Practice for Fire Safety in Buildings issued by the Buildings Department. In order to provide adequate resistance against the spread of fire, landing doors are normally required to

remain in a closed position unless a lift car stops at the floor of the landing door.

- 4.20.2 When carrying out lift works, if some landing doors need to be kept open or taken down before reinstatement, the RC is required to ensure that the fire safety requirements stipulated in the Code of Practice for Fire Safety in Buildings issued by the Buildings Department are complied with, in particular, the requirements that the temporary hoardings to the landing door openings should have a fire resisting rating of **not** less than 120 minutes with regard to the criteria of integrity and the temporary works inside the lift shaft be constructed of non-combustible materials.

4.21 Liaison

- 4.21.1 To avoid misunderstanding between the working personnel and the RP, the RC should advise the RP of the work plan prior to execution of any work, in particular for the carrying out of lift works or escalator works in a building with occupants.
- 4.21.2 The person in charge for the lift works or escalator works, who should be a QP, is required to also advise the RP the risks that could arise, in particular for large scale and prolonged work tasks, and the effects on the occupants during execution or as a result of the work tasks.
- 4.21.3 The person in charge for the works should establish contact with the RP's site representative in order that emergency assistance can be summoned if required, and also to determine whether any special precautions or procedures need to be taken.
- 4.21.4 Work tasks are to be commenced only when all the safety precautions are in place. The status of the works and the effectiveness of the safety precautions should be closely monitored and regularly reviewed.

4.21.5 The use of a permit-to-work system should always be considered when the complexity and the number of people involved in the work are high.

4.21.6 Shelter walls for an escalator are considered as associated builder's works, liaison among the RP, builder and registered escalator contractor about the shelter wall clearance to the escalator, work sequence etc. and resolution of the potential problems should be well arranged.

4.22 Suspension of lifts or escalators from service

4.22.1 RCs are required to remind their QPs to take necessary safety precautions in carrying out work, in particular when any safety circuit of a lift or an escalator is bypassed or interfered. If works involving a lift or an escalator are to be carried out, the lift or the escalator is required to be taken out of service to prevent people from using the facility.

4.22.2 The QP in charge for the works is required to display a warning sign (see **Figure 1**) to warn others **not** to use a lift or an escalator when the lift or the escalator is removed from service. The warning sign is required to be placed in a transparent plastic jacket and properly affixed to a barrier or a conspicuous position of the lift or the escalator to prevent damage due to weather, obliterations, or vandalism, in particular for lifts or escalators which are installed outdoor and unattended.

4.22.3 A lift or an escalator is to be returned to normal operation following completion of work and only if it has been ascertained that there is no person, tool, access equipment, etc., in the lift shaft including lift carrier and top of the carrier, or machinery space of the escalator. All equipment and facilities for maintenance, service or installation

work, e.g. propping device, should have been returned to their proper position.

4.23 Housekeeping of workplace

- 4.23.1 RCs are required to exercise good housekeeping practice for proper upkeep of lifts and escalators. To eliminate fire hazards and interferences to the normal operation of a lift or an escalator, the workplace should be kept tidy and clear of waste materials.
- 4.23.2 RCs should work in collaboration with the RP to establish procedures for taking lifts or escalators out of service and providing access to restricted areas, e.g. lift pit and machinery space. Housekeeping activities such as removal of waste materials or even retrieval of keys from the lift pit should be conducted with appropriate safety measures and under the monitoring of a QP.
- 4.23.3 RCs undertaking lift maintenance are required to ensure that there is no accumulation of debris, lint, and lubricants on the car top. They are also required to ensure that there is no accumulation of oil or lubricant on the floor of the machine room and lift pit. Worn or damaged gasket of gearboxes or machines should be replaced to stop oil or lubricant from seeping or dripping from the gearbox or machine.
- 4.23.4 RCs should organize, where appropriate, vacuum cleaning of machinery, and relevant parts or components, in particular, lift car door header drive chain, suspension ropes, safety contacts, etc., to ensure that there is no accumulation of dust, dirt, lint, or foreign substances. The standard of cleanliness must at least be able to afford visual inspection discerning existence of surface defects or proper settings of the parts or components of the lift or escalator.

4.24 Handling of inflammable substances

- 4.24.1 Inflammable substances and waste should be handled with great care. Inflammable substances should be properly sealed in a suitable and labeled container when **not** in use. Inflammable waste should be removed from the workplace immediately after use.

4.25 Provision of lighting

- 4.25.1 Adequate lighting for the works should be provided to workers working in a lift shaft or a confined or dark area. Emergency lighting or a battery torch should be provided or made available to workers for use in the event of power failure or sudden failure of the normal lighting.

4.26 General safety measures for carrying out lift works

- 4.26.1 Site specific safety precautions in relation to lift works are outlined in the ensuing paragraphs.

4.27 Work concerning the landing door or car door of a lift

- 4.27.1 When any work concerning a landing door or a car door of a lift is to be carried out, appropriate warning signs should be prominently displayed at least at the main landing of the lift. An example of such a sign is shown in **Figure 1**. When people are working within a lift shaft of a lift, or work concerning the landing door or car door of a lift is being carried out, the entrance of the lift car of the lift should be suitably blocked by a barrier with a warning sign such that any intended users will **not** inadvertently enter the lift car.
- 4.27.2 If there is any by-pass, temporary alteration, or interference to the safety circuit of a lift affecting the safety of the users, in addition to the barrier at the lift car entrance, warning signs should be displayed

at a conspicuous position of all the landing doors of the lift. In case of emergency, rescue operation may be commenced before displaying of the signs. In any case, adequate safety precautions must be taken at all times.

4.27.3 The accidental opening of power-operated automatic doors of a lift must be prevented.

4.27.4 Whenever a landing door of a lift is unlocked or opened with the lift car **not** at the level of that landing, suitable safety precautions must be taken and the landing door should **not** be allowed to remain open any longer than is absolutely necessary for working. In any case, effective precautions are required to be taken to prevent people from moving close to a landing entrance which is kept open or unlocked. This may take the form of any of the following –

- (a) a barrier comprising a top guard-rail of **not** less than 900 mm and **not** more than 1 150 mm high with a mid-rail of **not** less than 450 mm and **not** more than 600 mm high, and toe-board being fixed across the landing entrance threshold; or
- (b) a mesh or solid enclosure of at least 1 m high being erected at an appropriate distance from the landing threshold.

If a landing door has to be removed, a solid full height hoarding with an access door should be constructed and maintained at opening to a lift shaft before removal of a landing door, unless the door can be installed immediately after its removal.

4.27.5 The landing door must be closed and locked whenever there is no person working at or near the landing, notwithstanding that a barrier or an enclosure as mentioned above is provided. If the landing door cannot be closed and locked, the barrier should be extended to the full height of the landing door entrance unless the lift car is at the level of that landing.

- 4.27.6 All protective barriers should incorporate warning notices in both Chinese and English and appropriate safety signs. These barriers should be stored at convenient locations adjacent to the lift so as to be readily available to the workers when required.
- 4.27.7 The posting of persons instead of fixing barriers at unprotected landings in order to prevent other persons from entering the area of danger should **not** be allowed if there is a risk for a person falling from the unprotected landing for more than 2 m. In emergency situations and after assessing the risk involved such that the posting of a person cannot be avoided adequate safety measures should be taken to ensure such person should stay at a safe distance well away from the unprotected landing.
- 4.27.8 The unlocking and opening of a landing door or gate of a lift, when the lift car is **not** positioned at the landing, should only be undertaken by a QP.
- 4.27.9 Any unlocking device should be kept in a safe and secure place. If an unlocking device is **not** provided, a safe system of work should be established.
- 4.27.10 On completion of the work, it should be verified that the landing door is closed and locked.

4.28 Working within a lift shaft

- 4.28.1 The safe spaces / clearances under the lift car in the pit and safe headroom above the lift car at the car top of its travel should be ascertained. Relevant safety warning signs should be displayed and other safety precautions should be considered if there are only limited spaces / clearances.

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- 4.28.2 Arrangement for the use of communication equipment by the working personnel during the work should be made. Also key words / signals to be used in the communication should be specified.
- 4.28.3 The safety devices in the lift shaft including the lift pit and the car top control station should be functioning properly. Especially, the effectiveness of those emergency stop switch and manual control mode switch should be checked before commencement of any work.
- 4.28.4 The working conditions in the lift shaft including the lift pit should be assessed. Environmental factors including temperature, ventilation, lighting, etc., inside the lift shaft should be assessed in respect of the kind of work to be carried out and confirmed to be suitable before the work is commenced.
- 4.28.5 Barriers should be erected in front of the landing doors. Landing doors should **not** be allowed to remain open any longer than is necessary.
- 4.28.6 Safe means of access and egress should be clearly established before entering the lift shaft. The safe means of access and egress should exist during all phases of a work activity and should be readily accessible from the workplace.
- 4.28.7 Unauthorised persons should be prevented from entering the machine room or machinery space whilst persons are working within the lift shaft.
- 4.28.8 The number of persons working within a lift shaft at the same time should be kept to a minimum. The simultaneous existence of more than one trade in the lift shaft should be prohibited. A safe system of work should be put in place, and the risk assessment should identify whether a permit to work system is necessary.

- 4.28.9 Working under a suspended load (e.g. counterweight or a suspension rope under installation) inside the lift shaft should be avoided unless adequate safety measures are in place to prevent accidental fall of the suspended load.

4.29 Working on the top of a lift car

- 4.29.1 The control of the lift car should be made by using of the car top control station where inspection operation mode should be used to allow the car to travel at a speed of **not** more than 0.63 m/s¹.

- 4.29.2 If any person needs to enter or leave the top of a lift car, suitable precautions such as the following should be taken to ensure that the lift car will be stationary –

- (i) depress the car stopping device located at the car top; or
- (ii) switch off the main power supply to the lift.

Before any person entering the top of a lift car, the car stopping device located at the car top should be depressed and the stopping function should be verified, unless the main power supply to the lift is switched off and the lift car is stationary.

- 4.29.3 The correct operation of the car top control station functions should be verified before any work activity is commenced.

- 4.29.4 Whenever the car is stationary, the stopping device should be depressed.

- 4.29.5 The number of persons staying on the top of a lift car at any one time should be kept to a minimum. One person only should be in sole control of the starting and stopping of the lift car.

¹ It should be at not more than 0.63 m/s while in inspection mode. For newer installations which comply with the 2019 Edition of the Design Code, the speed is required to be not more than 0.3 m/s when the lift car is within 2 m from the pit floor or from the ceiling of the shaft.

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- 4.29.6 There should be procedures adopted for moving the lift car such that all persons working on the car top are aware of when and how the lift car is to move.
- 4.29.7 The car top should be clean, of no accumulation of oil and grease and structurally sound. Standing on the door lock or safety device of the emergency trap door on the car top should be avoided.
- 4.29.8 The car top should be cleared up, cleaned, and with all work tools and equipment removed each time after a work activity. Unnecessary combustible materials and sundry items, such as oil rags, waste gloves and rubbish, should be cleared away before and after work activities.
- 4.29.9 When **not** in use, the portable service lamp on top of the lift car should be switched off and properly placed on a hanger which is away from any flammable substance, for preventing the lamp to act as an ignition source.
- 4.29.10 After completion of the work activity, the stopping device located at the top of lift car should be reset only when all persons have left the top of the lift car, unless the main power supply to the lift is switched off and the lift car is stationary.
- 4.30 Working in a lift pit**
 - 4.30.1 A person who enters or leaves a lift pit should first confirm the surrounding areas to see if there is any potential hazard.
 - 4.30.2 Barriers with warning signs should be erected in front of the landing door of the lowest floor and inside the lift car to prevent any person from getting close to the working area, falling into the pit or entering the lift car.

- 4.30.3 Lightings for working in the lift pit should be switched on and each person should bring their own battery torch.
- 4.30.4 All persons should enter or leave the lift pit through the pit access door. If the pit access door is not available, safe means of access and egress should be clearly established before entering the lift pit.
- 4.30.5 If any person needs to enter or leave the lift pit through the landing door at the lowest floor, suitable precautions such as the following should be taken to ensure that the lift car will be stationary –
- (i) depress the emergency button located near the landing door at the lowest floor;
 - (ii) depress the car stopping device located at the car top; or
 - (iii) switch off the main power supply to the lift.
- Before any person entering the lift pit, emergency button located near the landing door at the lowest floor or the car stopping device located at the car top should be depressed and the stopping function should be verified, unless the main power supply to the lift is switched off and the lift car is stationary.
- 4.30.6 The emergency stop button located at the lift pit should be depressed immediately after entering the pit.
- 4.30.7 When leaving the pit, the emergency stop button should be reset only if the safe situation is confirmed. It is also needed to ensure that no tools or materials are left in the pit.
- 4.30.8 Direct and effective communication between the persons staying in the pit and the persons, if any, on the lift car top should be ascertained before the lift car is allowed to be moved. The workers staying in the pit have priority to give commands for car movement. Direct and effective communication should be maintained whenever people is working in the lift shaft.

- 4.30.9 Before carrying out any work in the lift pit, a QP should identify and confirm a safe location at the pit that can allow working personnel to stay safely if the lift car moves towards the lowest landing. Any person who works in the pit should know this identified location and should try to stay at that location during execution of the work as far as possible.
- 4.30.10 Whenever the car is stationary, the emergency stop button located at the lift pit should be depressed.
- 4.30.11 In case of working in the lift pit of a hydraulic lift a dedicated prop or locking device should be set in place to keep the lift car or platform stationary in position. The prop or locking device should be reset before leaving the lift pit.
- 4.30.12 After completion of the work activity, the emergency button located near the landing door at the lowest floor or the stopping device located at the top of lift car or the electrical reset device outside the well (where provided) should be reset only when all persons have left the lift pit, unless the main power supply to the lift is switched off and the lift car is stationary.

4.31 Working in machinery spaces or pulley rooms

- 4.31.1 All persons working within a machinery space or pulley room should abide by all relevant safety signs.
- 4.31.2 Other than when work activities are being carried out within a machinery space or pulley room, the entrance door(s) to the room(s) should be kept locked to prevent unauthorised access.
- 4.31.3 All permanently installed lifting equipment provided in machinery spaces or pulley rooms should be used only within its safe working load. The lifting equipment should also be tested and examined in

accordance with the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Cap. 59J.

4.32 General safety measures for carrying out escalator works

4.32.1 In carrying out any escalator works, the following should be observed with regard to the safety of the general public –

- (a) Whenever an escalator is to be stopped and put out of service for carrying out escalator works, the worker is required to ensure that nobody is using the escalator before stopping it and should erect suitable barriers at both landings to prevent any passenger going onto the escalator after it is stopped. If traffic signs are provided, they should be switched to the 'NO ENTRY' mode.
- (b) Barriers should take the form of a mesh or solid enclosure of at least 1 m high or a top guard-rail of **not** less than 900 mm and **not** more than 1 150 mm high with a mid-rail of **not** less than 450 mm and **not** more than 600 mm high, and toe-board, with warning notices in both Chinese and English and appropriate safety signs incorporated on the barrier. These barriers should be stored at convenient locations adjacent to the escalator so as to be readily available to the workers when required.

Part 5

Specific Requirements relating to Lift Works and Escalator Works

5.1 General

- 5.1.1 Part 4 of the Works Code has briefly outlined the general requirements relating to execution of lift works or escalator works. More specific requirements relating to the various lift works or escalator works are given in this Part.

5.2 Matters relating to installation of lifts or escalators

- 5.2.1 Installation of a lift or an escalator is required to be undertaken by an RC who may in turn subcontract the works to a person who is **not** an RC. The RC can subcontract the works, but cannot subcontract its liabilities to the subcontractor. Disregarding whether the installation works are carried out by an RC or **not**, the works are required to be under the direct supervision of a QP at the place¹ at which the works are carried out.

5.2.2 Type approval prior to commencement of installation works

- (a) Prior to commencement of any works concerning the installation of a lift or an escalator, the RC undertaking the installation works must ensure that it has obtained type approval from the Director for the lift or the escalator, and the safety components to be used for the lift or the escalator concerned.
- (b) RCs should observe the procedures and requirements for applying for type approval given in **Appendix II**.

¹ See the guidance given in **Clause 4.8** relating to supervision at the place at which the works are carried out.

5.2.3 Building works

- (a) An RC undertaking lift or escalator installation works is required to provide the persons responsible for the building works¹ (including minor works) as appropriate, e.g. the builder², AP, or RSE, with the information or drawings necessary to ensure that the relevant structural elements of the building or structure have the necessary dimensions (including those for structural openings) and load-bearing characteristics to support or for transferring major components of the lift or the escalator during installation. The RC is required to obtain consent or approval from the person responsible for the building works before commencement of such lift or escalator installation works. The RC should verify with the builder, AP, or RSE for the building works that the carrying out of such lift works or escalator works is in line with the building design approved by the Building Authority.
- (b) To avoid more than a trade working concurrently in the workplace leading to unnecessary conflict or hazards, the RC should check to confirm the structural openings, anchoring points, facilities including plinths, machine room door, main switches, safe access, etc., are provided to specifications before taking over the workplace for installation of the lift or the escalator.

¹ Building works as defined in section 2(1) of the Buildings Ordinance. Here building works are concerned with works involving the building but other than those of the installation of the lift or the escalator. Please see also **Clause 4.13**.

² Builder means the prescribed registered contractor under the Buildings Ordinance.

5.2.4 Notification for commencement of installation works

- (a) The RC who undertakes any works concerning the installation of a lift or an escalator is required under section 3 or section 18 of the General Regulation to notify the Director in the specified form not later than 7 days before the date on which any of the works is to commence. If the installation works have been subcontracted by an RC (the principal contractor) to another RC (a subcontractor), both the RC subcontracting away and the RC taking over the installation works are required to notify the Director in accordance with the said requirement as both contractors are undertaking the works.
- (b) The 7 days' notice is to allow the Director to review the work arrangement and, where necessary, to acquire additional information from the RC to ascertain that sufficient workforce, adequate equipment and tools, appropriate safety measures, etc., are in place for the works.
- (c) Section 3 or section 18 of the General Regulation further stipulates that if the works fall into such exceptional circumstances specified by the Director, the notification of undertaking of lift works or escalator works can be made with less than 7 days' advance notice, i.e. at the latest on the date before the day on which any of the works is to commence. If the installation works are mandated¹ by the RP to commence within a period shorter than 7 days following appointment of the RC is made, it is acceptable for the RC to give the notification with less than 7 days' advance notice.
- (d) In completing the specified form, the RC is required to indicate the anticipated date of commencement and planned date of completion of the works.

¹ This represents the case where the contract governing the undertaking of the lift works or the escalator works demands prompt commencement of the works. This would cover the cases where the RC is appointed to continue with the installation works undertaken originally by another RC and who has resigned.

- (e) Where more than one kind of works is concerned, or more than one lift or escalator is involved, the anticipated date of commencement and planned date of completion of each kind of works for each lift and escalator should be tabulated in a supplementary sheet to the specified form for submission to the Director.

5.2.5 Coordination with the builder

- (a) The RC should specify the facilities or work that needs to be provided or completed prior to putting a lift or an escalator into operation so as to eliminate potential hazards affecting the safe operation of the lift or the escalator. These facilities include those building works as listed in the Report for the Associated Building Works of New Lifts (**Appendix IV**) and Report for Associated Building Works of New Escalators (**Appendix V**).
- (b) The above report which has been signed by the AP or the AP's representative, where applicable, and photos confirming completion of the associated building works should be provided to the RE for inclusion to the Report of Thorough Examination for each lift or escalator.

5.2.6 Notification for subcontracting works involving installation of a lift or an escalator

Where works involving the installation of a lift or an escalator are subcontracted or to be subcontracted by an RC (the principal contractor) to another person, disregarding whether the person is an RC or **not**, the principal contractor is required to observe the guidance given in **Clause 5.9** relating to notification for subcontracting lift works or escalator works to be made to the Director before commencement of the works subcontracted or to be subcontracted.

5.2.7 Additional requirements

- (a) The RC should observe the general requirements mentioned in Part 4 for undertaking the installation works, in particular for the carrying out of risk assessment and establishment of a work plan for the installation works.
- (b) The RC should also avoid exposure of parts of the lift or the escalator to weather to avoid premature failure or leading to inherent defects affecting the performance of the lift or the escalator, which may not be detected during commissioning of the facilities.
- (c) All lift works or escalator works should be duly recorded in a log-book designated for the lift or the escalator. Reference can be made to **Appendix VI** for the information to be entered into the log-book.

5.2.8 Unable or unwilling to continue with lift works or escalator works

- (a) If for any reason the RC undertaking works involving the installation of a lift or an escalator is unable or unwilling to continue to carry out the works, the RC is required by section 9 or section 23 of the General Regulation to notify the Director in the specified form within 14 days after the date on which the RC ceases to undertake the works.
- (b) The RC refusing to continue with the lift works or escalator works is obliged to explain to the RP the measures which have been put in place to prevent any hazard associated with the suspended lift works or escalator works.
- (c) Documents such as manuals and drawings, equipment, spare parts, and tools, etc., belonging to the lift or the escalator being held by the departing RC should be returned to the RP and properly documented.

5.2.9 **Testing and commissioning of lifts or escalators**

- (a) Upon completion of installation, the RC undertaking the works is required to test and commission¹ the lift system or the escalator system to confirm that the installation works are completed in accordance with the design specifications². The test and commissioning includes checking the electrical connections, power supply system, control and monitoring system, functioning of individual components and smooth operation of the lift or the escalator and the associated equipment or machinery as a whole in accordance with design specifications and parameters drawn up by the manufacturer of the lift or the escalator.
- (b) Testing and commissioning should **not** be confused with thorough examination of the lift or the escalator by an RE for verification of compliance with safety requirements.
- (c) The RC responsible for the installation works should deploy RWs who are qualified for carrying out testing and commissioning of lifts or escalators to take charge for the works. The RC should also provide all necessary tools and equipment, instructions, and check sheets to the commissioning personnel for completing the tasks.
- (d) Test results should be properly recorded and incorporated into the operation and maintenance manual (O&M manual) for the lift or the escalator. Test records should be made available for reference of the RE appointed for undertaking the thorough examination of the lift or the escalator.

¹ Testing and commissioning of the lift or the escalator includes fine adjustment of the lift system or the escalator system so as to achieve, in addition to complying with the functioning of the individual components and safety performance, optimum operating conditions designed for and are achievable by the lift or the escalator.

² The design specifications of a lift or an escalator may cover also performance characteristics which are not regulated by the Ordinance. These performance characteristics may cover energy consumption, reliability, noise level, smoothness of operation, etc.

5.2.10 Preparation of O&M manuals

- (a) The availability of comprehensive maintenance instructions is crucial for the formulation of suitable maintenance plan and provision of quality services. Maintenance personnel can access to essential maintenance information at site if a comprehensive O&M manual¹ is available.
- (b) RCs undertaking installation of a lift or an escalator should also consolidate instructions provided by the manufacturer of the lift or the escalator and other relevant information, such as type examination certificates, layout drawings, calculations, circuit diagrams, power supply drawings, testing and commissioning results, etc., for preparation of an O&M manual for the lift system or the escalator system. RCs should observe the guidelines in **Appendix VIII** for the preparation of O&M manuals.
- (c) O&M manuals should be prepared and provided by the RC responsible for the installation of a lift or an escalator to the RP upon completion of the installation works.

5.3 Examination² of lifts or escalators upon completion of installation

- 5.3.1 The RC should liaise with and provide support to the RE, including the RE who is appointed by the RP, designated to examine the lift or the escalator. Documents including drawings, manuals, type-examination certificates, type approval in respect of the lift or the escalator, and safety components for the lift or the escalator issued by the Director, and design calculations of the lift or the escalator should be made available for review of the RE.

¹ *EN 13015 Maintenance for lifts and escalators – Rules for maintenance instructions* has provided specific requirements on the maintenance instructions for lifts and escalators.

² According to section 2(1) of the Ordinance, “examine” includes inspect and test. Therefore, examination covers also inspection and testing.

- 5.3.2 The performance of certain tests, as required for completing the appropriate examination report, should be undertaken for every lift or escalator following completion of installation in order to verify that the lift or the escalator including any associated equipment or machinery¹ is of good design and construction and in safe working conditions.
- 5.3.3 Section 19 of the Ordinance stipulates that a lift or any part of a lift, or any associated equipment or machinery of a lift, is examined by an RE only if the lift or part, or the associated equipment or machinery, is **personally** examined by the RE or any other person who is under the direct and proper supervision of the RE at the place at which the examination takes place. The corresponding requirement relating to examination of an escalator is under section 50 of the Ordinance.
- (a) The RE responsible for the examination may appoint other persons (assistants) to assist him or her in examining the lift or the escalator.
 - (b) The RE is required to take all necessary safety precautions for the well-being of the assistants in undertaking the examination, the RE should **not** ask the assistants to undertake tasks beyond their capabilities.
 - (c) The RE is required to supervise the works and make sure that assistants under his or her supervision can receive instructions without undue hindrance.
- 5.3.4 An RE engaged in the examination of a lift or an escalator is required to note that he or she is liable on the assessments which are mistakenly made by persons assisting him or her in the examination. It will be prudent for RE to pay due regards on assessing the conditions of the lift or the escalator.

¹ See also **Clause 4.6** for the scope of a lift and the associated equipment or machinery, and an escalator and the associated equipment or machinery.

- 5.3.5 A lift or an escalator and the associated equipment or machinery of a lift or an escalator is regarded to be of **good design and construction**, if –
- (a) The lift or the escalator and all the safety components used for the lift or the escalator are of the types approved by the Director.
 - (b) The installation of the lift or the escalator, including the associated equipment or machinery, was carried out in accordance with the conditions given in the type approval issued by the Director to the RC undertaking the installation of the lift or the escalator, drawings and design specifications given by the manufacturer of the lift or the escalator. Where there is any conflict between the requirements stipulated in the type approval and the specifications by the manufacturer, the requirements under the type approval should prevail.
 - (c) The workmanship and construction of the lift or the escalator, and the associated equipment or machinery, is of good engineering standard.
 - (d) The relevant requirements under the Design Code, in particular provisions of guarding, safety notice, warning notices, and equipment labels, and, where applicable, conditions stipulated in any exemption granted are complied with.
- 5.3.6 A lift or an escalator and the associated equipment or machinery of a lift or an escalator is regarded to be in “safe working conditions”, if the functioning of the lift system or escalator system including correct activation and functionality of safety equipment or components, levelling, correct setting of balancing weights (for lifts), control and monitoring devices, and alarm system, is in accordance with the Design Code.
- 5.3.7 The essential examination activities that should be performed by an RE to verify whether a lift, following completion of installation, is in safe working order are given in **Appendix IX**. Correspondingly, the

essential examination activities that should be performed to verify whether an escalator is in safe working order are given in **Appendix X**.

- 5.3.8 Apart from the activities for thorough examination, REs should also check items in the lists in **Appendix IV** or **V**, following completion of installation of a lift or an escalator, so as to avoid unnecessary hindrance to issue of use permit.
- 5.3.9 When the examination is completed and if the RE is in the opinion that the lift or the escalator is of good design and construction and is in safe working conditions, the RE should issue a report of thorough examination and a safety certificate (**Form LE5**) certifying that the lift or the escalator is in safe working order. The relevant examination report should be completed in all respects. The relevant examination report is available from the following website:
https://e-platform.gld.emsd.gov.hk/examrpt_setup.asp
- 5.3.10 If upon completion of the examination, the RE is of the opinion that the lift or the escalator is neither of good design and construction, or in safe working conditions, he must within 24 hours¹ from the completion of the examination issue a notice in the specified form, i.e. Form LE4, to the Director and the RP advising that he was of the opinion that the lift or the escalator was **not** in safe working order. To avoid any delay in notifying the RP, an RE undertaking thorough examination of a lift or an escalator is recommended to collect the emergency contact telephone number, fax number, or email address of the RP before commencement of the examination.
- 5.3.11 REs are vested under the Ordinance with the responsibility to examine lifts or escalators and certify whether the installations are in safe working order or not. REs have the duty to act diligently and

¹ Section 24 of the Ordinance requires that the notification be made within 24 hours from completion of the examination of the lift. The corresponding requirements relating to examination of an escalator are under section 54 of the Ordinance.

exercise professional judgement in lift and escalator examinations and determining whether the installations are of good design and construction, and in safe working condition, thus good for putting into use. In issuing a safety certificate and examination report certifying a lift or an escalator is in safe working order, REs must have properly formed the opinion through direct participation in the examination¹ of the installation and undertaking compliance assessment of examination findings with applicable type approval, specifications, standards, legislative requirements, etc. REs must **not** issue any safety certificate or examination report if they have **not** participated in the whole examination or duly assessed the findings of the examination. Failure to comply with the requirements may render the RE liable for contravening² section 20(1) or section 50(1) of the Ordinance. Any RE undertaking examination of a lift or an escalator following completion of installation and before putting the lift or escalator into use and operation will be regarded as having properly carried out the examination **only if** he or she has thoroughly examined the lift or escalator and its associated equipment or machinery and issue the safety certificate and/or examination report, as appropriate, within the time limit as stipulated in the Ordinance. Any shortfall of the RE in discharging his or her duties in the lift or escalator examination may render the RE liable for the failure to carry out the examination properly contravening section 17(1)(a) or section 48(1)(a) of the Ordinance.

5.3.12 The RE is also required to record the examination in the log-book as

¹ Section 19 and section 50 of the Ordinance stipulate that for the purposes of Division 3 of Part 2 (Examination of Lifts) and Division 3 of Part 3 (Examination of Escalators) respectively, a lift or an escalator, any part of a lift or an escalator, or any associated equipment or machinery of a lift or an escalator, is examined by an RE only if the lift or the escalator, or part, or the associated equipment or machinery, is **personally** examined by the engineer or any other person who is under the direct and proper supervision of the engineer at the place at which the examination takes place.

² The RE may also be held liable for contravening section 140(1) of the Ordinance of having, in purported compliance with a requirement imposed under the Ordinance, produced any document or provided any information that he or she knows to be false or misleading in a material respect; or produced any document or provided any information that he or she ought reasonably to have known to be false or misleading in a material respect.

specified in Appendix VI.3.5. Where an RE responsible for the examination of a lift or an escalator is an employee of the RC undertaking the examination of the lift or the escalator, the RE may reasonably rely on the RC to keep a copy of the certificate and examination report for discharging the statutory duty relating to keeping of those documents. There should be mutual understanding between the RE and RC for the arrangement.

5.4 Maintenance of lifts and escalators

5.4.1 The definition of “*maintenance works*” is provided in section 2(1) of the Ordinance to mean works that are for the purposes of keeping a lift or an escalator, and the associated equipment or machinery of the lift or the escalator, in safe working order, including any inspection, cleaning, oiling, adjusting, repair, replacement, and alteration of the lift or the escalator, and any of the associated equipment or machinery of the lift or the escalator for those purposes.

5.4.2 The RP are required under section 15 or section 46 of the Ordinance to ensure that maintenance of a lift or an escalator is undertaken by an RC. Any RC who undertakes maintenance of a lift or an escalator must ensure that the maintenance works are properly and safely carried out to render the lift or escalator in a proper state of repair and in safe working order. The RC is required to ensure maintenance works are carried out according to the maintenance schedule¹ designated for the lift or the escalator, and ensure routine maintenance be carried out at intervals **not** exceeding one month.

5.4.3 Notification for taking over of maintenance works

- (a) An RC, in taking over the maintenance of a lift or an escalator, should ensure that it has the necessary expertise, resources, and is capable of obtaining spare parts for the maintenance of the lift

¹ See Clause 5.4.7 below.

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or the escalator. Technical support from the manufacturer(s) of the lift / escalator that required maintenance works or services should be secured.

- (b) The RC who undertakes any works concerning the maintenance of a lift or an escalator is required under section 3 or section 18 of the General Regulation to notify the Director in the specified form not later than 7 days before the date on which maintenance works undertaken is to commence for the first occasion¹.
- (c) If the maintenance works have been subcontracted by an RC (the principal contractor) to another RC (a subcontractor), both the RC subcontracting away and the RC taking over the maintenance works are required to submit the notification to the Director in accordance with the said requirement as both contractors are undertaking the works.
- (d) The 7 days' notice is to allow the Director to review the work arrangement and, where necessary, to acquire additional information from the RC to ascertain that sufficient workforce, adequate equipment and tools, appropriate safety measures, etc., are in place for the works.
- (e) Section 3 or section 18 of the General Regulation further stipulates that if the works fall into such exceptional circumstances specified by the Director, the notification of undertaking of lift works or escalator works can be made with less than 7 days' advance notice, i.e. at the latest on the date before the day on which any of the works is to commence. If the maintenance works are mandated² by the RP to commence within a period shorter than 7 days following appointment of the RC is made, it is acceptable for the RC to give the notification with

¹ Only one notification is required to be made in respect of each lift or escalator for maintenance works undertaken.

² This represents the case where the contract governing the undertaking of the lift works or escalator works demands prompt commencement of the works. This would cover the cases where the RC is appointed to continue with the maintenance works originally undertaken by another RC.

less than 7 days' advance notice.

- (f) In completing the specified form, the RC is required to indicate the anticipate date of commencement and planned date of completion of the works.

5.4.4 Notification for subcontracting works involving maintenance of a lift or an escalator

Where works involving maintenance of a lift or an escalator are to be subcontracted¹ by an RC (the principal contractor) to another person, disregarding whether the person is an RC or **not**, the principal contractor is required to observe the guidance given in **Clause 5.9** relating to notification of the Director before commencement of the works subcontracted or to be subcontracted.

5.4.5 Examination of lifts or escalators upon taking over of maintenance

- (a) An RC, upon take-over of maintenance, should check the lift or the escalator to see if there are any anomalies in the lift system or the escalator system². Lists of common anomalies are shown in **Appendix XIII**.
- (b) The RC is strongly recommended³ to arrange a thorough examination to be made within two weeks' time for each of the lift or the escalator taken over for maintenance. A duly completed thorough examination report for each lift or escalator should be submitted to the Director for record purposes. If the

¹ Prior approval as required under section 38 or section 68 of the Ordinance is needed unless the subcontractor is an RC.

² Checking and disassembly inspection of the flexible coupling of an escalator is highly recommended to be conducted during examination upon taking over of maintenance of such escalators. See Clause XIV.2.2(i) of Appendix XIV for information of checking and inspection requirements.

³ This has been an established arrangement of the trade since 1 September 2004 for better assurance of the quality of maintenance works of a lift or an escalator as well as providing a clearer demarcation of liabilities between RCs relating to the transfer of maintenance responsibilities for a lift or an escalator. The arrangement will not extend the validity of the use permit in existence. RCs may however recommend to the RP for submission of a safety certificate, examination report together with the prescribed fee in order to obtain a new use permit with a validity of full interval, 12-month for lifts and 6-month for escalators.

examination report cannot be provided within the stated period, reasons and the estimated time for submitting the report should be given. The relevant examination report is available from the following website:

https://e-platform.gld.emsd.gov.hk/examrpt_setup.asp

- (c) Unless the lift or the escalator concerned is to undergo modification or repair work or a large quantity of lifts or escalators are being taken over all at the same time, the submission of the examination report should **not** be delayed for more than a month from the date of taking over of maintenance.
- (d) The RC should notify the RP of irregularities or defects identified and take remedial actions as appropriate to render the lift or the escalator in a proper state of repair and in safe working order.

5.4.6 Handover and takeover of lift or escalator maintenance

- (a) A smooth transition of lift or escalator maintenance services from one maintenance contractor to another is crucial to enable the continuous safe and satisfactory operation of lifts or escalators. The incoming and outgoing RCs are required to fill in and sign the “Checklist for Handover and Takeover of Lift/Escalator Maintenance”. The RCs are required to provide full support to the RP in the handover/takeover process by making reference to the checklist and the latest requirements in this Code of Practice. The RCs are also required to keep a copy the completed and signed checklist.
- (b) Handover and takeover of lift or escalator maintenance from outgoing RC to incoming RC should be arranged ahead of the handover date with joint inspection for each lift/escalator. Any defects/outstanding work items should be demarcated and the responsible RC(s) for rectification should be identified. All safety-related defects should be highlighted to facilitate monitoring the rectification progress. The incoming RC is required to submit a

“Lift or Escalator Unsatisfactory/Uncompleted Maintenance Works and Common Anomalies Report” to the RP and copied to EMSD before commencement of any maintenance works. The incoming RC could also submit this Report together with the Form LE3 which is to be made at least 7 days before commencement of works. Completion of the defect/outstanding items could be reported by the incoming RC by subsequent notifications.

5.4.7 Maintenance schedule

- (a) The RC taking over the maintenance of a lift or an escalator should explain the maintenance schedule to the RP and print on the log-book the anticipated maintenance time for accomplishing the maintenance scheme, covering maintenance works recommended to be completed within a maintenance cycle by the manufacturer of the lift or the escalator. RCs are required to regularly update the maintenance schedules of lifts or escalators within their maintenance responsibility to the Director via the e-platform established by EMSD.
- (b) A copy of the overall maintenance schedule of a lift or an escalator should be submitted to the RP and attached to the log-book by the RC. The items of a lift or an escalator that must be checked by the RC during periodic maintenance are listed in **Appendix XIV**.
- (c) The overall maintenance schedule should list out all maintenance items according to **Appendix XIV** - Items of a lift that must be checked during periodic maintenance and manufacturer's instructions and are classified by the following main items:
 - Traction machine, brake
 - Suspension ropes, drums, sheaves and pulleys
 - Control, safety switch
 - Overspeed governor, safety gear
 - Landing door, car door

- Devices inside the lift car
- Devices inside the lift pit
- Ascending car overspeed protection device and unintended car movement protection device

The maintenance schedule should also list out the frequency and sequence of maintenance items required during the year and provide basic information on the lift or the escalator including type, number and address (e.g. building name) of the lifts or the escalators.

5.4.8 Repair and replacement

- (a) Irregularities or defects identified during routine maintenance should be reported to the RP.
- (b) Repair or replacement should be made with parts of at least equivalent material, strength, and design to maintain the lift or the escalator in good design and construction.
- (c) Suspension, governor, and compensating ropes should not be lengthened or repaired by splicing.
- (d) **Replacement of suspension ropes**
 - (i) In spite of the high safety factor, suspension ropes are **not** meant to service until failure. Suspension ropes should be replaced before breakage in order to keep the lift in safe working order. Therefore, suspension ropes should be replaced immediately based on the replacement criteria given in **Table 3**, the discard criteria of lift manufacturer, the discard criteria of rope manufacturer, whichever are more stringent.
 - (ii) If any rope in a set of suspension ropes needs to be replaced, the whole set of ropes is required to be replaced. When one suspension rope of a set has been damaged during installation or acceptance testing prior to being subjected to lift service, it is permissible to replace a single damaged rope

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with a new rope, provided the following requirements are met:

- (aa) The wire rope data for the replacement rope are correspond to the wire rope data of the certificate of the original set of ropes.
 - (bb) The ropes of the set in question have **not** been shortened since their original installation.
 - (cc) The tension of the new replacement rope should be checked and adjusted as necessary at fortnightly intervals over a period of **not** less than two months after installation. If the tolerance in the rope tension cannot be maintained within the limits specified by the lift manufacturer after six months, the entire set of suspension ropes should be replaced.
 - (dd) The replacement rope is required to be provided with the same type of suspension rope fastening used with the other ropes.
 - (ee) The diameter of the replacement rope, under tension, should **not** deviate from the remaining ropes by more than 0.5% of the nominal diameter of the rope. The diameter of the ropes should be measured according to the method specified by the lift manufacturer. If the lift manufacturer does **not** specify the measuring method, the one specified in the international standard ISO 4344 should be followed.
- (iii) The minimum car and counterweight runby and clearances should be maintained when new suspension ropes are installed or when existing suspension ropes are shortened. The minimum clearances should be maintained by any of the following methods.
- (aa) Limit the length that the ropes are shortened.

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- (bb) Provide blocking secured in place at the car or counterweight strike plate. The blocking should be of sufficient strength to withstand the reactions of buffer engagement without permanent deformation. If wooden blocks are used to directly engage the buffer, a steel plate should be fastened to the engaging surface or should be located between that block and the next block to distribute the load upon buffer engagements.
- (cc) Provide blocking secured in place under the car and/or counterweight buffer of sufficient strength to withstand the reactions of buffer engagement without permanent deformation.

Table 3

Rope Conditions	Rope Replacement Criteria	
	6-strand x 19 rope 6-strand x 25 rope	8- or 9-strand x19 rope 8- or 9-strand x 25 rope
Reduction in diameter	10%	10%
No. of broken wires randomly distributed among the outer strands	>24 per rope lay	>32 per rope lay
No. of broken wires randomly distributed among the outer strands when severe rusting or extensive rouging of the rope is observed	>12 per rope lay	>16 per rope lay
No. of broken wires concentrating in one or two outer strands	>12 per rope lay	>16 per rope lay
No. of broken wires concentrating in one or two outer strands when severe rusting or extensive rouging ¹ of the rope is observed	>6 per rope lay	>8 per rope lay
No. of adjacent broken wires in one outer strand	>4 and the no. of broken wires per rope lay >12	>4 and the no. of broken wires per rope lay >16
No. of adjacent broken wires in one outer strand when severe rusting or extensive rouging of the rope is observed	>2 and the no. of broken wires per rope lay >6	>2 and the no. of broken wires per rope lay >8

¹ Where rouging exists for more than a cumulated rope length of 1 m within a hoisting rope for an installation with a travel not more than 30 m, or a cumulated rope length of 3 m within a hoisting rope for an installation with a travel exceeding 30 m should also be regarded as severe rusting or extensive rouging of the rope.

(e) **Belts and chains**

If one belt or chain of a set is worn or stretched beyond that specified by the lift manufacturer, or is damaged so as to require replacement, the entire set should be replaced. Sprockets and toothed sheaves should also be replaced if it has worn beyond that specified by the lift manufacturer.

(f) **Replacement of drive chains**

In spite of the high safety factor, chains are **not** meant to service until failure. Chains are to be replaced before breakage in order to keep the escalator in safe working order. Therefore, chain is to be replaced immediately based on the discard/replacement criteria given by the chain manufacturer or escalator manufacturer, whichever are more stringent. Apart from crack or breakage of pin, roller, or link, extensive elongation of chain signifies the chain has undergone wear and tear, being vulnerable to abrupt failure. To this end, chains with elongation approaching 3%¹ in length measured under tension, in the absence of higher acceptable elongation allowable by the manufacturer, is required to be discarded and replaced. RCs have the duty to monitor the condition of the chain and notify the RP and schedule for chain replacement if the chain elongations are measured to be within close margin to the discarding limit. In long escalator with vertical rise greater than 15 m, all drive chains are to be replaced at intervals not exceeding 6 years of their services unless otherwise stated by the chain manufacturer or escalator manufacturer.

(g) **Replacement of sheaves and diverting pulleys**

Traction sheave and double-wrapped pulleys are equipped with specifically machined and hardened grooves to accommodate suspension ropes, taking up the rope pressure for creation of

¹ Where the elongation limit recommended by the manufacturer is of a lower value, the manufacturer's recommendation should prevail and replacement should be made once the elongation limit is being approached.

necessary traction to turn the lift car and counterweight up and down. Differential tensions among the suspension ropes will lead to uneven wear and tear of the rope grooves on the sheave or double-wrapped pulley, and substantial wear will give rise to differential groove depths hampering load sharing among the ropes and accelerating rope failure and wear of unpressurized (deeper) groove. RCs should therefore initiate re-grooving of the sheave or diverting pulley coupled with equalizing rope tensions once the sheave or pulley is found to have appreciable differential groove depth¹ or rope creeping effect. When the differential groove depth is measured to be approaching 1 mm in the absent of manufacturer's recommendation, replacement of the sheave or pulley should be made without delay. RCs have the duty to monitor the groove condition and notify the RP and schedule for sheave or pulley replacement if the differential groove depths are measured to be within close margin to the discarding limit. Measured results should be recorded on the log-book.

(h) Replacement of brake linings

Brakes are crucial to the safe operation of a lift or an escalator. Brakes must be checked for their agility and proper setting during periodic maintenance. Alignment of brake arms must be checked to avoid uneven contact between brake lining / pad and brake drum / disc during brake operation. Brake lining / pad whenever identified to have cracks, fading on the surface, appreciable chipping off, uneven or substantial wear should be replaced immediately. In the absent of manufacturer instructions, brake lining which has been worn down by 50% of its original thickness or exposure of the mounting rivet head or the similar must be replaced upon identification, and the replacement should be made for the pair of brake arms. RCs

¹ The differential groove depths can be measured by tailor-made rope groove gauge or a straight edge held against the top of the whole set of ropes at different circumferential positions of the sheave or pulley.

have the duty to monitor the condition of the brake lining / pad and notify the RP and schedule for brake lining replacement if the wear is measured to be within close margin to the discarding limit. Measured results should be recorded on the log-book.

5.4.9 Attending to failure of emergency devices of a lift

- (a) An RC responsible for the maintenance of a lift is required under section 8 of the General Regulation to attend to the failure of any emergency devices¹ of a lift within 4 hours² when such a failure has come to the knowledge of the RC, including receipt of a request³ from the RP reporting such failure. RCs are recommended to establish a proper operational system to acknowledge such request by giving the RP a reference code and to efficiently mobilize its workforce to attend to the failure. The RC is required to try to reinstate the operation of the devices as soon as possible.
- (b) An RC must, in its attempt to repair the emergency device, suspend the normal use and operation of the lift⁴.
- (c) The RC is required to notify the Director in the specified form within 24 hours from the time the failure comes to the knowledge of the RC, if the function of the failed emergency device cannot be reinstated by the lapse of the 24 hours from the time the failure comes to the knowledge of the RC.
- (d) In making the notification, the RC is required to state in the specified form the anticipated date for reinstating the device(s).

¹ Emergency devices of a lift mean the alarm system, emergency lighting (e-light), intercommunication system (intercom), and ventilation fan of a lift.

² The lack of normal transportation for reaching the outlying island in which the lift or the escalator is installed or adverse weather conditions, e.g. black rain storm or typhoon signal no. 8 or above, may be taken as an excuse reasonable for not attending the failure of emergency devices within 4 hours.

³ The request does not need to be in writing.

⁴ Sections 9(1)(d) and 13(1)(d) of the Ordinance prohibits the use or operation of a lift when works which may affect the safe operation of the lift are being carried out.

- (e) The time of arrival, repairs taken, status of the emergency devices following the repair, and time of resumption of the lift service (where applicable) should be recorded in the log-book by the RC. The RP should be requested to acknowledge in the log-book the findings and tasks performed by the RC.
- (f) If the function of the emergency device(s) cannot or is unlikely to be reinstated shortly, the RC is required to liaise with the RP for shutting down¹ the lift temporarily. If the lift is to be removed from service, a warning sign (**Figure 1**) should be affixed to the landing door on the main landing of the lift unless there is a clear suspension of service indication. See also **Clause 4.22** for guidance relating to removal of lifts from service.

5.4.10 Emergency contact details of RCs

- (a) To facilitate RPs or users to report irregularities of a lift or an escalator to the RC responsible for the maintenance of the lift or the escalator, or to request the RC to attend to any event of failure of the lift or the escalator, or to seek help from the RC to deal with entrapment cases or incidents, an RC responsible for the maintenance of a lift or an escalator should affix a durable label with its name and emergency contact telephone number in a conspicuous position in the car of the lift or in a conspicuous position adjacent to the main landing of the lift or the escalator.
- (b) If the day to day maintenance of the lift or the escalator is carried out by a RC (a subcontractor) who subcontracted the works from another RC (the principal contractor), both the principal contractor and the subcontractor should affix their emergency contact labels as described in (a) above.

¹ Unless the RP provides continuous on-site monitoring for the operation of the lift such that the attendant could immediately solicit external assistance for the passenger(s) in case of an entrapment incident, allowing a lift with inoperative emergency device(s) to operate may bring unnecessary adverse impact on the vulnerability of passengers in case of entrapment.

5.4.11 Status of lifts or escalators

- (a) It is important that any lift or escalator which is known to the RC or the RP of **not** being in safe working order must be suspended from operation for repair. When it comes to the awareness of an RC during routine maintenance, fault repair or any other circumstances that a lift or an escalator under its maintenance is **not** in safe working order, the RC should advise the RP for the lift or the escalator that the service has to be temporarily suspended.
- (b) For situations that no immediate danger will arise from the further use or operation of the lift or the escalator, the RC may specify a period for the rectification of the defective items and upon the lapse of such a period to advise the RP to have the lift or the escalator suspended from normal use and operation if the defective items cannot be rectified within the specified period.
- (c) In case the RC is **not** sure whether a lift or an escalator is in safe working order or not, or the RP disagrees to suspend the normal use and operation of the lift or the escalator, the RC should immediately arrange an RE to examine the lift or the escalator to ascertain whether it is in safe working order. If the RE is **not** satisfied that the lift or the escalator, and all the associated equipment and machinery of the lift or the escalator, are in safe working order, he should –
 - (i) if the RE is of the opinion that any further use or operation of the lift or the escalator would be, or would likely to be, dangerous, report the fact that the lift or the escalator is **not** in safe working order to the RP and advise the RP to suspend the service of the lift or the escalator concerned. In case the RP disagrees to the suspension of the service of the lift or the escalator, the RE should report the subject matter to the Director immediately; or
 - (ii) if the RE is of the opinion that no immediate danger will

arise from the further use and operation of the lift or the escalator, report the fact to the RP that the lift or the escalator, or the associated equipment or machinery in question has to be put into safe working order to his satisfaction within a specified period, normally **not** more than 14 days. Upon the expiration of such period, if the lift or the escalator, or the associated equipment or machinery of the lift or the escalator in question has **not** been put into safe working order to his satisfaction, the RE should report the subject matter to the Director in case the RP still disagrees to suspend the service of the lift or the escalator.

5.4.12 Modifications to lifts or escalators

- (a) Details of modifications made to a lift or an escalator should be incorporated into the O&M manual of the lift or the escalator, otherwise a separate O&M manual should be provided.
- (b) Any equipment or components used to replace existing parts of a lift or an escalator should be in full compliance with the prevailing requirements of the Design Code.
- (c) If the works involve any modification or alteration of the building, especially those structural works, or change in fixing arrangement of a lift, an escalator, or any of the associated equipment or machinery of a lift or an escalator, the RC should before commencement of the lift works or escalator works, verify with the builder, AP, or RSE that the carrying out of such works are in line with the building design approved by the Building Authority.
- (d) For alterations, including major alterations, involving an increase in the static or dynamic load acting on the lift or the escalator system, the structural strength of the critical load bearing members of the lift or the escalator, as well as the structural element supporting the lift or the escalator, must be certified by

an RPE in a relevant discipline as adequate to accommodate the increase in loading.

- (e) Where the change in static and dynamic loading to the lift or the escalator has been catered for in the original design of the lift or the escalator, e.g. for change in decoration of the lift following commissioning, certification by the lift or the escalator manufacturer of the soundness of the construction of the lift or the escalator will be acceptable. In any case, the requirement of safety factor given in the Design Code concerning the strength of the load bearing elements of a lift or an escalator should apply. This is to ensure the safe operation of the lift or the escalator after the major alterations.

5.4.13 Cessation of maintenance of lifts or escalators

- (a) When it comes to the time an RC is to cease maintenance of a lift or an escalator, the RC must **not** create any barrier or hindrance to maintenance of the facilities by way of addition or alteration of password or software programme inducing unnecessary obstruction to the access to the control system of the lift or the escalator, or affecting the normal operation of the lift or the escalator.
- (b) The departing RC should inform the RP the log-in password if it is a built-in feature of the control system for normal operation of the lift or the escalator. Furthermore, RCs must not remove any parts or components from the lift or the escalator which are needed for the safe and normal operation of the lift system or the escalator system.
- (c) Any of the above actions may amount to a misconduct of the RC.

5.4.14 Unable or unwilling to continue with lift works or escalator works

- (a) If for any reason the RC undertaking works involving the

maintenance of a lift or an escalator is unable or unwilling to continue to carry out the works, the RC is required by section 9 or section 23 of the General Regulation to notify the Director in the specified form within 14 days after the date on which the RC ceases to undertake the works.

- (b) The guidance under Clause 5.2.8 relating to safety measures and the arrangement for returning of documents, parts, and tools of the lift or the escalator to the RP by the departing RC should apply.

5.4.15 Expiration of maintenance contracts

Expiration of a maintenance contract is **not** regarded as unable or unwilling to continue to carry out lift works or escalator works. However, it is advisable for an RC to make use of the specified form to notify the Director of such termination in order to avoid unnecessary confusion.

5.5 Periodic examination of lifts or escalators

- 5.5.1 The RC responsible for the maintenance of a lift or an escalator should liaise with and provide support to the RE, including the RE who is appointed by the RP, designated to examine the lift or the escalator. Documents including drawings, manuals, type-examination certificates, type approval issued by the Director, and design calculations of the lift or the escalator should be made available for review of the RE.

- 5.5.2 The performance of certain tests, as required to complete the appropriate examination report, should be undertaken for every lift or escalator at periodic intervals in order to verify that the lift or the escalator including any associated equipment or machinery¹ is of good

¹ See also **Clause 4.6** for the scope of a lift and the associated equipment or machinery, and an escalator and the associated equipment or machinery.

design and construction and in safe working conditions. The RE is also required to verify if a full load test¹ is required to be conducted for the lift in the periodic examination.

- 5.5.3 An RE engaged in the periodic examination of a lift or an escalator should be aware of the obligations for taking safety precautions and providing supervision to the persons assisting in performing the examination activities. The guidance given in **Clause 5.3.3** should also apply.
- 5.5.4 An RE engaged in the examination of a lift or an escalator should note that he or she is liable on the assessments which are mistakenly made by persons assisting him or her in the examination. It will be prudent for RE to pay due regards on assessing the conditions of the lift or the escalator.
- 5.5.5 Thorough examination should **not** be regarded as maintenance of the lift or the escalator.
- 5.5.6 When the examination is completed, the RE should issue a report of thorough examination and safety certificate certifying that the lift or the escalator is in safe working order if the RE is in the opinion that the lift or the escalator is of good design and construction, and is in safe working conditions.
- 5.5.7 A lift or an escalator and the associated equipment or machinery of a lift or an escalator is regarded to be in good design and construction upon periodic examination, if –
- (a) Repairs or modifications to the lift or the escalator, including the associated equipment or machinery, were made with parts and

¹ According to Schedule 5 to the Ordinance, the full load test is required to be performed once every 5 years. The loading requirements for the test are given in Schedule 6 to the Ordinance.

materials of at least equivalent specification, strength, and design of the original lift or escalator. Components replaced are in compliance with the prevailing requirements stipulated in the Design Code.

- (b) The construction of the lift or the escalator, and the associated equipment or machinery, is maintained in good engineering standard.
- (c) The relevant requirements under the Design Code, in particular provisions of guarding, safety notice, warning notices, and equipment labels, and, where applicable, conditions stipulated in any exemption granted are complied with. All departures from the requirements of the Design Code are fully justified.

5.5.8 A lift or an escalator and the associated equipment or machinery of a lift or an escalator is regarded to be in safe working conditions, if the functioning of the lift system or escalator system including correct activation and functionality of safety equipment or components, levelling, correct setting of balancing weights (for lifts), control and monitoring devices, and alarm system, is in accordance with the Design Code.

5.5.9 The RE should check the log-book for any modifications, incidents, equipment faults, or other similar information and verify the nature to visualize the operating status of the lift or the escalator. The RE should check if the modifications are of good engineering construction and if all major alterations made since last periodic examination have been examined and cleared by an RE and resumption permits for the major alterations issued.

5.5.10 The RE should then conduct the inspection and tests as mentioned in the report of thorough examination. The essential examination activities that are required to be performed by an RE to verify whether a lift, at periodic intervals, is in safe working order are given in

Appendix XVI. Correspondingly, the essential examination activities that should be performed to verify whether an escalator is in safe working order are given in **Appendix XVII**. When the examination is completed and if the RE is in the opinion that the lift or the escalator is in safe working order, the RE should issue a report of thorough examination and a safety certificate (**Form LE11 or Form LE12**) certifying that the lift or the escalator is in safe working order. The relevant examination report should be completed in all respects. The relevant examination report is available from the following website:

https://e-platform.gld.emsd.gov.hk/examrpt_setup.asp

- 5.5.11 If upon completion of the examination, the RE is of the opinion that the lift or the escalator is neither of good design and construction, or in safe working conditions, he must within 24 hours¹ from the completion of the examination issue a notice in the specified form, i.e. **Form LE4**, to the Director and the RP advising that he was of the opinion that the lift or the escalator was **not** in safe working order. To avoid any delay in notifying the RP, an RE undertaking thorough examination of a lift or an escalator is recommended to collect the emergency contact telephone number, fax number, or email address of the RP before commencement of the examination.
- 5.5.12 REs are vested under the Ordinance with the responsibility to examine lifts or escalators and certify whether the installations are in safe working order or not. REs have the duty to act diligently and exercise professional judgement in lift and escalator examinations and determining whether the installations are of good design and construction, and in safe working condition, thus good for putting into use. In issuing a safety certificate and examination report certifying a lift or an escalator is in safe working order, REs must have properly

¹ Section 24 of the Ordinance requires that the notification be made within 24 hours from completion of the examination of the lift. The corresponding requirements relating to examination of an escalator are under section 54 of the Ordinance.

formed the opinion through direct participation in the examination¹ of the installation and undertaking compliance assessment of examination findings with applicable type approval, specifications, standards, legislative requirements, etc. REs must **not** issue any safety certificate or examination report if they have **not** participated in the whole examination or duly assessed the findings of the examination. Failure to comply with the requirements may render the RE liable for contravening² section 24(1), (2), (3) or (6), or section 54(1), (2) or (5) of the Ordinance. Any RE undertaking periodic examination of a lift or an escalator will be regarded as having properly carried out the examination **only if** he or she has thoroughly examined the lift or escalator and its associated equipment or machinery and issue the safety certificate and/or examination report, as appropriate, within the time limit as stipulated in the Ordinance. Any shortfall of the RE in discharging his or her duties in the lift or escalator examination may render the RE liable for the failure to carry out the examination properly contravening section 17(1)(a) or section 48(1)(a) of the Ordinance.

5.5.13 The RE should also record the examination in the log-book as specified in Appendix VI.3.5. The guidance in Clause 5.3.12 relating to keeping of documents should apply.

5.5.14 Scheduling periodic examinations

(a) The RC or RE responsible for the periodic examination may advise

¹ Section 19 and section 50 of the Ordinance stipulate that for the purposes of Division 3 of Part 2 (Examination of Lifts) and Division 3 of Part 3 (Examination of Escalators) respectively, a lift or an escalator, any part of a lift or an escalator, or any associated equipment or machinery of a lift or an escalator, is examined by an RE only if the lift or the escalator, or part, or the associated equipment or machinery, is **personally** examined by the engineer or any other person who is under the direct and proper supervision of the engineer at the place at which the examination takes place.

² The RE may also be held liable for contravening section 140(1) of the Ordinance of having, in purported compliance with a requirement imposed under the Ordinance, produced any document or provided any information that he or she knows to be false or misleading in a material respect; or produced any document or provided any information that he or she ought reasonably to have known to be false or misleading in a material respect.

the RP the flexibility under the Ordinance for scheduling periodic examinations before the expiration of the current use permit. The performance of periodic examination for a lift or an escalator can be advanced for **not** more than 2 months for more flexible scheduling of examination, while with a proper application the use permit to be issued will be given a full validity period commencing from the expiration of the current use permit.

- (b) Reference should also be made to Clause 5.7.10 relating to scheduling of examinations following major alterations.

5.6 Major alterations

- 5.6.1 Works which are regarded as major alterations are given in Schedule 1 to the Ordinance. Special care should be exercised in carrying out major alteration as it usually involves working with a lift or an escalator with occupants in the building, or in-service lifts or escalators adjacent to the one to be applied with major alterations.
- 5.6.2 When existing lift-way doors¹ are to be replaced with new ones, a copy of the documents certifying that such new doors are in compliance with the requisite fire resisting rating (FRR) required by the Building Authority should be submitted. The copy of certification document should be provided to the RE responsible for examining the lift following the major alteration, for inclusion in the examination report. A copy of the certification document should be submitted to the Buildings Department for record if an AP is supervising the building works associated with the replacement works.
- 5.6.3 The inclusion of decorative works, i.e. modification resulting in an increase in the dead weight of the carrier, which leads to the need for increasing the dead weight of the counterweight for achieving

¹ Lift-way doors include landing doors, lift well inspection and emergency doors, and inspection traps, where provided.

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effective traction is regarded as major alteration. Renovation work such as replacement of lift car claddings or adding floor tiles to the lift car may increase the deadweight of the lift car and is regarded as major alteration (the counterweight of the lift needs to be readjusted). The work is required to be carried out by an RC and examined by an RE afterwards.

- 5.6.4 Total replacement of a lift or an escalator in the same site should be taken as major alteration of a lift or escalator, whereas relocation of a lift or an escalator should be regarded as demolition and installation of a lift or an escalator.
- 5.6.5 Except with written permission from the Director, no major alteration can be subcontracted to a person who is not an RC.
- 5.6.6 **Notification of commencement of major alterations**
- (a) The RC who undertakes any works concerning major alteration to a lift or an escalator is required under section 3 or section 18 of the General Regulation to notify the Director in the specified form not later than 7 days before the date on which any of the works is to commence.
 - (b) If the works concerning major alteration have been subcontracted by an RC (the principal contractor) to another RC (a subcontractor), both the RC subcontracting away and the RC taking over the major alteration are required to submit the notification to the Director in accordance with the said requirement as both contractors are undertaking the works.
 - (c) The 7 days' notice is to allow the Director to review the work arrangement and, where necessary, to acquire additional information from the RC to ascertain that sufficient workforce, adequate equipment and tools, appropriate safety measures, etc., are in place for the works.

- (d) Section 3 or section 18 of the General Regulation further stipulates that if the works fall into such exceptional circumstances specified by the Director, the notification of undertaking of lift works or escalator works can be made with less than 7 days' advance notice, i.e. at the latest on the date before the day on which any of the works is to commence. If the major alteration is mandated¹ by the RP to commence within a period shorter than 7 days, it is acceptable for the RC to give the notification with less than 7 days' advance notice.
- (e) In completing the specified form, the RC is required to indicate the anticipate date of commencement and planned date of completion of the works.

5.6.7 Notification for subcontracting works involving major alteration to a lift or an escalator

Where works involving major alterations to a lift or an escalator are to be subcontracted by an RC (the principal contractor) to another person, disregarding whether the person is an RC or not, the principal contractor is required to observe the guidance given in **Clause 5.9** relating to notification for subcontracting lift works or escalator works to be made to the Director before commencement of the works subcontracted or to be subcontracted.

5.6.8 Testing and commissioning following major alterations

- (a) Upon completion of the major alteration, the RC is required to test and commission² the lift system or the escalator system to confirm that the parts of the lift or the escalator affected by the

¹ This represents the case where the contract governing the undertaking of the lift works or the escalator works demands prompt commencement of the works. This would cover the cases where the RC is appointed to continue with the major alterations originally undertaken by another RC.

² Testing and commissioning of the lift or the escalator includes fine adjustment of the lift system or the escalator system so as to achieve, in addition to complying with the functioning of the individual components and safety performance, optimum operating conditions designed for and are achievable by the lift or the escalator.

major alteration are in safe working order. The test and commissioning includes checking the electrical connections, power supply system, control and monitoring system, functioning of individual components and smooth operation of the lift or the escalator and the associated equipment or machinery as appropriate to confirm that affected parts¹ work in accordance with design specifications and parameters drawn up by the manufacturer of the lift or the escalator.

- (b) Testing and commissioning should **not** be confused with thorough examination of the lift or the escalator by a RE following major alteration for verification of compliance with safety requirements.
- (c) The RC responsible for the major alteration should deploy RWs who are qualified for carrying out testing and commissioning of lifts or escalators to take charge for the works. The RC should also provide all necessary tools and equipment, instructions, and check sheets to the commissioning personnel for completing the tasks.
- (d) As the RP may elect² to have a full scope thorough examination by an RE to ascertain the safe working of the whole system of the lift or the escalator, the RC is suggested to check to confirm that the lift or the escalator as a whole is in safe working order, disregarding the scope of major alteration.
- (e) The RC should also observe the guidance given in **Clauses 5.2.9(d) and 5.4.12(a)** relating to preparation of O&M manual.

¹ Section 2(1) of the Ordinance stipulates that “affected parts” means any part of a lift or an escalator, or any associated equipment or machinery of the lift or the escalator, affected by any major alteration of the lift or the escalator.

² According to section 25 or 55 of the Ordinance, following completion of major alteration and before the use and operation of the lift or the escalator is resumed, verification of the safe working of the lift by thorough examination of all the parts of the lift or the escalator affected by the major alteration is required to be carried out by an RE. The RP may however order in accordance with section 21 or 52 of the Ordinance a full scope thorough examination of the lift or the escalator similar to one of a periodic thorough examination.

5.6.9 Unable or unwilling to continue with major alterations

- (a) If for any reason the RC undertaking works involving the major alteration of a lift or an escalator is unable or unwilling to continue to carry out the works, the RC is required by section 9 or section 23 of the General Regulation to notify the Director in the specified form within 14 days after the date on which the RC ceases to undertake the works.
- (b) The guidance under Clause 5.2.8 relating to safety measures and the arrangement for returning of documents, parts, and tools of the lift or the escalator to the RP by the departing RC should apply.

5.7 Thorough examination following major alterations

- 5.7.1 An RE engaged in the thorough examination of a lift or an escalator following major alteration should be aware of the obligations for taking safety precautions and providing supervision to the persons assisting in performing the examination activities. The guidance given in **Clause 5.3.3** also applies.
- 5.7.2 An RE engaged in the examination of a lift or an escalator following major alteration should note that he or she is liable on the assessments which are mistakenly made by persons assisting him or her in the examination. It will be prudent for RE to pay due regards on assessing the conditions of the lift or the escalator.
- 5.7.3 When the examination is completed, the RE should issue a report of thorough examination and safety certificate certifying that the affected parts, or the complete system¹, of the lift or the escalator, depending on the type of thorough examination elected by the RP, is in safe working order if the RE is in the opinion that the lift or the

¹ If the complete system of the lift or the escalator is to be examined, the examination should be carried out similar to that of a periodic examination.

escalator is of good design and construction, and is in safe working conditions.

- 5.7.4 The affected parts of the lift or an escalator and the associated equipment or machinery of the lift or the escalator are regarded to be in **good design and construction** upon the thorough examination, if –
- (a) The safety components used in the major alteration are of the types in respect of which the RC undertaking the works has obtained approval from the Director.
 - (b) Modifications to the lift or the escalator, including the associated equipment or machinery, were made with parts and materials of at least equivalent specifications, strength, and design of the original lift or escalator. Components replaced are in compliance with the prevailing requirements stipulated in the Design Code.
 - (c) The construction of the parts of the lift or the escalator, and the associated equipment or machinery, affected by the major alteration is of good engineering standard.
 - (d) The relevant requirements under the Design Code, in particular provisions of guarding, safety notice, warning notices, and equipment labels, and, where applicable, conditions stipulated in any exemption granted in respect of works forming the major alteration are complied with. All departures from the requirements of the Design Code are fully justified.
- 5.7.5 The affected parts of the lift or the escalator and the associated equipment or machinery of the lift or the escalator are regarded to be in **safe working conditions**, if the functioning of the parts including correct activation and functionality of safety equipment or components, levelling, correct setting of balancing weights (for lifts), control devices, monitoring and alarm system, as appropriate, are in accordance with the Design Code.

- 5.7.6 The RE should then conduct the appropriate inspection and tests as mentioned in the report of thorough examination. Reference should be made to the essential examination activities applicable for the affected parts that should be performed for verification of the safe working order of a lift or an escalator at periodic intervals (see **Appendix XVI** or **XVII**). When the examination is completed and if the RE is in the opinion that the parts of the lift or the escalator affected by the major alteration are in safe working order, the RE should issue a report of thorough examination and a safety certificate (**Form LE7**) certifying that the lift or the escalator is in safe working order. The relevant examination report should be completed in all respects. The relevant examination report is available from the following website:
https://e-platform.gld.emsd.gov.hk/examrpt_setup.asp
- 5.7.7 If upon completion of the examination, the RE is of the opinion that the affected parts of the lift is neither of good design and construction or in safe working conditions, he must within 24 hours¹ from the completion of the examination issue a notice in the specified form, i.e. **Form LE4**, to the Director and the RP advising that he was of the opinion that certain part of the lift or the escalator was **not** in safe working order. To avoid any delay in notifying the RP, an RE undertaking thorough examination of a lift or an escalator is recommended to collect the emergency contact telephone number, fax number, or email address of the RP before commencement of the examination.
- 5.7.8 REs are vested under the Ordinance with the responsibility to examine lifts or escalators and certify whether the installations are in safe working order or not. REs have the duty to act diligently and exercise professional judgement in lift and escalator examinations and

¹ Section 25 of the Ordinance requires that the notification be made within 24 hours from completion of the examination of the lift. The corresponding requirements relating to examination of an escalator are under section 55 of the Ordinance.

determining whether the installations are of good design and construction, and in safe working condition, thus good for putting into use. In issuing a safety certificate and examination report certifying a lift or an escalator is in safe working order, REs must have properly formed the opinion through direct participation in the examination¹ of the installation and undertaking compliance assessment of examination findings with applicable type approval, specifications, standards, legislative requirements, etc. REs must **not** issue any safety certificate or examination report if they have **not** participated in the whole examination or duly assessed the findings of the examination. Failure to comply with the requirements may render the RE liable for contravening² section 25(1) or (4), or section 55(1) of the Ordinance. Any RE undertaking examination of a lift or an escalator after major alteration will be regarded as having properly carried out the examination **only if** he or she has thoroughly examined the lift or escalator and its associated equipment or machinery, in so far as is necessary to determine whether the affected part is in safe working order, and issue the safety certificate and/or examination report, as appropriate, within the time limit as stipulated in the Ordinance. Any shortfall of the RE in discharging his or her duties in the lift or escalator examination may render the RE liable for the failure to carry out the examination properly, contravening section 17(1)(a) or section 48(1)(a) of the Ordinance.

- 5.7.9 The RE should also record the examination in the log-book as specified in Appendix VI.3.5. The guidance in **Clause 5.3.12** relating to

¹ Section 19 and section 50 of the Ordinance stipulate that for the purposes of Division 3 of Part 2 (Examination of Lifts) and Division 3 of Part 3 (Examination of Escalators) respectively, a lift or an escalator, any part of a lift or an escalator, or any associated equipment or machinery of a lift or an escalator, is examined by an RE only if the lift or the escalator, or part, or the associated equipment or machinery, is **personally** examined by the engineer or any other person who is under the direct and proper supervision of the engineer at the place at which the examination takes place.

² The RE may also be held liable for contravening section 140(1) of the Ordinance of having, in purported compliance with a requirement imposed under the Ordinance, produced any document or provided any information that he or she knows to be false or misleading in a material respect; or produced any document or provided any information that he or she ought reasonably to have known to be false or misleading in a material respect.

keeping of documents should apply.

5.7.10 Scope and scheduling of examinations following major alterations

- (a) The RC and RE responsible respectively for the major alteration and thorough examination should advise the RP the flexibility under section 21 or section 52 of the Ordinance for electing a full scope thorough examination or examination of only the affected parts of the lift or the escalator.
- (b) Where the RP opts for a full scope examination, he or she may make use of the safety certificate¹ (**Form LE11** or **Form LE12**) issued by the RE to apply through a single application² for a resumption permit as well as a use permit according to section 33 or section 39 of the General Regulation.
- (c) If the completion of the major alteration falls into or close to the two months' window where the periodic examination of the lift or the escalator is due, the full scope examination will enable application for a use permit with full validity period commencing from the expiration of the current use permit.

5.7.11 Installation of air-conditioner on car top of lifts

Although installation of air-conditioner on the car top of an existing lift may **not** be considered as major alteration works³, the following precautions/actions should be taken prior to installation of an air-conditioner on the car top:

- (a) the top clearance at the highest position of the lift car as stated in

¹ The safety certificate designated for periodic examination of a lift or an escalator mentioned in Clause 5.5.10.

² The single application is at a reduced fee as compared to applying for a resumption permit and a use permit separately. See the Fees Schedule in the Lifts and Escalators (Fees) Regulation, Cap. 618B.

³ Where the increase in deadweight of the lift car due to addition of air-conditioner is appreciable, warranting adjustment of the balancing or counterweight of the lift in order to maintain efficient energy consumption for lift operation as well as the required traction under different loading conditions, the addition of air-conditioner should be taken as major alteration (see section 1(p) of Schedule 1 to the Ordinance, i.e. any modification resulting in an increase in the deadweight of the carrier of the lift.).

the Design Code is required to be satisfied. In addition, there should be sufficient space as specified in Table 3 in Section E Part 1 Clause 5.2.5.6.1 of the Design Code above the car.

- (b) If car top working space is limited (e.g. lift with capacity **not** exceeding 1 600 kg) and provision of the air-conditioner may jeopardise execution of maintenance works on the car top, this modification works should be avoided.
- (c) A risk assessment on lift maintenance workers and lift operation with the air-conditioner installed on car roof should be conducted.
- (d) Proper drainage for condensed water from the air-conditioner on car top should be provided to avoid hygiene problem.
- (e) The position of the newly installed air-conditioner should align with the existing air louvres of the lift car.
- (f) Since the maintenance and repair of air-conditioner often requires air-conditioner mechanics, additional manpower resource for direct supervision on maintenance and repair of the air-conditioner by a QP should be arranged. Where appropriate, approval for subcontracting the air-conditioner maintenance work to a competent contractor should be sought prior to commencement of the modification and/or maintenance work.
- (g) Liaison among the RP, property management agency and registered lift contractor about power supply arrangement, work sequence, etc. and identification of the potential problems should be well arranged before the installation of air-conditioner on lift car top.
- (h) If the installation of air-conditioner on the car top of an existing lift does **not** involve any change in the type of control or operation of the lift, nor be regarded as major alteration, the installation of the air-conditioner is still required to be checked to be in safe working order and be certified so by an RE or an RW on the log-book following necessary performance tests.

5.8 Demolition of lifts or escalators

- 5.8.1 Demolition of a lift or an escalator is taken as the dismantling or destruction of a lift or an escalator from the place where the lift or the escalator is installed. Following the dismantling, no lift or escalator is to be erected at the same location.
- 5.8.2 Before any demolition works are commenced, the RC undertaking the demolition works should assess the condition of the lift or the escalator and the adjacent structure including the possibility of unplanned or unintended detachment of parts from the lift or the escalator, or the building structure. A work plan should be prepared and documented. The work plan should include identification and assessment of any hazards and control measures to be implemented to address those hazards. Where the demolition of the lift or the escalator is associated with building demolition works, the RC should coordinate with the relevant prescribed registered contractor¹, AP or RSE as necessary. Even when building works are not affected, comments should be sought from an RSE.
- 5.8.3 The RC is required to outline the work procedure and liaise with the AP or building contractor for the demolition works. The RC is required to review the building plan, in particular to underground void or vault, floor loadings, and existence of on-going activities. In formulating the work procedure, the RC is required to pay particular attention to the following –
- (a) The lift or the escalator or any associated equipment and machinery of the lift or the escalator to be demolished is maintained in a safe and stable condition. Temporary braces, ties, supports can be added for stability. Precautions should be taken to ensure that sudden weather changes do **not** affect the stability of the lift or the escalator or any of the associated

¹ A prescribed registered contractor under the Buildings Ordinance.

equipment and machinery of the lift or the escalator.

- (b) The lift carrier of a lift linked with counterweight should be taken to the top floor of the lift shaft and supported by a load bearing structure (i.e. steel beams, hoisting hooks, etc.). The load bearing structure should be examined by a Registered Professional Engineer.
- (c) In case of the removal of lift carrier and machinery at the top floor, the lift shaft should be fully decked over, at least at two levels. Prior to the removal of the lift carrier and machinery, landing doors should be welded shut from the outside or guarded by some other method. Electrical power to all areas of the lift machinery should have been disconnected.
- (d) Counterweights should be disconnected at the lowest landing floor and removed. The unwinding of the suspension, governor, compensating ropes, and cables should be done in a controlled manner. Placing the lift carrier at a lower level and allow filler weights to free fall down the shaft must be prohibited.
- (e) The lift carrier may be removed by crane or by cutting into sections. Safe working platforms should be provided for these procedures.

5.8.4 The RC should determine the appropriate methods of demolition and safety measures to be taken in particular where there is adjacent in-service lifts or escalators, nominate a QP to supervise the work, erect necessary hoardings or shutters. All penetrations, in floors, roofs or in any other place where work may be carried out, should be covered with rigid material of sufficient strength to prevent any person or debris falling through, or guard rails and toe boards should be provided around openings.

5.8.5 The RC should establish a method of raising and lowering parts or components of the lift or the escalator and of moving the parts or

components from floor to floor.

5.8.6 Before demolition commences all electrical wiring apart from the temporary electrical supply for the demolition works should be disconnected and rendered safe by a qualified personnel.

5.8.7 In demolishing a lift or an escalator, the RC should ensure that the structural integrity of the building is not affected. Where necessary, effects made on the structure of the building should be assessed by an RSE. In case of any uncertainty found of the building works, comments should be sought from an RSE.

5.8.8 Notification of commencement of demolition works

- (a) The RC who undertakes any works concerning demolition of a lift or an escalator is required under section 3 or section 18 of the General Regulation to notify the Director in the specified form **not** later than 7 days before the date on which any of the works is to commence.
- (b) If the works concerning demolition of a lift or an escalator have been subcontracted by an RC (the principal contractor) to another RC (a subcontractor), both the RC subcontracting away and the RC taking over the demolition works are required to submit the notification to the Director in accordance with the said requirement as both contractors are undertaking the works.
- (c) The 7 days' notice is to allow time for the Director to review the work arrangement and, where necessary, to acquire additional information from the RC to ascertain that sufficient workforce, adequate equipment and tools, appropriate safety measures, etc., are in place for the works.
- (d) Section 3 or section 18 of the General Regulation further stipulates that if the works fall into such exceptional circumstances specified by the Director, the notification of undertaking of lift works or

escalator works can be made with less than 7 days' advance notice, i.e. at the latest on the date before the day on which any of the works is to commence. If the demolition works are mandated¹ by the RP to commence within a period shorter than 7 days following appointment of the RC is made, it is acceptable for the RC to give the notification with less than 7 days' advance notice.

- (e) In completing the specified form, the RC is required to indicate the anticipated date of commencement and planned date of completion of the works.

5.8.9 Notification for subcontracting works involving demolition of a lift or an escalator

Where works involving the demolition of a lift or an escalator are to be subcontracted by an RC to any other person, disregarding whether the person is an RC or not, the principal contractor is required to observe the guidance given in **Clause 5.9** relating to notification for subcontracting lift works or escalator works to be made to the Director before commencement of the works subcontracted or to be subcontracted.

5.8.10 Risk assessments and method statements

- (a) The RC undertaking demolition of a lift or an escalator is required to take measures, so far as reasonably practicable, to minimize from the demolition impact which may have on the structural integrity of the building in which the lift or the escalator is installed.
- (b) The RC should:
 - (i) conduct a risk assessment in respect of the demolition works.

¹ This represents the case where the contract governing the undertaking of the lift works or the escalator works demands prompt commencement of the works. This would cover the cases where the RC is appointed to take over the demolition works originally undertaken by another RC.

The risk assessment should have a comprehensive review on the various procedures of the demolition works and their impact on the building structure such as damage to the structural elements and the temporary load on the structural members.

- (ii) submit to the RP or RP's representative and the Director a method statement with necessary procedure of the demolition and safety measures to be taken. This is to ensure the RP is fully informed and can take necessary action and liaise with the building owner or the building contractor with regard to demolition of the lift or the escalator.
- (iii) obtain written consent from the RP (with consultation of a RSE, where necessary) prior to the commencement of the demolition works to ensure that the impact of the demolition works on the building structure has been fully taken into account.

5.8.11 Supervision of demolition works

The RC undertaking demolition of a lift or an escalator has the responsibility to ensure that the demolition works are carried out properly and in a safe manner in order to prevent the injury of any person or damage to any property. To accomplish this objective, the RC is required to ensure that the safety measures specified in Part 4 are taken and supervise the works.

5.8.12 Unable or unwilling to continue with demolition works

- (a) If for any reason the RC undertaking works involving the demolition of a lift or an escalator is unable or unwilling to continue to carry out the works, the RC is required by section 9 or section 23 of the General Regulation to notify the Director in the specified form within 14 days after the date on which the RC ceases to undertake the works.

- (b) The guidance under Clause 5.2.8 relating to safety measures and the arrangement for returning of documents, parts, and tools of the lift or the escalator to the RP by the departing RC should apply.

5.9 Notification for subcontracting of lift works or escalator works

- 5.9.1 An RC who has undertaken any lift works or escalator works is required under section 4 or section 19 of the General Regulation to notify in the specified form the Director of subcontracting of lift works or escalator works 7 days before any of the works subcontracted is to commence. The RC who subcontracts any works concerning the maintenance of a lift or an escalator is required under section 4 or section 19 of the General Regulation to notify the Director in the specified form **not** later than 7 days before the date on which maintenance works subcontracted is to commence for the first occasion¹.
- 5.9.2 The 7 days' notice is to allow time for the Director to review the work arrangement and, where necessary, to acquire additional information from the RC to ascertain that sufficient workforce, adequate equipment and tools, appropriate safety measures, etc., are in place for the works.
- 5.9.3 The notification requirement is applicable to subcontracting of lift works or escalator works to an RC or a person who is not an RC². Where an RC elects to subcontract examination of a lift or an escalator, within the scope of works undertaken by the RC for installation and/or maintenance/major alteration of a lift or an escalator, to an RE who is not employed by the RC, the RC is still required to notify the Director of the subcontracting of works, i.e. examination of a lift or an escalator. The RC should note that approval for the subcontracting needs to be

¹ Only one notification is required to be made in respect of each lift or escalator for maintenance works subcontracted.

² The principal RC must obtain prior written approval for subcontracting lift work or escalator works, other than installation or demolition of a lift or an escalator, to a person who is not an RC. Please see also Clause 3.3.10 of the Works Code.

sought from the Director prior to commencement of works under section 38 or section 68 of the Ordinance.

- 5.9.4 Section 4 or section 19 of the General Regulation further stipulates that if the works subcontracted or to be subcontracted fall into such exceptional circumstances specified by the Director, the notification of subcontracting of lift works or escalator works can be made with less than 7 days' advance notice, i.e. at the latest on the date before the day on which any of the works is to commence.
- 5.9.5 If no prior approval is required for the works to be subcontracted and the subcontracting is to be made to comply with the commencement requirement of less than 7 days mandated¹ by the RP, it is acceptable for the RC to give the notification to the Director with less than 7 days' advance notice.
- 5.9.6 In completing the specified form, the RC is required to indicate the anticipated date of commencement and planned date of completion of the works subcontracted or to be subcontracted.
- 5.9.7 To enable the RP to have access to subcontractor information, an RC who has subcontracted lift works or escalator works to another person should enter into the log-book the name and contact details of the subcontractor and the scope of works being subcontracted.
- 5.9.8 Maintenance works of CCTV system in lifts are part of lift works, RC is required to use the application form for application for permission to subcontract/assign maintenance of CCTV system in lifts. In submitting the form, copies of the business registration certificate and security company licence of each CCTV maintenance subcontractor should be provided for reference.

¹ This represents the case where the contract governing the subcontracting of lift works or escalator works demands prompt commencement of the works. This would cover the cases where the RC is appointed to continue with the works undertaken originally by another RC and who has resigned.

Part 6

Miscellaneous Issues

6.1 Entering information into log-books

- 6.1.1 The basic characteristics of a lift or an escalator should be recorded by the RC responsible for the installation of the lift or the escalator in the log-book at the latest when the installation of the lift or the escalator is completed.
- 6.1.2 RCs responsible for the maintenance of a lift or an escalator should insert details of lift works or escalator works into the log-book for the lift or the escalator, in particular irregularities identified during maintenance, details of repairs and alterations made to the lift or the escalator, fault attendance and release of trapped passengers, etc.
- 6.1.3 RCs are required under section 5 or section 20 of the General Regulation to update the log-book for a lift or an escalator with specified information relating to works, incidents, or events of failure relating to the lift or the escalator. Information relating to the works is required to be entered into the log-book on the date the works take place.
- 6.1.4 Information relating to the date, time, nature, and particulars of an incident is required to be entered into the log-book within 2 days beginning on the date on which the RC becomes aware of the incident. Information relating to the investigation and the date on which the normal use and operation of the lift or the escalator involved in the incident is to be resumed is required to be entered into the log-book by the RC on the date on which the activities or event takes place.

Code of Practice on Lift Works and Escalator Works

Part 6 – Miscellaneous Issues

- 6.1.5 Information relating to the date, time, nature, and particulars of any event of failure (other than incident) is required to be entered into the log-book within 2 days beginning on the date on which the RC becomes aware of the failure. The date on which the normal use and operation of the lift or the escalator related to the failure is to be resumed is required to be entered into the log-book by the RC on the date on which the normal use and operation resumes.
- 6.1.6 To bring to the awareness of RPs the latest development of the works, incident, or event of failure relating to the lift or the escalator for necessary precautionary measures as well as for monitoring the progress of the activities, RCs should make arrangement to update as far as possible the log-book once the specified information is available. As a good practice, RC should enter into the log-book details of the workers and the general description of the works upon arrival at the workplace, and have any particular findings or work progress entered into the log-book upon completion of the daily work tasks and before departure from the workplace.
- 6.1.7 REs conducting thorough examinations also would need to have access to the information shown in the log-book to identify changes, repairs, or modifications made to the lift or the escalator since it was last examined.
- 6.1.8 REs are required under section 11 or section 25 of the General Regulation to update the log-book for a lift or an escalator with specified information relating to examination of the lift or the escalator on the date on which the examination is completed. To bring to the awareness of RPs the latest development of the works being carried out for necessary precautionary measures as well as for monitoring of the progress of the activities, REs should make arrangement to update as far as possible the log-book once the specified information is available.

6.1.9 The information which is required to be entered into a log-book and the practices for doing so is shown in **Appendix VI**.

6.1.10 RCs are required to update the log-book for a lift or an escalator in carrying out an on-site risk assessment, supervisory checking and quality checking. Information relating to the assessment works, supervisory checking and quality checking works are required to be entered into the log-book on the date the works take place.

6.2 Maintenance records to be kept by RCs

6.2.1 An RC undertaking any lift works or escalator works should maintain a proper record containing the details of the works, including the risk assessments for work activities, the work schedule for effecting maintenance works in fulfilment of the maintenance requirements recommended by the manufacturer of the lift or the escalator and all the maintenance records covered in the log-book described in Clause 6.1. Under section 6 or section 21 of the General Regulation, the maintenance works records must be kept by the RC for a period of not less than 3 years.

6.3 O&M manuals and technical data

6.3.1 The RC who undertakes the installation of a lift or an escalator should prepare and provide an O&M manual describing the specifications of the equipment installed, detailing control and operating parameters in a systematic manner. The O&M manual should also outline maintenance requirements to make possible safe, proper and reliable operation of the lift system or escalator system.

6.3.2 Reference should be made to the guidelines given in **Appendix VIII** for the contents of an O&M manual.

- 6.3.3 The RC who undertakes lift works or escalator works involving repair and modification of a lift or an escalator should update the O&M manuals of the lift or the escalator. The RC should also maintain records mentioned in **Clause 3.3** containing details of works undertaken as well as findings of risk assessments and method statements formulated for carrying out lift works or escalator works.

6.4 Handling fault calls and safe release of trapped passengers

- 6.4.1 Upon receipt of a passenger entrapment call, the RC should deploy two or more lift workers to attend the scene to release the passengers trapped in the lift. Only lift workers who are conversant with the characteristics of the lift in question should be deployed to handle the release operation.
- 6.4.2 At least one of the workers attending to the breakdown of a lift or a passenger entrapment incident should be a QP and he or she should record in the log-book the actions taken, before leaving the scene.
- 6.4.3 In attending to a lift breakdown case, it is of paramount importance to check whether there is any passenger trapped inside the stalled lift. The QP attending to the breakdown should ascertain that no passenger is trapped inside the lift, by physical inspection of the interior of the lift car, before leaving the scene.
- 6.4.4 The lift workers performing the release should strictly follow the release procedures provided at the lift machine room or control panel. Before commencing the manual release, the electrical supply to the lift should be isolated.
- 6.4.5 To assist the safe release of passengers trapped in a lift car, a QP in charge with the release should communicate with those in the

machine room and the passengers in the lift car, and should continually calm down the passengers to wait patiently for the safe release and not to attempt to force open the lift car door from inside.

6.5 Reportable incidents

- 6.5.1 Section 40 and section 70 of the Ordinance stipulate that if there is an incident¹ involving a lift or an escalator, the RP for the lift or the escalator must within 24 hours after the time the incident has come to the knowledge of the RP report in the specified form the incident to the Director and the relevant RC, i.e. the RC who currently undertakes any works in respect of the lift or the escalator (if there is no such an RC, the RC who most recently has undertaken any works in respect of the lift or the escalator).
- 6.5.2 Most of the time the QP who is requested to attend to a fault call would be the one who first notices the existence of a reportable incident. An RC responsible for the maintenance of a lift or an escalator should establish appropriate work procedure guiding QP to promptly notify RPs to report an incident.
- 6.5.3 QPs attending to any event of failure of a lift or an escalator or undertaking repair works should bring along the notification form and provide necessary assistance to the RPs in completing the form and reporting incidents, where applicable, to the Director as well as the RC.
- 6.5.4 To facilitate RP to properly discharge the statutory obligation under section 40 or section 70 of the Ordinance, RC may assist RP to prepare and send the notification form to the Director. Prior agreement for such work arrangement is recommended.

¹ The reportable incidents are given in Schedule 7 to the Ordinance.

6.6 Posting of notice relating to incidents

- 6.6.1 If, following an incident, the normal use and operation of a lift or an escalator involved in the incident has to be suspended for a long period of time for investigation, repair, or maintenance, a brief notice advising the reason of the suspension of service can alleviate unnecessary speculations of the cause of the suspension.
- 6.6.2 The RC is required under section 7 of the General Regulation to post a notice (the suspension notice) in the specified form within 4 hours from the time a Schedule 7 incident has come to the knowledge¹ of the RC.
- 6.6.3 The notice is required to be posted at a conspicuous part or in a conspicuous place in the vicinity of the lift or the escalator. It is advisable that in deploying QPs to attend to the incident or undertake routine maintenance, etc., RCs should request QPs to bring along with them the suspension notice. The suspension notice can be removed if the normal use and operation of the lift or the escalator can be resumed following the attendance.
- 6.6.4 It is appropriate for the QPs attending to any lift incident or escalator incident to post the notice upon their arrival to the scene. The notice can be removed following confirmation that the failure does **not** involve a reportable incident or having resumed the use and operation of the lift or the escalator by the time limit of 4 hours.

6.7 Incident investigations

- 6.7.1 The relevant RC² who has been notified of an incident should as

¹ Either through notification by the RP or from its own finding during routine maintenance or attendance to any event of failure of the lift

² The RC who is currently undertaking any lift works or escalator works for the lift or the escalator involved in the incident, and if there is not such an RC the RC who most recently has undertaken lift works or escalator works for the lift or the escalator concerned.

soon as reasonably practicable arrange an RE to investigate the incident.

- 6.7.2 The RC must cause an RE to investigate the incident and to prepare and submit a full report of the investigation to the Director within 7 days after the date on which the RC is notified of the incident.
- 6.7.3 If for any reason the RC is of the opinion that a full report is unable to be completed or submitted on time, the RC must notify in writing the Director of the fact within 3 days after the date on which the contractor is notified and cause an RE to prepare and submit to the Director a preliminary report of the investigation within 7 days and a full report of the investigation within 14 days after the date on which the incident occurs or such longer period as the Director may approve. Section 68 of the General Regulation has specified the details required to be provided in the preliminary and full report.
- 6.7.4 Details of on-site investigation activities and safety measures taken should be recorded in the log-book.
- 6.7.5 The RC conducting the investigation should seek prior approval¹ of the Director and the RP in case there is a need to remove parts of the lift or the escalator for laboratory analysis or destructive test.

6.8 Notification of major incident

- 6.8.1 The RC who becomes aware of incident of a lift or an escalator under its maintenance due to the failure of major component(s) or which appears to have any of the failure phenomenon given below is required to notify the Director as soon as possible but should in no case be beyond two hours from the time the RC is aware of the incident, via the 24 hours hotline (published by the EMSD from time to time), giving the location and basic particulars of the incident:

¹ Unauthorized tampering of evidence may be liable to prosecution.

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Part 6 - Miscellaneous Issues

- (a) Breakdown or failure of lifts
 - (i) A person dies or is seriously injured (such as fracture, laceration, and loss of consciousness) and the death or injury involves a lift or any associated equipment or machinery of a lift;
 - (ii) A breakage of any suspension rope of a lift;
 - (iii) A failure of any brake of a lift;
 - (iv) The symptom of ascending overspeed of the car of a lift;
 - (v) The symptom of unintended car movement of a lift; or
 - (vi) The symptom of over-travel with either the lift car or counterweight buffer switch has been triggered, or the energy accumulation buffer, where installed, been hit.
- (b) Breakdown or failure of escalators
 - (i) A person dies or is seriously injured (such as fracture, laceration, and loss of consciousness) and the death or injury involves an escalator or any associated equipment or machinery of an escalator;
 - (ii) A breakage of the step chain or drive chain of an escalator;
 - (iii) Rollback of the steps of an escalator;
 - (iv) A failure of any brake of an escalator; or
 - (v) Dislocation of any step of an escalator or any pallet of a passenger conveyor resulted in a cavity on the exposed tread path of the escalator or passenger conveyor.

6.8.2 Upon receipt of the notification, the Director will evaluate the case and decide to deploy investigation officer(s) to attend to the scene to conduct incident investigation.

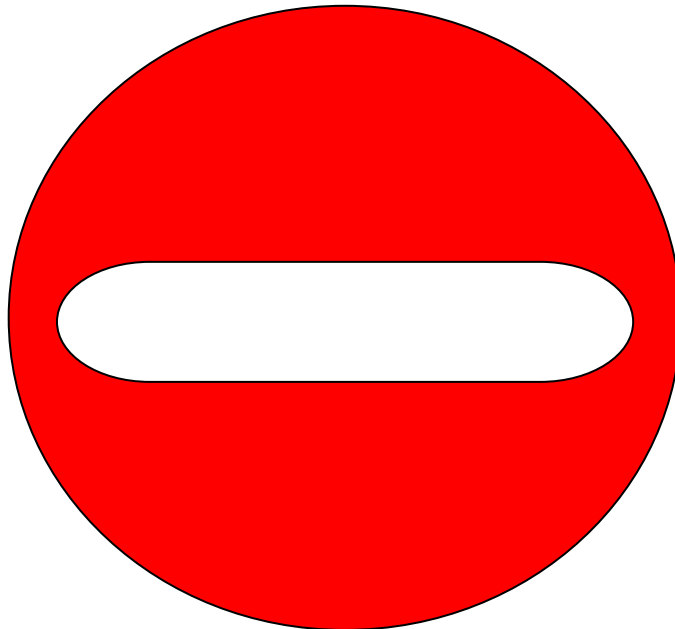
6.8.3 The RC and its staff should immediately check and make safe the lift or the escalator installation upon arrival to the scene.

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Part 6 - Miscellaneous Issues

- 6.8.4 Unless there is imminent danger or agreed by the Director or other enforcement authority, the RC and its staff should not start repair, removal, or disposal of any damaged/defective parts of a lift or an escalator involved in a major incident. Failure to observe the requirement may be taken as a serious neglect or misconduct.
- 6.8.5 RCs are required to observe the requirements under sections 40, 41, 70, and 71 of the Ordinance, in particular, the timely submission of incident reports and provision of assistance to the Director for incident investigation.

保 養 工 程
暫 停 使 用



**TEMPORARY SUSPENSION
FOR MAINTENANCE**

Figure 1

Note to Figure 1

On a white background of at least 150 mm wide and 180 mm high, the sign should be in red colour with letters and Chinese characters in black colour.

Appendix I

Information to be kept by RCs

I.1 Information to be kept by RC responsible for the installation of a lift or an escalator

I.1.1 An RC who undertakes any works concerning the installation of a lift or an escalator should keep records of the lift or the escalator. The information required to be kept by the RC is further elaborated in the ensuing paragraphs.

I.1.2 Design specifications in relation to a lift

I.1.2.1 The RC should retain the design specifications of a lift including the rated load, rated speed, and travel/rise. The RC should also retain technical details in relation to the lift as follows –

(a) Layout plans, sectional drawings and technical details for lifts should show details of the lift installation, including rooms for machines, pulleys and apparatus. The plans do **not** have to give details on construction, but they should contain the necessary particulars to check conformity to the Design Code, in particular the following –

- (i) Clearances at the top of the shaft and in the pit.
- (ii) Any accessible spaces which exist below the lift shaft.
- (iii) Access to the pit.
- (iv) Guards between lifts if there are more than one in the same shaft.
- (v) Provision for holes for fixings.
- (vi) Position and principal dimensions of the machine room with the layout of the machine and principal devices. Dimensions of the traction sheave or the drum, ventilation holes. Reaction loads on the building and at the bottom of the pit. The necessary clearances.

- (vii) Access to the machine room.
- (viii) Position and principal dimensions of the pulley room, if any. Position and dimensions of pulleys. Position of other devices in the room. The necessary clearances.
- (ix) Access to the pulley room.
- (x) Arrangement and principal dimensions of landing doors. It is **not** necessary to show all the doors if they are identical and if the distances between the floors are indicated.
- (xi) Arrangement and dimensions of inspection and emergency doors.
- (xii) Dimensions of the car and of its entrances.
- (xiii) Distances from the sill of the car door to the inner surface of the lift shaft wall.
- (xiv) Horizontal distance between the closed car and landing doors.
- (xv) Principal characteristics of the suspension: safety factor, ropes (number, diameter, composition, breaking load), chains (types, composition, pitch, breaking load), compensation ropes (where provided).
- (xvi) Calculations of the traction and the specific pressure.
- (xvii) Principal characteristics of the overspeed governor rope: diameter, composition, breaking load, safety factor.
- (xviii) Dimensions and calculation of the guides, condition and dimensions of the rubbing surfaces (drawn, milled, ground).
- (xix) Dimensions and calculation of energy accumulation type buffers, including their characteristic curve
- (xx) Protection of the jacks, if required.
- (xxi) Declaration of the precautions provided against free fall and descent with excessive speed, and against creeping.
- (xxii) Functional drawing of the pawl device, if any.
- (xxiii) Evaluation of the reaction force from any pawl device to the fixed stops.
- (xxiv) Calculation of the full load pressure.

- (xxv) Calculation of the jack and the piping against over pressure and buckling.
- (xxvi) Characteristics or type of the hydraulic fluid.
- (b) Electric schematic diagrams and hydraulic circuit diagram
 - (i) Outline electric schematic diagrams of the power circuits and of safety circuits. These schematic diagrams should be clear and use IEC symbols or other international symbols with explanatory notes. Hydraulic circuit diagram should be clear and use symbols of ISO 1219 or other international symbols with explanatory notes.
- (c) High Voltage Test Certificate
 - (i) A test certificate issued by the manufacturer of the lift or the escalator certifying that the dielectric of electrical apparatus (excluding motors, generators, transformers, electronic apparatus and instruments, which are tested in accordance with the appropriate international standards) of the lift or the escalator can withstand a test voltage of 10 times the working voltage, with a maximum of 2000 V, when applied as follows –
 - 1) between the live parts and the case or the frame with all circuits completed;
 - 2) between main terminals or equivalent parts with all circuits open;
 - 3) between any live parts of independent circuits.
 - (ii) The test voltage should be alternating of approximately sine wave form with a frequency of approximately 50 Hz and should be applied for 1 minute. Owing to the impracticability of applying the foregoing tests (2) and (3) on controllers and similar apparatus after controller wirings have been completed, these tests are to be made at convenient stages of manufacture. A test certificate to this effect issued

by the manufacturer is acceptable.

(d) Certificates

- (i) Copies of type-examination certificates issued by an independent testing institute for door locking devices (for landing doors and car door, where applicable), overspeed governors, safety gears, ascending car overspeed protection means, buffers, unintended car movement protection means, and safety circuit containing electronic components. Copies of certificates for other components such as travelling cables, ropes, chains, flexible hoses or explosion proof equipment if applicable.
- (ii) Setting up certificate for the safety gear according to the instructions provided by the safety gear manufacturer and calculation of the compression of the springs in the case of progressive safety gear.
- (iii) Setting up certificate for the rupture valve according to the instructions provided by the rupture valve manufacturer.
- (iv) The certification documents justifying the FRR performance of the lift-way doors¹.

I.1.3 Design specifications in relation to an escalator

I.1.3.1 The RC should retain the design specifications of an escalator including the rated load, rated speed, and travel/rise. The RC should also retain technical details in relation to the escalator as follows –

(a) Calculation Data and Certificates

- (i) Static stress analysis of the supporting structure of the escalator or equivalent certificate by a structural engineer approved by the Director;

¹ Lift-way doors included landing doors, lift well inspection and emergency doors, and inspection traps installed by the RC.

- (ii) proof by calculation of sufficient breakage resistance of the parts immediately driving the steps, pallets or the belt, e.g. step chains, racks;
 - (iii) calculation of the stopping distances for loaded passenger conveyors together with adjustment data;
 - (iv) type-examination certificate for steps or pallets;
 - (v) certificate of the breaking strength of the belt; and
 - (vi) for public service escalators and public service passenger conveyors, certificate of the breaking strength of the handrail.
- (b) Drawings
- (i) Layout drawings, description of the equipment and wiring diagrams (electric schematic diagram with legends and explanations, and a terminal connection chart) which permit a check of compliance with the safety requirements specified in the Design Code.

I.1.4 Instructions for the lift or the escalator

- I.1.4.1 The RC should retain the instructions on the installation of the lift or the escalator, instructions or recommendations on the commissioning, examination, maintenance, operation or examination of the lift or the escalator, including risk assessment results for all relevant phases of works.

I.2 Information to be kept by RC responsible for the maintenance of a lift or an escalator

- I.2.1 An RC who undertakes any works concerning the maintenance, repair, modification, major alteration, demolition of a lift or an escalator should keep records of the lift works or the escalator works. The information required to be kept by the RC is further elaborated in the ensuing paragraphs.

I.2.2 Maintenance information

I.2.2.1 The RC should retain maintenance information in relation to the lift or the escalator as follows –

- (a) instructions recommended by a manufacturer of lifts or escalators for the maintenance of the lift or the escalator;
- (b) schedule of maintenance for effecting maintenance of the lift or the escalator;
- (c) records of maintenance activities including oiling, cleaning, inspecting, and any adjustments made to the lift or the escalator;
- (d) details of complaints relating to the functionality of lifts or escalators received and follow-up remedial actions taken;
- (e) details of fault calls relating to lifts or escalators received and follow-up actions taken;
- (f) irregularities of lifts or escalators observed during maintenance and the remedial actions taken;
- (g) tests and examinations of lifts or escalators conducted;
- (h) details of major overhaul, repair, replacement, modification, and major alteration applied to lifts or escalators;
- (i) findings of risk assessments, method statements and training records for undertaking works on the lift or the escalator;
- (j) technical information of safety components and major components of lift works or escalator works conducted; etc.

Appendix II

Type approval of lifts, escalators, and safety components

- II.1 The type approval requirements ensure that only lifts, escalators, and safety components which are up to internationally recognized safety standards and are manufactured by established manufacturing facilities with product quality assurance are to be supplied to HK. In granting the approval, the equipment and safety components are also required to comply with specific local design requirements stipulated in the Code of Practice on the Design and Construction of Lifts and Escalators (Design Code).
- II.2 Section 16 of the Ordinance requires RCs to seek type approval for a lift and safety components of the lift which are of a brand and model (or designation number) in respect of which the RC has **not** obtained type approval from the Director prior to the commencement of installation of the lift and the safety components, and for safety components to be used for major alterations in respect of which the RC has not obtained type approval from the Director prior to commencement of the major alterations. Section 47 of the Ordinance stipulates similar requirements on RCs for type approval for escalators and the corresponding safety components.
- II.3 **Application for type approval**
 - II.3.1 Type approval for a particular brand and model of lifts, escalators, or safety components is to be sought by the RC from the Director prior to the commencement of installation of the lift, the escalator, or safety components as well as for major alterations comprising safety components. RCs should allow sufficient time taking into account the volume of documents and complexity of the design of the equipment needs to be checked for processing the application for type approval by the Director.

- II.3.2 The sufficiency and correctness of the information covered in the application will have a bearing on the processing time. RCs should provide relevant information in a systematic manner to facilitate processing. Key parameters and messages in the submittal should be duly highlighted.

II.4 Information to be provided

- II.4.1 A type approval application should contain information on the manufacturer(s) of the equipment, viz. the lift, the escalator, or safety components, certification of the quality assurance scheme of the manufacturing facilities, type-examination certificate, product specifications with key operating parameters, drawings, installation and commissioning manual, operation and maintenance manual, etc., of the equipment. A list of information, with brief description, which should be provided in applications for type approval is given in **Annex A**.
- II.4.2 A type-examination certificate submitted for type approval should be accompanied by a test report prepared by the testing institute in support of the certification.
- II.4.3 Copies of type-examination certificates and certification (e.g. ISO 9001 certificate) of the quality assurance scheme of the manufacturing facilities of the manufacturer of the lift, the escalator, or safety components should have been certified by the certificate-holder to be true to the original.

Annex A – Information required for type approval applications

IIA.1 Information required for the application of type approval for a lift or safety components to be used for a lift of a particular brand and model (or designation number) should cover the following:

IIA.1.1 Details of the manufacturer of the lift or safety components

- (a) Name and address of the manufacturer;
- (b) History of the manufacturer;
- (c) Organization of the manufacturer;
- (d) The size of the manufacturing plants, their locations and capabilities;
- (e) Product range and yearly production;
- (f) Certification of the quality assurance scheme (e.g. ISO 9001) adopted by the manufacturer for manufacturing quality products confirming to design specifications or alternatively confirmation by the lift manufacturer (with quality assurance scheme) of the quality of the safety component(s) to be used; and
- (g) Other relevant information (e.g. brochure, job references, etc.).

IIA.1.2 General specifications of the lift

- (a) Model number(s) and their applications including range of duty loads, range of speeds, maximum travel, roping and balancing factor;
- (b) For each lift model, the type of traction machine and the associated braking system, safety components of the lift, and mode of control;
- (c) Confirmation from the lift manufacturer that the lift or safety components are designed and manufactured to the requirements of the Design Code; deviations to the Design Code identified should be supplemented with corresponding counter-measures adopted in the design for achieving the same or a safety standard

better than the one stipulated in the Design Code;

- (d) Identification of major parts/components supplied by other manufacturers to the lift manufacturer and their corresponding confirmation in respect of compliance with the Design Code or alternatively confirmation by the lift manufacturer that the safety component(s) to be in compliance with the Design Code;
- (e) Certificates of type-examination of the lift and safety components to be used by the lift (see **Annex B** for the requirements on the type-examination); and
- (f) Other relevant information (e.g. brochures, job references, etc. of the lift or safety components)

IIA.1.3 Technical information of the lift or safety components

- (a) Installation, operation and maintenance manuals of the lift or safety components;
- (b) Typical electric schematic diagrams of the power circuits and safety circuits completed with explanatory notes;
- (c) Supporting drawings, illustrations and calculations of the lift, safety components and safety equipment;
- (d) Declaration of conformity by the lift manufacturer for compliance with EMC requirements to EN 12015 and EN 12016;
- (e) Maintenance schedules of the lift and safety components issued by the lift manufacturer; and
- (f) Information of rope size, number of ropes, guide rail size, etc. as well as the product catalogues.

IIA.1.4 Training and technical support arrangement by the lift manufacturer

- (a) To ensure that the lift works are carried out in a safe and proper manner, the RC applying for the type approval should indicate his arrangement of training provided by the lift manufacturer to

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ensure his workers and engineers have obtained sufficient experience and training in respect of the lift or safety components.

- (b) The lift manufacturer should undertake to provide technical support to the RC regarding the lift or safety components under installation and during maintenance in order to ensure that sufficient and adequate technical know-how is available to the RC for carrying out all kinds of works associated with the lift.

IIA.2 Information required for the application of type approval for an escalator or safety components to be used for an escalator of a particular brand and model (or designation number) should cover the following:

IIA.2.1 Details of the escalator or safety component manufacturer

- (a) Name and address of the manufacturer;
- (b) History of the manufacturer;
- (c) Organization of the manufacturer;
- (d) The size of the manufacturing plants, their locations and capabilities;
- (e) Product range and yearly production;
- (f) Certification of the quality assurance scheme (e.g. ISO 9001) adopted by the manufacturer for manufacturing quality products confirming to design specifications; and
- (g) Other relevant information (e.g. brochure, job references, etc.).

IIA.2.2 General specifications of the escalator

- (a) Escalator model numbers and their applications including range of duty loads for escalator, range of speeds, angle of inclination, step widths, and rises;

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- (b) The type of operational brake, auxiliary brake and overspeed governor, drive chain size, drive chain number and mode of control;
- (c) Confirmation from the escalator manufacturer that the escalator or safety components are designed and manufactured to the requirements of the Design Code; deviations to the Design Code identified should be supplemented with corresponding counter-measures adopted in the design for achieving the same or a safety standard better than the one stipulated in the Design Code;
- (d) Identification of major parts/components supplied by other manufacturers to the escalator manufacturer and their corresponding confirmation in respect of compliance with the Design Code;
- (e) Certificates of type-examination of the escalator and safety components to be used by the escalator (see **Annex B** for the requirements on the type-examination); and
- (f) Other relevant information (e.g. brochures, job references, etc. of the escalator or safety components).

IIA.2.3 Technical information of the escalator or safety components

- (a) Installation, operation and maintenance manuals of escalator or safety components;
- (b) Typical electric schematic diagrams of the power circuits and safety circuits completed with explanatory notes;
- (c) Supporting drawings, illustrations and calculations of the escalator, safety components and safety equipment;
- (d) Declaration of conformity by the escalator manufacturer for compliance with EMC requirements to EN 12015 and EN 12016;
- (e) Maintenance schedules of the escalator and safety components issued by the escalator manufacturer; and
- (f) Product catalogues.

IIA.2.4 Training and technical support arrangement by the escalator manufacturer

- (a) To ensure that the escalator works are carried out in a safe and proper manner, the RC applying for the type approval should indicate his arrangement of training provided by the escalator manufacturer to ensure his workers and engineers have obtained sufficient experience and training in respect of the products.
- (b) The escalator manufacturer should undertake to provide technical support to the RC regarding the products under installation and during maintenance in order to ensure that sufficient and adequate technical know-how is available to the RC for carrying out all kinds of works associated with the escalator.

Annex B – Type-examination certificates relating to a lift, an escalator, or safety components for a lift or an escalator

IIB.1 Copies of type-examination certificates relating to a lift, an escalator or safety components for the lift or the escalator of a particular brand and model should be available, at the latest¹, prior to the commissioning of the lift, the escalator or safety components. These test certificates should relate to type-examinations carried out by an independent body. A set of type-examination certificates issued by an independent testing institute (same as independent body) as approved by the Director on the lift, the escalator, or safety components used by the lift or the escalator should be provided:

- (a) For safety components of lifts as provided for in **Schedule 2** to the Ordinance –
 - (i) Safety gear;
 - (ii) Overspeed governor;
 - (iii) Door locking device (includes the landing door locking device and car door locking device);
 - (iv) Buffer;
 - (v) Ascending car overspeed protection means;
 - (vi) Unintended car movement protection means; and
 - (vii) Safety circuit containing electronic components.
- (b) For safety components of escalators as provided for in Schedule 2 to the Ordinance –
 - (i) Step or pallet

IIB.2 Details of type examination of the above safety components are stated in **Clause IB.5**.

¹ This only applies to the case the RC has obtained exemption for having type-examination of the lift, escalator, or safety components locally.

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II.B.3 Where no type-examination certificate for the lift or the escalator of a particular brand and model can be provided, the RC may submit a comprehensive design file (technical dossier) with technical details of the lift or the escalator model in question for the assessment of the Director. The design file should contain sufficient information to illustrate the design and operation of the lift or the escalator. Details at least covering the following should be provided –

- (a) general description with specifications and application range of the lift or the escalator;
- (b) design and manufacturing drawings or diagrams of the lift or the escalator, and major equipment used for the lift or the escalator;
- (c) substantiations with calculations and illustrations for compliance with the requirements of the Design Code, in particular for safety requirements regarding physical configuration and automatic functions specified in the Design Code;
- (d) type-examination certification for safety components used for the lift or the escalator;
- (e) results of any tests or calculations performed or subcontracted by the manufacturer;
- (f) installation, operation and maintenance manuals of the lift, the escalator, and safety components;
- (g) typical electric schematic diagrams of the power circuits and safety circuits completed with explanatory notes;
- (h) maintenance schedules of the lift, the escalator, and safety components issued by the manufacturer;
- (i) declaration of conformity by the manufacturer of the lift or the escalator for compliance with EMC requirements to EN 12015 and EN 12016; and
- (j) product catalogues.

IIB.4 Testing Institutes, Laboratories & Accreditation Bodies

IIB.4.1 The testing is carried out either by an independent testing institute or the manufacturer. The Director will accept the results and certificates issued by the testing institute or manufacturer which fulfils one of the following criteria as specified below:

- (a) The testing should be carried out by independent testing institutes. The results and certificates issued by the testing institute which is accredited by the Hong Kong Accreditation Service (HKAS) for the relevant test under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) or a scheme with which HKAS has concluded a mutual recognition agreement would be accepted by the Director. Type-examination certificates and test reports issued by accredited certification organizations recognized by accreditation bodies with which the HOKLAS has signed the mutual recognition agreements/arrangements would be accepted. The information concerning accreditation bodies and the accredited certification organizations is available from the following website:

<http://www.itc.gov.hk/en/quality/hkas/agreement.htm>

- (b) The Director will recognize accreditation granted by the HOKLAS and overseas organizations which have concluded mutual recognition agreements with HKAS for accreditation of testing institutes (or laboratories) with the area of accreditation of the accredited certification organization covering lifts or escalators, and equipment of lifts or escalators.
- (c) Also, only original or certified true copies of the type-examination certificates and the test reports will be accepted.

IIB.5 Type-examination and certification for safety components and other devices

IIB.5.1 The type-examination should be arranged by the manufacturer of the component or his authorized representative and should be carried out by an independent testing institute approved by the Director. The testing institute should **not** be part of the organization of the manufacturer of the safety component, and should have proven competence in carrying out testing of the components.

IIB.5.2 For the purpose of the Works Code, it is assumed that the testing institute undertakes both the testing and the certification as a single body, although in certain countries the testing laboratory and the certification body may be separate. In the latter cases, the certification body must also be independent and **not** being part of the manufacturer organization.

IIB.5.3 Safety components or other devices for a lift

- (a) Door locking devices – the landing door locking devices and car door locking devices¹ for a lift should be type examined in accordance with the testing procedures as described in Clause 5.2 of EN 81-50:2014 or other approved international standards.
- (b) Safety gears – the safety gears for a lift should be type examined in accordance with the testing procedures as described in Clause 5.3 of EN 81-50:2014 or other approved international standards.
- (c) Overspeed governors – the overspeed governors for a lift should be type examined in accordance with the testing procedures as described in Clause 5.4 of EN 81-50:2014 or other approved international standards.
- (d) Buffers – the energy accumulation type buffers with buffered return movement and energy dissipation buffers for a lift should be type examined in accordance with the testing procedures as described in Clause 5.5 of EN 81-50:2014 or other approved international

¹ Reference can be made to the Design Code for the certification requirement for the car door locking devices.

standards.

- (e) Ascending car overspeed protection means – the ascending car overspeed protection means for a lift should be type examined in accordance with the testing process as described in Clause 5.7 of EN 81-50:2014 or other approved international standards.
- (f) Safety circuit containing electronic components – the safety circuits which contain electronic components should be type examined in accordance with the testing procedures as described in Clause 5.6 of EN 81-50:2014 or other approved international standards.
- (g) Unintended car movement protection means – the protection means for prevention of unintended car movement with open landing door and car door is regarded as a safety component and should be type examined in accordance with the testing procedures as described in Clause 5.8 of EN 81-50:2014 or other approved international standards.
- (h) Suspension ropes and overspeed governor ropes – the suspension ropes and overspeed governor ropes for a lift should be certified by their manufacturer for the breaking load and principal characteristics.

II B.5.4 Safety components or other devices for an escalator

- (a) Steps or pallets – the steps or pallets for an escalator should be type examined, statically and dynamically, in accordance with the testing procedures as described in Clause 6.2 of EN 115:Part 1 or other approved international standards.
- (b) Handrail – the breaking strength of the handrail for the public service escalator should be certified by its manufacturer.
- (c) Belt – the breaking strength of the belt of a passenger conveyor should be certified by its manufacturer.

Appendix III

Notification of commencement of works

Annex A - Requirements relating to completion of the notification of commencement of lift works or escalator works involving installation of a lift or an escalator

- IIIA.1 When a Form LE3 is to be completed to notify the Director of the commencement of lift works or escalator works involving the installation of a lift or an escalator, it is necessary to state clearly the full address (including the street number and name) of the building or the place the lift or the escalator is to be installed, and the lift or the escalator number in the locality.
- IIIA.2 A location plan indicating the position of the lift or the escalator in the building or the locality concerned should also be submitted. Where there are lifts or escalators existing in the building or the locality, the location and identification number of the lifts or escalators should also be shown in the plan.
- IIIA.3 If the full address, the lift number or the escalator number is not available upon submission of the notification, the information should be submitted once available.

Annex B – Requirements relating to completion of the notification of commencement of lift works or escalator works involving maintenance of a lift or an escalator

- IIIB.1 When a Form LE3 is to be completed to notify the Director of the commencement of lift works or escalator works involving the maintenance of a lift or an escalator, the RC is to confirm whether the following are complied with:
- (a) Adequate RWs or REs are employed to carry out periodic maintenance, periodic thorough examination of the lift(s) or the escalator(s) concerned;
 - (b) Employees of the RC are in possession of the necessary knowledge, expertise and skill to carry out the lift works or escalator works mentioned in (a) above;
 - (c) The RC is in possession of the necessary maintenance instructions (see item I.2.2 of **Appendix I**) for maintaining the lift(s) or the escalator(s) concerned; and
 - (d) The RC does not have any difficulty in obtaining spare parts and essential components for the repair and maintenance of the lift(s) or the escalator(s) in safe working order.

Annex C – Requirements relating to completion of the notification of commencement of lift works or escalator works involving major alteration to a lift or an escalator

- IIIC.1 To facilitate monitoring of fire safety in existing buildings, in addition to the Director, the Commissioner for Labour should also be notified (making use of Form LE3) before commencement of any lift works concerning major alteration to or replacement of a lift in an existing building.
- IIIC.2 The standard notice (Form LE3) should also be forwarded to the Fire Services Department and the Buildings Department if the compartmentation of the lift well will be breached, or there will be replacement or removal of lift landing doors or erection of scaffolding in the lift well.
- IIIC.3 It should be noted that the notice should be received by the respective departments concerned at least 14 days before commencement of the works if the lift(s) replacement works in existing building involve a breach of lift well compartmentation, hot work or erection of scaffold in lift well.
- IIIC.4 A location plan indicating the position(s) of the lift(s) concerned should be provided together with the notice.
- IIIC.5 In the course of major alteration or replacement works involving the landing doors of a lift, the fire safety requirements for protecting the integrity of lift shafts in order to inhibit the spread of fire between floor compartments through the lift shafts and openings as given in the Practice Note for Authorized Persons, Registered Structural Engineers and Geotechnical Engineers issued by the Buildings Department would be observed. The requirements stipulated in the Practice Note are extracted below:

Fire resisting construction requirements for maintenance and replacement works of lift installations

- (a) Subject to paragraph (b) below, all landing doors should remain in a closed position in the course of maintenance or replacement works of lift installations.
- (b) Where landing doors need to be kept open for the works, normally no more than one such door in a lift shaft should be in an opened position at any one time. The door opening, other than the one at which the lift car is levelled with the floor landing, is to be attended by lift workers. If the works necessitate more than one door in a lift shaft to be opened at the same time, the following additional conditions should be observed:
 - (i) the maximum number of landing doors to be kept open at the same time is three; and
 - (ii) no hot works or welding operations will be carried out.
- (c) Where landing doors are to be taken down, removal of more than one landing doors in a lift shaft at any one time should be avoided.
- (d) If more than one landing doors are to be removed at any one time, the door openings should be protected by temporary hoarding having an FRP of not less than 1 hour.
- (e) Openings in the hoarding are not allowed except small openings for ventilation of the lift shaft and access doors to the lift shaft.
- (f) Each ventilation opening should not exceed 5 500 mm² in area and should be located at the upper portion of the hoarding. The number of such openings should be limited to two per liftway, subject to a maximum of four in the hoarding.
- (g) Access door in the hoarding should have the same FRP as the hoarding. Such door should be self-closing and provided with locking device to prevent unauthorized access. The locking device should be so arranged that it can be readily opened from the inside without the use of a key.

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- (h) Temporary hoarding to enclose a lift shaft should not be erected to cause, as far as reasonably practicable, any obstruction or reduction in width of any escape route.
- (i) Any temporary works including scaffoldings, formworks, plankings and struttings etc. erected inside a lift shaft during maintenance or replacement works should be constructed of non-combustible materials.
- (j) Arrangements should be made to ensure that all temporary openings during maintenance or replacement works are protected by either having all opened lift landing doors returned to the closed position or enclosing such openings properly with fire resisting hoarding before leaving unattended any unfinished works during lunch breaks or at the end of a day's work.

Annex D – Requirements relating to completion of the notification of commencement of lift works or escalator works involving demolition of a lift or an escalator

- IIID.1 The demolition of a lift or an escalator is to be undertaken by an RC.
- IIID.2 The demolition works are to be supervised by a QP.
- IIID.3 A risk assessment in respect of the demolition works including selection of appropriate methods for carrying out the works has been / will be conducted.
- IIID.4 A copy of the risk assessment report and method statement with necessary procedure of demolition and safety measures to be taken in respect of the works have been / will be prepared and provided to the RP and the Director.
- IIID.5 Consent of the RP has been obtained for the demolition of the lift or the escalator.
- IIID.6 Necessary measures to minimize the impact from the demolition of the lift or the escalator, which may have on the structural integrity of the building in which the lift or the escalator is installed have been taken.
- IIID.7 If the service of a lift or an escalator has been / will be temporarily suspended, the RP for the lift or the escalator is still responsible to arrange an RC to carry out maintenance for the lift or the escalator in compliance with section 15 or section 46 of the Ordinance.

Appendix IV

The report for the associated building works of new lifts

Lift Location: _____

Lift Identification No(s): _____

(Status: ✓ = completed / complied with
 X = incomplete / not complied with
 N.A. = not applicable)

Item	Description	Status
1	Permanent doors to machine and pulley rooms opening outwards, fitted with self-closing devices and proper locking devices. Permanent warning notices on the outside face of the door.	
2	Clear and safe access to machine and pulley rooms.	
3	Adequate railings of suitable height to machine platforms. Appropriate steps or stairway where there was a level difference.	
4	Lift wells, machine and pulley rooms completely enclosed and all unnecessary holes sealed up.	
5	Permanent and adequate lighting for lift wells, machine and/or pulley rooms and/or machine platforms.	
6	Protective guards to ventilating fans for cross-ventilation through the machine room or machinery space at the top of the lift well for machine-room-less lift. Wind guards to ventilation louvers, or ventilation louvers designed with equivalent function as wind guards.	
7	Provision of adequate electricity supply by permanent cables.	
8	Proper isolation switch with permanent identification label for each lift, easily accessible from the entrance of the machine room.	
9	MCB and proper isolation switches with permanent identification labels for lighting and/or socket outlets of lift cars, wells or pits, machine and/or pulley rooms.	
10	Unnecessary holes in lift wells, machine and pulley rooms filled up.	
11	Surplus/protruded iron bars inside lift wells all removed.	

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Item	Description	Status
12	Inspection doors, emergency doors, inspection traps and lift pit access door, where required, with proper locking devices, and a clear and safe access.	
13	Required partition between lift-ways in a common lift well.	
14	Lift pits completely enclosed and of waterproof construction.	
15	Cat ladders with suitable hand holds for access to lift pits.	
16	Supporting frames and reinforced wire mesh provided to the lift well top vents.	
17	Permanent and adequate lighting installations in lift lobbies.	
18	Ventilation of lift wells directed to open air either directly or via ducting/the machine/pulley room.	
19	Permanent and adequate lighting in lift wells and lift pits.	
20	Debris and unrelated materials in lift wells, machine and pulley rooms cleared.	
21	Earth bonding for metallic parts in machine room applied.	
22	Associated works (except those purely for decoration purposes) surrounding the landing entrances completed.	
23	All necessary instructions and notices in both Chinese and English in the lift cars and on the landings provided.	
24	The maximum permissible load in both Chinese and English indicated on the lifting beams or hooks.	
25	Permanent anchorage(s) adjacent to the lift landing door at the lowest landing floor.	
<i>See also relevant Practice Note for Authorized Persons, Registered Structural Engineers and Geotechnical Engineers issued by the Buildings Department.</i>		

Remarks: _____

Signature of Authorized Person (AP)

or AP's representative*: _____

Full name of Authorized Person (AP)

or AP's representative*: _____

Date: _____

**Signature of AP or AP's representative can be replaced by signature of Registered Structural Engineer if the new lifts installation is in a government building.*

Appendix V

The report for the associated building works of new escalators

Location: _____

Escalator Identification No(s): _____

(Status: ✓ = completed / complied with
 X = incomplete / not complied with
 N.A. = not applicable)

Item	Description	Status
1	Permanent doors to machine room doors fitted with self-closing devices, with permanent warning notices and proper locking devices.	
2	Clear and safe access to machine rooms.	
3	All unnecessary holes in machine rooms filled up.	
4	Provision of adequate electricity supply by permanent cables.	
5	MCB and proper isolation switches with permanent identification labels for lighting and/or socket outlets for each escalator.	
6	Proper protective guards where clearance between the balustrade exterior paneling and any adjacent guard rail/wall at each landing exceeds 75 mm.	
7	Permanent obstruction guards properly installed at floor intersections, building obstacles and on criss-cross escalators.	
8	Adequate clearance between the outer edges of the handrails and the adjacent walls, criss-cross escalators or other building obstacles.	
9	Clear height above the steps or pallets or belt of the escalator and the required unrestricted area of not less than 2.3 m.	
10	The required unrestricted area for accommodating passengers at both landings.	

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Item	Description	Status
11	Permanent and adequate lighting around the escalator including both landings.	
12	The part of wellway, building obstacles or external wall of adjacent criss-cross escalator facing handrail, which is measured less than 2.10 m above the step, pallet or belt of the escalator, forming a smooth continuous vertical surface.	
13	The underside of false ceiling at floor intersections or bottom deck of adjacent criss-cross escalator forming a smooth continuous flat surface.	
14	Suitable shelter wall	
<i>See also relevant Practice Note for Authorized Persons, Registered Structural Engineers and Geotechnical Engineers issued by the Buildings Department.</i>		

Remarks: _____

Signature of Authorized Person (AP)

or AP's representative*:

Full name of Authorized Person (AP)

or AP's representative*:

Date:

** Signature of AP or AP's representative can be replaced by signature of Registered Structural Engineer if the new lifts installation is in a government building.*

Appendix VI

Information to be entered into the Log-book

VI.1 The general information required to be shown in the log-book is:

- (a) Location or address of the lift or the escalator;
- (b) Name of installation contractor;
- (c) Name of maintenance contractor;
- (d) Name of owner;
- (e) Date of installation;
- (f) Date of start of maintenance by particular contractor;
- (g) Location identity of the lift or the escalator;
- (h) Description of each lift or escalator such as:
 - (i) general specifications of the lift or the escalator;
 - (ii) number, diameter and type of ropes/chains;
 - (iii) types of safety components of the lift or the escalator;
 - (iv) Date of which the log-book started;
 - (v) Date of which log-book finished;

VI.2 Anticipated duration for maintenance

- (a) The anticipated duration for performing routine maintenance for the lift or escalator by the RC responsible for the maintenance of the lift or escalator.

VI.3 Details of lift works or escalator works

VI.3.1 In relation to lift works or escalator works that have been or are being carried out, RCs must enter the following information into the log-book:

- (a) the name of qualified persons or specified persons engaged in the works;

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- (b) the registration number of registered persons engaged in the works;
- (c) the date of commencement of the works;
- (d) (if applicable) the date of completion of the works; and
- (e) brief description of the works, includes but not limited to :
 - (i) examination of a lift or an escalator after installation or major alteration;
 - (ii) periodic maintenance of a lift or an escalator with observations;
 - (iii) periodic thorough examination of a lift or an escalator with observations;
 - (iv) examination of a lift or an escalator ordered by the Director;
 - (v) major alterations to the lift or the escalator; and
 - (vi) replacement of important parts, including ropes, of the lift or the escalator.

VI.3.2 In relation to lift works or escalator works that have been or are to be subcontracted to another person for execution, RCs must enter the following information into the log-book:

- (a) the name and contact details of the subcontractor undertaking the works; and
- (b) the scope of works being subcontracted.

VI.3.3 In relation to investigation of or attendance to any event of failure relating to a lift or an escalator, RCs must enter the following information into the log-book:

- (a) the date on which and the time at which the call was received;
- (b) the nature and particulars of the fault, including the number of passengers trapped (if applicable);
- (c) the name of the persons authorized or instructed by the contractor

to attend to the fault;

- (d) the particulars of the rectification and the date on which and the time at which the rectification of the fault finishes; and
- (e) (if applicable) the date on which and the time at which the lift resumes to its normal use and operation.

VI.3.4 In relation to investigation of or attendance to any incident related to a lift or an escalator, RCs must enter the following information into the log-book:

- (a) the date on which and the time at which the incident occurs;
- (b) the nature and particulars of the incident, including the death of or injury to any person and damage to any property as a result of the incident;
- (c) (if applicable) the particulars of emergency rescue, rectification work done and the suspected cause(s) leading to the incident;
- (d) (if applicable) the time used to rescue each person required to be rescued as a result of the incident;
- (e) the name of the persons authorized or instructed by the contractor to attend the incident;
- (f) the date on which and the time at which the investigation or checking commences;
- (g) the safety measures taken;
- (h) (if applicable) the parts removed and tests conducted;
- (i) the date on which and the time at which the investigation or checking finishes; and
- (j) (if applicable) the date on which and the time at which the lift resumes to its normal use and operation.

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- VI.3.5 In relation to thorough examinations of a lift or an escalator, REs must enter the following information into the log-book –
- (a) the name and registration number, where applicable, of qualified persons or specified persons engaged in the examination;
 - (b) the date of commencement of the examination;
 - (c) the result of the examination, including observations on the function and performance of the lift or escalator after the examination;
 - (d) the recommendations to the lift or escalator, e.g. resumption or suspension of operation, rectification works to be done, safety measures, etc.; and
 - (e) date of completion of the examination.
- VI.4 The log-book should be in the specified form according to the General Regulation. All REs and RWs attending site should enter the details of lift works or escalator works performed clearly and precisely into the log-book so as to enable the details to be identified for review and investigation, as the case may be.
- VI.5 As a proof that the lift works or escalator works are carried out in accordance with the requirements stipulated in the Ordinance, REs RWs and general workers should confirm the entry by signing and chopping their names with identification number (registration number in the case of a registered person) on the log-book. As such, a RE an RW and general worker should keep his or her own chop which should not be used by others.
- VI.6 Besides, they have to note down the time of arrival at site and the time that the service has resumed, and to enter any unusual matters such as fault not yet rectified, people injured, lift or escalator not safe, etc. in the log-book.

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Appendix VI

- VI.7 In the case of incident involving a lift or an escalator, the date on which and the time at which the incident occurs and the nature and particulars of the incident, including the death or injury of any person and damage to any property as a result of the incident, should be recorded. Any corrections in the log-book should be made by crossing out wrong entries and signing against the corrections.
- VI.8 To ensure that the RP or his representative is aware of the progress of works or status of the equipment as well as the nature of the incident, the RE or RC is required to advise the RP or his representative to accordingly sign on the log-book.
- VI.9 RCs should not remove the log-books when their maintenance contracts of lifts/escalators are terminated.

Appendix VII

Not used

Appendix VIII

Guidelines for preparation of O&M manuals

VIII.1 General Provisions

VIII.1.1 The operation and maintenance manual (O&M manual) should be prepared and provided for the reference by RP and operation and maintenance personnel to make possible proper operational controls, repair and maintenance in order to ensure the smooth, safe and reliable operation of the lift system or the escalator system.

VIII.1.2 Installation of or modifications made to a lift or an escalator should be provided with a comprehensive O&M manual with specification of the equipment installed, control details and operating parameters in a systematic manner. Where more than one lift or one escalator of the same type is provided for an installation project or similar modification works are applied to more than one lift or one escalator of a location, one set of O&M manual should be sufficient. However, all the special characteristics of the individual lifts and/or escalators involved in the installation or modification works should be clearly stated in the O&M manual.

VIII.1.3 The O&M manual should also provide the as-installed information associated with the lifts or escalators including building clearances, lifting points and facilities, and any other auxiliary services, which is essential for formulating equipment modification/replacement scheme for the lift system or the escalator system.

VIII.2 Format of the O&M Manual

VIII.2.1 The format of the O&M manuals should follow the requirements laid down in the European Standard, **EN 13015**, *Maintenance for lifts and escalators – Rules for maintenance instructions*, as far as possible.

- VIII.2.2 All O&M manuals are recommended to be prepared in standard size paper, paginated and bound in a systematic manner in durable hard cover file(s). Provision of the O&M manual in electronic form is also recommended subject to the agreement of the owner and the fact that information stored electronically can be reproduced in paper form and means for updating the stored information upon modification of the lift system or the escalator system is available.
- VIII.2.3 Official languages (Chinese or English) are recommended to be used in drafting the O&M manual. Translations in the official language(s) should be provided if the printed manuals are written in other languages.
- VIII.2.4 For individual mass manufactured major items used in the lift system or the escalator system, e.g. door locks, safety switches, drives, governors, safety gears and ascending overspeed protection means, standard printed manuals from the manufacturer may be acceptable provided that the requirements laid down in this Appendix are generally met.
- VIII.2.5 For custom assembled equipment, standard printed manuals should be supplemented by specially prepared drawings, type-written documents with technical description, operating and maintenance procedures, and trouble-shooting information of the system as a whole.
- VIII.3 Presentation**
- VIII.3.1 Where more than one volume is provided to form the O&M manual, each volume is recommended to be clearly identified and be contained in a separate file or binder.
- VIII.3.2 A contents/index section listing all sections and sub-sections of all volumes of the O&M manual should be provided. Each group of drawings should be provided with a schedule giving drawing

numbers, date of issue, amendment number, and drawing descriptions that would identify clearly the equipment and purposes of the drawings.

VIII.3.3 Each major topic, equipment or standard manuals from manufacturers are recommended to be in a section separated by tabbed, numbered or lettered dividers in the corresponding sequence being mentioned in the contents/index section. Printed catalogues or manufacturers' instruction manuals are recommended to be collectively placed in a separate subsection.

VIII.3.4 Large drawing prints should be neatly folded for binding into the O&M manuals. Consideration should be made to place the drawing prints in robust transparent plastic bags and kept in the O&M manuals for tidiness and long time retention.

VIII.4 Contents

VIII.4.1 The contents of the O&M manual should comply with the respective requirements of EN 81 or EN 115 as far as possible. The essential information covered in the 'technical dossier' or 'instruction handbook' as mentioned in EN 81 or EN 115 should also be available in the O&M manual. In drafting the O&M manual, the requirements of BS EN 13015 should also be observed.

VIII.4.2 The contents of the O&M manual are recommended to include essentially the following information –

(a) General information

(i) A front cover sheet showing the address/location of the lift or the escalator, drive system, power supply characteristics, capacity, speed, length of travel, number of stops, location of machine room, where applicable, and quantities of major equipment installed and the date of issue of the O&M manual.

- (ii) The scope of the installation and/or modification works and the specifications of the lift system or escalator system (e.g. 3 nos. 2.5 m/s 1050 kg 14 persons VVVF Lift Model ABC serving G/F to 22/F).
 - (iii) Occupational safety and health information in relation to the operation and maintenance of the lift system or escalator system.
- (b) Operating information
 - (i) Description of the facilities in general together with principle of operation, performance, capacity and quantity of equipment supplied under the installation and/or modification works be given. Reference to the design operating conditions and requirements for the safe use of the equipment should be included.
 - (ii) Where the lift or the escalator installed is restricted to any particular uses, information should be provided in the O&M manual. In addition, information including the duties of the RP, importance of keeping the O&M manual in safe custody, safe use of the lift or the escalator, maintaining free access on landings and keeping the machine room door locked, etc., should also be provided.
 - (iii) Results of risk assessment for the working area and tasks related to the O&M of the lift system or the escalator system, or modification should be provided. A step by step procedure for start-up and shut-down of the facilities under interlocking control should be provided, in particular this should apply to lifts or escalators under group control (or where special lift car allocation control has been provided).
- (c) Monitoring information
 - (i) A schedule showing the important parameters to be logged for monitoring of plant operation/performance

should be given. A sample log sheet with the parameters on a recommended recording time interval should be provided.

- (ii) Schedules of corrective measures stipulating the adjustments required for correcting the equipment performance deviation from pre-set values should be provided. Information including the adjustable ranges, the recommended values, special tools and relevant instructions should be given.
- (d) Trouble-shooting information
 - (i) All alarms and their corresponding implications including their possible causes and rectification should be provided in the O&M manual.
- (e) Commissioning, inspection and calibration information
 - (i) A schedule of settings including the corresponding recommended values for controlling instruments should be provided. If special tools and treatments are required for the initial start-up of the equipment, they should be covered in this section. A copy of the duly endorsed test reports with all the check figures and testing results should be provided.
 - (ii) A copy each of the type examination certificates and associated technical documents for all safety components used in the lift system or escalator system, and commissioning and examination reports and certificates of the ropes or chains used should be included.
 - (iii) Copies of the statutory form(s) relevant to the examination of the lift or the escalator and/or modification works should also be included.
- (f) Maintenance Information
 - (i) Information including those necessary for maintaining the lift and all its associated equipment or machinery, or

the escalator and all its associated equipment or machinery, in safe working order and the instructions for safe maintenance should be provided.

- (ii) A schedule of recommended lubricants and frequency of application/changing, and a drawing showing all lubrication points of the installation should be provided.
 - (iii) To facilitate scheduling of maintenance requirements, information should be in the form of a preventive maintenance chart or a maintenance plan detailing all routine and major overhaul operations to be carried out. Where maintenance requirements are to be determined by the operational periods or running hours of the lift or the escalator, these figures should also be stated. Exploded view sketches are recommended to be used to explain the dismantling procedures for the replacement and overhaul of major component and equipment.
- (g) Spare part information
- (i) A comprehensive list of recommended spare parts and special tools for the smooth operation and effective maintenance including cross-reference information with the equipment should be provided. The list is recommended to be furnished with the names of the spare parts, brief descriptions, part numbers and the corresponding stock level for maintaining the plant for two years' operation. The list is recommended to be completed with delivery schedule enabling the RP to arrange for ordering of spare parts and tools.
 - (ii) The service lives of major components and equipment in terms of operating hours or actuation numbers should be provided.
- (h) Other Information
- (i) A collection of prints of the approved record drawings

including layout plans, installation drawings with structural loading at anchoring points and sectional views showing structural clearances including runbys, positions of safe spaces and locations of limit switches in the hoistway, power supply schematic diagrams, wiring diagrams and a comprehensive plant equipment register detailing the individual equipment by giving its equipment number/tag number, description, capacity, operating range, setting, power requirement, serial number, etc. should be provided. All drawings should be clearly legible and be complete with legends. CENELEC symbols should be used as far as possible.

- (ii) Where password is required for the access to the controller for routine maintenance and diagnosis, the default password should be stated in the O&M manual. If provisions have been provided in the system for connection of adaptor or similar detachable hardware to monitor, diagnose and maintain the system, the functions of the adaptor or similar detachable hardware should be mentioned in the O&M manual. Unless otherwise agreed by the owner of the lift or the escalator, any such adaptor or similar detachable hardware essentially required for maintaining the lift or the escalator in proper and good working order should be a part of the system and become the asset of the owner.
- (iii) Step by step procedures showing how trapped persons are to be released and other emergency rescue operations with illustrations of the machine and use of rescue tools should also be provided.

Appendix IX

Examination upon completion of installation of a lift

The following examination activities should be carried out by an RE undertaking thorough examination upon completion of the installation of a lift.

IX.1 Checking of documents and examinations

IX.1.1 At least the following items should be covered –

- (a) checking of type approval from the Director in respect of the lift and safety components used for the lift;
- (b) checking of the documents kept by the RC relating to the lift as mentioned in **Appendix I**;
- (c) verification in respect of the lift of compliance with the Design Code and other relevant requirements (including conditions stipulated in the type approval, if any);
- (d) visual examination of the lift to confirm the application of the rules of good construction of components;
- (e) comparison of the details given in the type examination certificates for the lift and safety components having been type-examined, with the actual components fixed, and the characteristics of the lift and safety components in order to ensure their compatibility; and
- (f) checking of any exemption relating to the lift, which has been granted by the Director and whether the imposed conditions are fulfilled.

IX.2 Tests and verifications

IX.2.1 Tests and verifications should cover at least following items of the lift:

- (a) Locking devices
- (b) Electric safety devices (as specified in Section E Part 1 Annex A of the Design Code)
- (c) Suspension elements and their attachments – characteristics of the suspension elements and their attachments should be verified to be the same as those indicated in the test certificates.
- (d) Braking system – the test should be carried out by interrupting the electricity supply to the motor and the brake whilst the car is descending at rated speed with 125%, unless otherwise specified, of the rated load of the lift. In addition, the emergency braking distance of the empty car traveling in the upward direction and at the rated speed should be measured and recorded in the examination report.
- (e) Measurements of current or power and of speed
- (f) Insulation resistance and electrical continuity
 - (i) Measurement of the insulation resistance of the different circuits – for this measurement, all the electronic components are to be disconnected.
 - (ii) Verification of the electrical continuity of the connection between the earth terminal of the machine room and the different parts of the lift liable to be made live accidentally.
- (g) Final limit switches
- (h) Checking of the traction
 - (i) The traction should be checked by making several stops of the lift car with the most severe braking compatible with the lift system. At each test, complete stoppage of the car should occur. The test should be carried out –

1. at ascending, with the car empty, in the upper part of the travel.
 2. at descending, with the car loaded with 125% of the rated load of the lift, in the lower part of the travel.
- (ii) It should be checked that the empty car cannot be raised by the operation of the driving sheave when the counterweight rests on its compressed buffers.
- (iii) In the case of industrial truck loaded freight lifts and vehicle lifts, the traction should also be checked statically with the percentage of rated load of the lift as stated in Section E Part 1 Clause 5.4.2.2.1 of the Design Code.
- (iv) It should be checked that the percentage of weight balance is as stated by the lift manufacturer. This check may be made by means of measurements of current combined with:
1. speed measurements for a.c. motors
 2. voltage measurements for d.c. motors
- (v) The levelling accuracy of the lift car should be checked.
- (i) Overspeed governor
- (i) The tripping speed of the overspeed governor should be checked in the direction corresponding to the descent or ascent, as the case may be, of the car.
- (ii) The operation of the stopping control should be checked in both directions of movement.
- (iii) The tensile force in the overspeed governor rope produced by the governor should be checked to comply with the requirements stipulated in the Design Code.
- (j) Car safety gear – the correct mounting, correct setting and the soundness of the complete assembly, comprising of car safety gear, guide rails and their fixing to the building should be checked. The engagement test of the safety gear should be made while the

car is descending, with the contacts on the safety gear and on the overspeed governor being short-circuited in case of hydraulic lifts to avoid closing of the down direction valves, and in case of electric lifts with the brake open and the machine continuing to run until the ropes slip or become slack, and in the following conditions –

- (i) For instantaneous safety gear or instantaneous safety gear with buffered effect, the car should be loaded with the rated load uniformly distributed and engagement made at the rated speed.
- (ii) For progressive safety gear, the car should be loaded with 125% of the rated load of the lift uniformly distributed and engagement made at a reduced speed (e.g. levelling speed or inspection speed).

In order to facilitate disengagement of the safety gear, it is recommended that the test be carried out opposite a door in order to be able to unload the car.

In the specific case of industrial truck loaded freight lifts and vehicle lifts, the car should be loaded with the percentage of rated load of the lift as stated in Section E Part 1 Clause 5.4.2.2.1 of the Design Code.

After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred. In exceptional cases, and if necessary, friction components may be replaced.

- (k) Counterweight safety gear
 - (i) A counterweight safety gear which is activated by an overspeed governor should be tested in the same conditions as the car safety gear (without any load in the car).
 - (ii) A counterweight safety gear which is not activated by an overspeed governor should be tested dynamically.

After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred. In exceptional cases, and if necessary, friction components may be replaced.

(l) Buffers

- (i) For energy accumulation type buffers, the test should be carried out in the following manner: the car with its rated load, or the counterweight in case of counterweight buffer, should be placed on the buffer(s), the ropes should be made slack for electric lifts and it should be checked that the compression corresponds to that given by the characteristic curve.
- (ii) For energy accumulation type buffers with buffered return movement and energy dissipation type buffers, the test should be made in the following manner: the car with its rated load, or the counterweight in case of counterweight buffer, should be brought into contact with the buffers at the rated speed, or at the speed for which the stroke of the buffers has been calculated in the case of the use of reduced stroke buffers with verification of the retardation.

After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred.

(m) Alarm and intercommunication device.

(n) Electrical Tests

- (i) The insulation resistance of the different circuits should be measured. For this measurement, all the electronic components are to be disconnected. Verification should be made of the electrical continuity of the earth terminal of the machine room and the different parts of the lift liable to be made live accidentally.
- (ii) The normal operation of the phase reversal and phase failure device should be verified.

- (o) Overload device with the load uniformly distributed.
- (p) Fireman's lift operational control.
- (q) The functional controls of the lift should be thoroughly tested to verify its full compliance with the Design Code.
- (r) The guide rails should be checked for its compliance with the Design Code.
- (s) Ascending car overspeed protection means – the correct mounting, correct setting and the soundness of the complete assembly, comprising car, ascending car overspeed protection means, guide rails and their fixing to the building should be checked. The test should be made while the empty car is ascending at not less than rated speed, using only this device for braking. After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred. In exceptional cases, and if necessary, friction components may be replaced.
- (t) Protection against unintended car movement.
- (u) Motor run time limiter.
- (v) Landing and car door bypass device.

IX.2.2 Additional tests and verifications particularly applicable to hydraulic lifts should cover at least the following points –

- (a) Clamping device – the test should be made while the car is travelling at normal speed downwards, with the load uniformly distributed, the contacts on the clamping device and on the tripping devices being short-circuited to avoid closing of the down direction valves, and the car should be loaded with 125% of rated load of the lift. In the specific case of industrial truck loaded freight lifts and vehicle lifts, the car should be loaded with the percentage of rated load of the lift as stated in Section E Part 1 Clause 5.4.2.2.1 of the Design Code. After the test it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred.

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- (b) Safety gear (car or counterweight) tripped by failure of the suspension gear or by safety rope – the safety gear should be checked for its proper functioning.
- (c) Car safety gear (or clamping device) tripped by lever – the engagement of the lever with all fixed stops and the running clearance measured horizontally between the lever and all fixed stops during travel should be checked.
- (d) Pawl device
 - (i) Dynamic test
 1. The test should be made while the car is travelling at normal speed downwards, with the load uniformly distributed, the contacts on the clamping device and on the energy dissipation buffer, if any, being short-circuited to avoid closing of the down direction valves.
 2. The car should be loaded with 125% of rated load of the lift and should be stopped by the pawl device at each landing. After the test it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred.
 - (ii) The engagement of the pawl(s) with all supports, and of the running clearance measured horizontally between the pawl(s) and all supports during travel, should be checked.
 - (iii) Verification of the stroke of the buffers should be made – In the specific case of industrial truck loaded freight lifts and vehicle lifts, the car should be loaded with the percentage of rated load of the lift as stated in Section E Part 1 Clause 5.4.2.2.1 of the Design Code.
- (e) Limitation of the ram stroke – verification should be made in ensuring that the ram is stopped with buffered effect.
- (f) Full load pressure – measurement of the full load pressure should be made.

- (g) Pressure relief valve – the correct adjustment should be checked.
- (h) Rupture valve – function test should be carried out with rated load uniformly distributed in the descending car. The correct adjustment of the tripping speed should be checked, for instance, by comparison with the manufacturer's adjustment diagram. For lifts with several interconnected rupture valves, checking of the simultaneous closing by measuring the inclination of the car floor should be made.
- (i) Restrictor (or one-way restrictor) – it should be checked that maximum speed V_{\max} does not exceed the rated speed downwards $V_d + 0.3$ m/s. V_{\max} can be evaluated by the following formula:

$$V_{\max} = V_t \sqrt{\frac{p}{p - p_t}}$$

p = full load pressure (MPa)

p_t = pressure measured during a downward journey with rated load in the car (MPa)

If necessary, pressure losses and friction losses should be taken into account.

V_{\max} = maximum downward speed in the case of a rupture in the hydraulic system (m/s)

V_t = speed measured during a downward journey with rated load in the car (m/s)

- (j) Pressure test – the system should be observed for evidence of pressure drop and leakage during a period of 5 minutes (taking into account the possible effects of temperature change in the hydraulic fluid) when a pressure of 200% full load pressure is applied to the hydraulic system between the non-return valve and the jack (included). After this test, it should be visually ascertained that the integrity of the hydraulic system is maintained.

This test should be carried out after the test of the devices against free fall.

- (k) Creeping test – it should be checked that the car with the rated load, stopped at the highest level served does not move by more than 10 mm downwards within 10 minutes (taking into account the possible effects of temperature change in the hydraulic fluid).
- (l) Emergency operation downwards (in the case of indirect acting lifts) – upon hand-lowering the car onto a prop (or actuating the safety gear or clamping device), it should be checked that slack rope or slack chain condition does not occur.
- (m) Motor run time limiter – the time adjustment (by simulating the running of the machine) should be checked.
- (n) Electric temperature detecting device – the temperature adjustment should be checked.
- (o) Electrical anti-creep system – functional test with rated load in the car should be carried out.
- (p) Landing and car door bypass device.

Appendix X

Examination upon completion of installation of an escalator

The following examination activities should be carried out by an RE undertaking thorough examination upon completion of the installation of an escalator.

X.1 Checking of Documents and Examinations

X.1.1 At least the following items should be covered:

- (a) checking of any type approval from the Director in respect of the escalator and safety components used for the escalator;
- (b) checking of the documents kept by the RC relating to the escalator as mentioned in **Appendix I**;
- (c) verification in respect of the escalator of compliance with the Design Code and other relevant requirements (including conditions stipulated in the type approval, if any);
- (d) visual examination of the escalator to confirm the application of the rules of good construction of components;
- (e) comparison of the details given in the type examination certificates for the escalator and safety components having been type-examined, with the actual components fixed, and the characteristics of the escalator and safety components in order to ensure their compatibility; and
- (f) checking of any exemption relating to the escalator, which has been granted by the Director and whether the imposed conditions are fulfilled.

X.2 Tests and verifications

X.2.1 These tests and verifications should cover at least the following:

- (a) Overall visual inspection with regard to proper construction as

specified in the Design Code.

- (b) Functional tests.
- (c) Test of safety equipment, components, and devices with regard to their proper operation.
- (d) Test of the brake(s) of the escalator under no load, for compliance with the prescribed stopping distances. An examination of the brake adjustment according to the calculation (for passenger conveyors) required to be kept by the RC as mentioned in **Appendix I** is also necessary. Except when the subjected escalator is with vertical rise of less than 2.5 m, a test of the stopping distances under total brake load, at rated speed, should be carried out to determine the performance of the escalator. Brake load test with dummy load can be replaced by a brake torque test if such test fulfils the requirements of the related international standard and supported by the original manufacturer. The whole escalator should be inspected right after the brake load test to confirm that the whole escalator is in a safe working condition before putting the escalator into operation.
- (e) Electrical tests
 - (i) The insulation resistance of the different circuits between conductors and earth should be measured. For this measurement, all the electronic components should be disconnected. The electrical continuity of the connection between the earth terminal(s) in the driving station and the different parts of the escalator liable to be alive accidentally should be tested.
 - (ii) The normal operation of the phase reversal and phase failure device should be verified.

Appendices XI - XII

Not used

Appendix XIII

**Lists of common anomalies for checking upon
taking over of maintenance**

Annex A – Recommended areas for checking upon taking over of maintenance of a lift

The items listed below are examples of common anomalies that may be found in connection with a lift. The list is by no means exhaustive and the RC should carry out thorough checking to identify any non-compliance with the relevant safety standards or requirements.

1. Metal gates or the like installed in front of the landing doors of a firemen's lift blocking the entrances.
2. Metal gates that are installed in front of lift entrances other than firemen's lift entrances not provided with the interlock in compliance with the Design Code.
3. Landing doors that were provided at the time of installation of the lift been disabled (i.e. such landings are not served by the lift).
4. The landing door locking device not properly adjusted (i.e. the landing door could be opened manually from the landing side when the lift car was not at the unlocking zone of that landing).
5. The safety switch for proving the effective locking of the landing door in the closed position not properly adjusted or not of the positively operated type.
6. The safety switch for proving the closed position of the landing door not properly adjusted or not of the positively operated type.
7. Excessive clearance between the landing and car door panels (when closed) or between the landing and car door panel and the upright.
8. Excessive closing force or kinetic energy of the landing doors or car doors.
9. Lubricant leaked from the gearbox of the driving machine affecting the safe operation of the lift.
10. The suspension wire ropes not in safe working order (such as serious rusting or corrosion, excessive breakage of wires or other serious abnormalities).
11. The brake of the driving machine not properly adjusted or the brake lining excessively worn out affecting its safe operation.

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12. The phase failure or phase reversal protective device not effective.
13. The accessible moving part of the lift machinery inside the machine room not protected against injury to persons.
14. The lift car body or the car sling seriously corroded or rusted.
15. The fireman's lift operating mode ineffective.
16. The guard rail on lift car top not properly installed.
17. The overload sensing device not of a fail-safe type.

Remarks:

- a. The RC should check that the lift complies with the relevant standards or requirements taking into account their implementation dates.
- b. When an RC takes over the maintenance work, it should liaise with the RP to check whether there are any outstanding maintenance works not completed by the departing RC. The incoming RC, whenever possible, should liaise with the RP to obtain all the necessary technical information or data from the departing RC to facilitate maintenance and examination of the lift.

Annex B - Recommended areas for checking upon taking over of maintenance of an escalator

The items listed below are examples of common anomalies that may be found in connection with an escalator. The list is by no means exhaustive and the RC should carry out thorough checking to identify any non-compliance with the relevant safety standards or requirements.

1. The main drive chains of the escalator excessively worn out or unevenly elongated. The spring clip/cotter pin or equivalent parts of the chains not in good condition.
2. The combplates at the upper or lower landing excessively worn out or two or more consecutive combplate teeth broken.
3. Deflector devices not provided to prevent nipping of passenger's foot.
4. Excessive gap between two consecutive escalator steps or between the side of the escalator step and the skirting.
5. The handrail of the escalator seriously worn out or cracked.
6. The roller shutter adjacent to the upper or lower landing of the escalator not provided with an interlocking device to automatically stop the operation of the escalator whenever the roller shutter is closed or started to close.
7. Obstruction guards not of correct size or provided at floor intersection.

Remarks:

- a. The RC should check that the escalator complies with the relevant standards or requirements taking into account their implementation dates.
- b. When an RC takes over the maintenance work, it should liaise with the RP to check whether there are any outstanding maintenance works not completed by the departing RC. The incoming RC, whenever possible, should liaise with the RP to obtain all the necessary technical information

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or data from the departing RC to facilitate maintenance and examination of the escalator.

Appendix XIV

XIV.1 Items of a lift that must be checked during periodic maintenance

XIV.1.1 For keeping the lift and its associated equipment or machinery in safe working order, at least the following applicable items are to be checked for proper condition, and attended to if necessary, in accordance with a schedule recommended by a lift manufacturer –

- (a) lift machine gearbox and bearings
- (b) traction machine including motor shaft, bolts connecting the worm gear and the flange of the traction sheave
- (c) brake and the proper positioning of brake release gear and hand winding wheel, and other components including brake arm, plunger, spacer, brake lining, brake drum/disc, brake compression spring and associated pivot and joints
- (d) overspeed governor
- (e) drums, sheaves, groove of sheaves and pulleys
- (f) commutators and sliprings of motor generator set
- (g) controller contacts, interlocks and dashpots
- (h) floor selector
- (i) counterweight guide shoes and lubricators
- (j) lift well cleanliness and condition of lift well enclosure
- (k) guides and fixings
- (l) limit switches, direction switches and their operating devices
- (m) car door and landing door operation including the clearances, bottom tracks, sill nosings, inter-connecting wires or chain, and door operating mechanism

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- (n) car guide shoe and lubricators, tensioning devices and door operating gear
- (o) any irregularities in starting, stopping and general running of the lift
- (p) car controls, car door switches, safety edges, emergency stop, alarm bell and intercom system; condition of car body fixing, car interior and floor covering; car lighting, car ventilation and levelling accuracy
- (q) landing buttons, indicators, and fireman's lift switch
- (r) door-lock operation including electrical and mechanical interlocks for car door and landing door
- (s) suspension ropes, compensation ropes/chains, their anchorages and rope retainer (rope guard)
- (t) slack rope switch, safety gear switch, broken tape or rope switch and overspeed governor switch
- (u) counterweight clearances for rope stretch; rope equaliser; filler weight fixings; and safety gear for guide clearance and free movement
- (v) buffer condition
- (w) travelling cables and their anchorages
- (x) safety notices and signs

XIV.1.2 Apart from the items given in the maintenance schedule by a lift manufacturer, the RC responsible for the maintenance of a lift should also observe the following (in case of discrepancy between the requirements in the manufacturer's instructions and the requirements given in the paragraph, the more stringent requirements should be followed) –

- (a) **Control and monitoring devices** – no control and monitoring devices (including safety equipment and safety component)

should be defeated or by-passed, except for during testing of the lift. All the devices should be restored to their normal operating conditions prior to resuming the normal use and operation of the lift.

- (b) **Lubrication** – lubrication of any components of the lift or the escalator should be made in strict compliance with the type of lubricants and manners recommended by the manufacturer of the lift or the escalator. Only alternative lubricants which are of equivalent characteristics as the one recommended by the manufacturer should be used.

Suspension ropes and compensating ropes should be kept lightly lubricated and clean in accordance with the instructions given by the manufacturer of the lift (who should have taken into consideration the instructions given by the manufacturer of the rope).

Governor ropes should not be lubricated after installation.

Guiderails should be lubricated in strict compliance with the applicable instructions given by the manufacturer of the lift (who should have taken into consideration the instructions given by the manufacturer of the safety gear).

- (c) **Wiring diagrams** – up-to-date wiring diagrams of the power supply and control circuit of the lift system should be available in the machinery space, machine room, control space, or the control room of the lift system.
- (d) **Painting** – care should be exercised in painting of equipment so as to avoid interfering proper functioning of any device of the lift.
- (e) **Signs and data plates** – signs, labels, notices, and data plates of equipment or components should be in good conditions and be legible.
- (f) **Fixing of connections** – care should be taken in tightening joints or fixing of components in accordance with recommendations of

the manufacturer of the lift so as not induce unwarranted damage to the parts involved.

- (g) **Oil buffers** – all oil buffers should be regularly checked to have adequate oil. Only hydraulic oil of the recommended type and grade should be used. Care should be taken as to the detrimental effects which may have from replenishing the hydraulic oil of a buffer with a differing brand of oil.
- (h) **Safety gears** – the safety gears of a lift should be kept lubricated as directed by the lift manufacturer (who should have taken into consideration the instructions given by the manufacturer of the safety gear). Moving parts of safety gears should be free from dirt and can operate freely. The clearance between the jaws of the safety gear and the guiderail should be regularly checked.
- (i) **Machine brake** – agility of the movable parts of the driving machine brake should be observed during normal operation. The correct setting and condition of the brake (e.g. the spring setting and brake lining condition) in order to provide adequate braking force, and that the operation of the brake is smooth with moving parts free from rust, oil and debris. The effectiveness of the brake should be verified by measuring the braking distance of the lift at least once a year.
- (j) **Overspeed governor** – overspeed governor should be examined to ensure that all seals are intact and operated by hand to determine that all moving parts, including the rope-grip jaws and switches, can operate freely. Overspeed governors, governor ropes, and all sheaves should be free from contaminants or obstructions.
- (k) **Car door and landing doors** – the mechanical and electrical components of the car door and all landing doors should be maintained in safe working order with effective mechanical locking and electrical locking interlocked with the operation of the lift as specified in the Design Code. The smooth and proper operation including closing speed, closing force and kinetic

energy of a power operated door should be checked to comply with the specifications of the manufacturer of the lift, and in no way should contravene the requirements specified in the Design Code.

- (l) **Levelling** – the operation of the lift should be checked to maintain an accurate stopping at different landings at different loading conditions in accordance with the specifications of the manufacturer of the lift.
- (m) **Unintended car movement protection means and ascending car overspeed protection means** – these protection means of a lift should be kept lubricated as directed by the lift/components manufacturers. Moving parts of protection means should be free from dirt and can operate freely. If safety gear is used in the protection means, the clearance between the jaws of the safety gear and the guiderail should be regularly checked.

XIV. 1.3 In addition to the items listed in the maintenance schedule/instructions provided by the lift manufacturer, the RC responsible for maintaining the lift is also required to carry out the following maintenance items for not less than twice a year if the concerned lift does not equipped with unintended car movement protection device, ascending car overspeed protection device or double braking system. The following maintenance items should be completed in one single maintenance visit. (In case of discrepancy between the requirements in the manufacturer's instructions and the requirements given in the paragraphs, the manufacturer's instructions should be followed, otherwise the relevant maintenance should be carried out in accordance with the requirements given in the paragraphs.):

- (a) Disassembly maintenance of the braking mechanism for the lift machine brake, including:
 - Disassemble the braking mechanism and measure the relevant

parts of the brake (e.g. brake lining, solenoid plunger, brake spring, brake arm, spacer, etc.) as specified by the manufacturer to ensure compliance with the lift manufacturer's requirements. In case of discrepancy on the number of times per year for disassembly maintenance of the braking mechanism between the requirements in the manufacturer's instructions and the requirements given in the paragraphs, the manufacturer's instructions should be followed, otherwise the relevant maintenance should be carried out in accordance with the requirements given in the paragraphs); and

- All levers and moving parts of the brake must be kept clean with smooth operation and properly lubricated, and the relevant parts of the brake replaced in accordance with the manufacturer's instructions.

If the manufacturer does not specify disassembly maintenance requirements for the braking mechanism, the RC is also required to ensure that the relevant components of the brake (e.g. brake lining, solenoid plunger, brake spring, brake arm, spacer, etc.) are in good and safe working order and ensure that all levers and moving parts of the brake must be kept clean with smooth operation and properly lubricated, and the relevant parts of the brake replaced in accordance with the manufacturer's instructions.

- (b) Measure the braking distance by performing no-load brake test to ensure compliance with the lift manufacturer's requirements.
- (c) Measure grooves of traction sheave in the lift traction machine and replace the traction sheave in accordance with the manufacturer's requirements. Perform no-load traction test for the lift and measure the leveling accuracy to ensure the traction and leveling accuracy are in compliance with the lift manufacturer's requirements.

- (d) Check the mechanical locks and electrical contacts of all lift landing doors to ensure they are in safe working order.

XIV.1.4 In addition, at least the following applicable items which are pertinent to a hydraulic lift should be checked and accordingly attended to –

- (a) ram and cylinder condition
- (b) levelling switches
- (c) pipework, joints, bolts and fixings; stop valve; oil reservoir; pump and motor
- (d) control valves, pilot and levelling valves; overrun and cut-off devices; overload relief valve
- (e) air release cock and anti-syphon valve

XIV.1.5 Apart from the items given in the maintenance schedule by a lift manufacturer, the RC responsible for the maintenance of a hydraulic lift should also observe the following (in case of discrepancy between the requirements in the manufacturer's instructions and the requirements given in the paragraph, the more stringent requirements should be followed) –

- (a) **Oil tank** – the level of oil in the oil tanks should be checked and, where necessary, adjusted to within the margin set by the manufacturer of the lift. A written record should be kept of the quantity of hydraulic fluid added to the system.
- (b) **Gland packings and seals** – where gland packing or seals are used for valves and cylinders, they should be examined and maintained in accordance with manufacturer's recommendations to prevent excessive loss of hydraulic oil.
- (c) **Relief valve** – relief valves should be examined to ensure that the seal is intact.

XIV.2 Items of an escalator that must be checked during periodic maintenance

XIV.2.1 For keeping the escalator and its associated equipment or machinery in safe working order, at least the following applicable items are to be checked for proper condition, and attended to if necessary, in accordance with a schedule recommended by an escalator manufacturer –

- (a) clearances between consecutive steps/pallets and between the steps/pallets and the skirt panels
- (b) drums, pulleys and moving parts
- (c) machine room cleanliness
- (d) any irregularities in running the escalator/passenger conveyor
- (e) safety devices, such as skirt panel switches, handrail inlet switches, emergency stop switches, broken drive/step chain devices, overspeed governor, speed monitoring device that for detection of overspeed or unintentional reversal of the direction of travel, step sagging devices, missing step devices, combplate switches, etc.
- (f) main drive system including drive chain and sprocket
- (g) step/pallet rollers and step/pallet chain
- (h) handrail
- (i) operational brake and auxiliary brake (if equipped) including their braking efficiencies
- (j) comb
- (k) lubricating pump and oil
- (l) motor gear box
- (m) lighting system

- (n) floor intersection guards and any safeguards against adjacent building obstacles from causing injury to users
- (o) safety notices and signs

XIV.2.2 Apart from the items given in the maintenance schedule by an escalator manufacturer, the RC responsible for the maintenance of an escalator is also required to observe the following (in case of discrepancy between the requirements in the manufacturer's instructions and the requirements given in the paragraph, the more stringent requirements should be followed) –

- (a) **Control and monitoring devices** – no control and monitoring devices (including safety equipment and safety component) should be defeated or by-passed, except for during testing of the escalator. All the devices should be restored to their normal operating conditions prior to resuming the normal use and operation of the escalator.
- (b) **Handrails** – cracked or damaged handrails that present a pinching effect should be repaired or replaced. Splicing of handrails should be done in such a manner that the joint is free of pinching effect. Damaged or missing hand or finger guards should be repaired or replaced.
- (c) **Combplates** – combs with any broken teeth should be replaced. Combs should be adjusted and maintained in mesh with the slots in the step surface so that the points of the teeth are always below the upper surface of the treads. Functioning of combplate safety device should be checked regularly.
- (d) **Skirt panels, steps, pallets, and belts** – step-to-skirt clearances should be maintained in compliance with the Design Code to prevent trapping between the step and skirt panel.
- (e) **Obstruction guards** – damaged or missing obstruction guards should be replaced to prevent injury of passengers.

- (f) **Safety devices**, such as skirt panel switches, handrail inlet switches, emergency stop switches, broken drive/step chain devices, overspeed governor, speed monitoring device that for detection of overspeed or unintentional reversal of the direction of travel, step sagging devices, missing step devices, combplate switches, etc. – these devices of an escalator should be kept lubricated as directed by the escalator/component manufacturer. Moving parts of devices should be free from dirt and can operate freely and all critical clearances should be regularly checked.
- (g) **Landing areas** – including the checking of the structural integrity of the inspection cover and the floor plate assembly are in good condition; all associated support are in good condition and fixing bolts are properly tightened; the locking devices, if any, of the inspection cover and the floor plate are in good working order; the functioning of the safety device to stop the machine in case of the opening of inspection cover and/or floor plate; and the installation of the guards to protect the rotating parts in the driving and return stations are intact.
- (h) **Drive chain system** – the drive chain and the sprocket should be inspected to confirm that they are free from crack, breakage and the chain, including clips and cotter pins, is without excessive elongation, and is in an acceptable safe condition for operation in accordance with the manufacturer's recommendations.
- (i) **Coupling between the drive motor and the attached equipment (e.g. gearbox)** – the torsional backlash between the coupling joints (driving and driven ends) should be checked at intervals not exceeding 6 months. RCs should take action to prevent an escalator from running with excessive torsional backlash at its coupling joint. If excessive torsional backlash is found, remedial actions should be taken. RCs have the duty to monitor the conditions of the coupling joint and schedule for coupling replacement, if the torsional backlash measured is within close

margin to the manufacturer recommended limit. All measured torsional backlashes should be recorded on the log-book.

Disassembly inspection¹ of the flexible coupling of escalators not equipped with auxiliary brakes should be carried out at intervals not exceeding 5 years or such a shorter period as recommended by the manufacturer to ensure the coupling joints including intermediate elastomeric filler elements are in conditions good for continuous use. For flexible couplings of escalators equipped with auxiliary brakes or with operational brake acting on the gearbox side, the disassembly inspection can be made within intervals recommended by the manufacturer but in any case not exceeding 8 years. All such checking and inspection should be recorded on the log-book.

¹ No disassembling of the coupling joints is required if the internal conditions of the coupling joints and status of the intermediate elastomeric filler elements can be ascertained without opening up of the coupling joints.

Appendix XV

Not used

Appendix XVI

Examination of a lift at periodic intervals

- XVI.1 At least the following examination activities should be carried out by an RE undertaking periodic thorough examination for a lift to determine whether the lift is in safe working order –
1. Motor and its overload protection;
 2. Brakes and the braking components such as the hubs, spindles, and linkages to ensure there is no wear, corrosion, oil or dirt accumulation affecting their satisfactory operation; The correct setting and condition of the brake (e.g. the spring setting, brake lining, brake arm, plungers, spacer, etc.,) in order to provide adequate braking force;
 3. Traction machine including motor shaft, bolts connecting the worm gear and the flange of the traction sheave;
 4. Control equipment and safety devices;
 5. Interlocking devices, both mechanical and electrical, provided for the landing doors and car door;
 6. Overspeed governor, safety gear, and other devices connected therewith;
 7. Buffer tested with empty car and at reduced speed;
 8. Safety edges/door re-opening device and door operation;
 9. Alarm and intercommunication devices;
 10. Fireman's lift operational control;
 11. Insulation resistance and electrical continuity;
 12. Hydraulic circuit for hydraulic lifts;

13. Clamping device and pawl device tested with empty car and at reduced speed;
14. Creeping check and electrical anti-creep system;
15. Ropes or chains including terminations;
16. All sheaves including driving and deflector sheaves; and
17. Any gearbox and generator provided.

XVI.2 Testing of safety equipment, components, and control and monitoring devices of the lift – the applicable testing as stipulated in the relevant examination report and those required to be performed in accordance with section 23 of the Ordinance (examination of the lift with load) should be carried out. After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the lift has occurred. For lifts designed and constructed in accordance with the Design Code or specific requirements for particular applications, such as vehicle lifts, the testing of the brake at intervals not exceeding 5 years should be carried out by the operation of the same when the carrier of the lift is travelling downwards at its rated speed with a load weighing 125% of the rated load of the lift or with a load according to the specific design requirements. At other intervals, a testing of the brake without any load in the lift should be carried out in the testing of safety equipment of a lift.

Appendix XVII

Examination of an escalator at periodic intervals

- XVII.1 At least the following examination activities should be carried out by an RE undertaking periodic thorough examination for an escalator to determine whether the escalator is in safe working order –
1. Motor and its overload protection;
 2. Safety equipment with particular regard to the brake and the stopping distance of the escalator;
 3. Control equipment and safety devices;
 4. Driving elements for signs of crack, wear and tear and for insufficient tension or excessive elongation of belts and chains;
 5. Steps, pallets or the belt for defects, true run and guidance;
 6. Dimension and tolerances to ensure that dimensions specified are maintained despite wear;
 7. Combs for proper condition and adjustment;
 8. Balustrade interior panelling, skirting and skirt panel deflector devices;
 9. Handrails;
 10. Preventive measures provided in safeguarding adjacent building from causing injuries to the users, in particular, at floor intersections and on criss-cross escalators;
 11. Insulation resistance and electrical continuity; and
 12. Signs and notices for use.

- XVII.2 Testing of safety equipment, components, and control and monitoring devices of the escalator – the applicable testing as stipulated in the relevant examination report and those required to be performed in accordance with the Ordinance should be carried out. After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the escalator has occurred.
- XVII.3 The testing of the brake at intervals not exceeding 5 years should be carried out. Except when the subjected escalator is with vertical rise of less than 2.5m, a test of the stopping distances under total brake load, at rated speed, should be carried out to determine the performance of the escalator. Brake load test with dummy load can be replaced by a brake torque test if such test fulfills the requirements of the related international standard and supported by the original manufacturer. At other intervals, a testing of the brake without any load should be carried out for compliance with the prescribed stopping distances. After the test, it should be ascertained that no deterioration which could adversely affect the normal use of the escalator has occurred.

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Appendices XVIII - XXII

Appendices XVIII - XXII

Not used

Appendix XXIII

Probity guidelines for RCs, REs and RWs

Annex A – Probity guidelines for RCs

XXIII.A.1 Responsibility to the Trade

XXIII.A.1.1 The Contractor should order his/her conduct so as to uphold the dignity, standing and reputation of the trade. He/she should –

1. discharge his/her responsibilities with integrity;
2. give opinions in his/her capacity that are, to the best of his/her ability, objective, reliable and honest;
3. accept responsibility for his/her actions and ensure that persons to whom he/she delegates authority are sufficiently competent to carry out the associated responsibility; and
4. not undertake responsibility which himself/herself is not qualified and competent to discharge.

XXIII.A.2 Responsibility to Clients

XXIII.A.2.1 The Contractor should discharge his/her duties to his/her client with integrity and in accordance with the highest standards of business ethics. He/she should –

1. avoid engaging in business, investments or activities which conflict with the interests of his/her client, and inform his/her client in writing of any possible conflict between his/her own financial interests (including those of his/her immediate family) and interests of his/her client;
2. where possible advise those concerned of the consequences to be expected if his/her engineering judgment, in areas of his/her responsibility, is overruled by his/her client;
3. neither give nor accept any gift, entertainment, payment or service of more than nominal value, to or from those having a business relationship with his/her client without consent of the latter; and

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Annex A of Appendix XXIII

4. safeguard confidential information in relation to his/her client and not disclose such information to third parties without the written consent of his/her client.

XXIII.A.3 Responsibility to the Public

XXIII.A.3.1 The Contractor, in discharging his/her responsibilities to his/her client, should at all times be governed by the overriding interest of the general public, in particular their safety. In carrying out lift/escalator works, he/she should always put public safety as the top priority.

Annex B – Probity guidelines for REs

XXIIIB.1 Responsibility to the Profession

XXIIIB.1.1 The engineer should order his/her conduct so as to uphold the dignity, standing and reputation of the Profession. He/she should –

1. discharge his/her professional responsibilities with integrity;
2. give opinions in his/her professional capacity that are, to the best of his/her ability, objective, reliable and honest;
3. accept responsibility for his/her actions and ensure that persons to whom he/she delegates authority are sufficiently competent to carry out the associated responsibility; and
4. not undertake responsibility which himself/herself is not qualified and competent to discharge.

XXIIIB.2 Responsibility to Employers/Clients

XXIIIB.2.1 The engineer should discharge his/her duties to his/her employer/client with integrity and in accordance with the highest standards of business ethics. He/she should –

1. avoid engaging in business, investments or activities which conflict with the interests of his/her employer/client, and inform his/her employer/client in writing of any possible conflict between his/her own financial interests (including those of his/her immediate family) and interests of his/her employer/client;
2. where possible advise those concerned of the consequences to be expected if his/her engineering judgment, in areas of his/her responsibility, is overruled by his/her employer/client;
3. neither give nor accept any gift, entertainment, payment or service of more than nominal value, to or from those having a business relationship with his/her employer/client without consent of his/her employer/client; and

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Annex B of Appendix XXIII

4. safeguard confidential information in relation to his/her employer/client and not disclose such information to third parties without the written consent of his/her employer/client.

XXIIIB.3 Responsibility to the Public

XXIIIB.3.1 The Engineer, in discharging his/her responsibilities to his/her employer/client and the profession, should at all times be governed by the overriding interest of the general public, in particular their safety. In carrying out lift/escalator examination as well as other lift/escalator works, he/she should always put public safety as the top priority.

Annex C – Probity guidelines for RWs

XXIIIC.1 The worker should –

1. discharge his/her responsibilities with integrity;
2. not undertake responsibility which himself/herself is not qualified and competent to discharge;
3. accept responsibility for his/her actions and ensure that persons to whom he/she delegates authority are sufficiently competent to carry out the associated responsibility;
4. where possible advise those concerned of the consequences to be expected if his/her engineering judgment, in areas of his/her responsibility, is overruled by his/her employer;
5. avoid engaging in business, investments or activities which conflict with the interests of his/her employer, and inform his/her employer in writing of any possible conflict between his/her own financial interests (including those of his/her immediate family) and interests of his/her employer;
6. neither give nor accept any gift, entertainment, payment or service of more than nominal value, to or from those having a business relationship with his/her employer/client without consent of the latter; and
7. always put public safety as the top priority when carrying out lift/escalator works.

Appendix XXIV

Amendment summary

(from Code of Practice for Lift Works and Escalator Works 2018 Edition to 2021 Edition)

Item	Clause	Amendment
1.	1.4	The sentence "It should be noted that the registered person carrying out any works or activities that are in conflict with the practical guidance" added
2.	2.2	The sentence "Lift Owners' Guidebook" and "Escalator Owners' Guidebook" replaced by "Guidebook for Responsible Persons for Lifts" and "Guidebook for Responsible Persons for Escalators" respectively
3.	2.3(v), 4.20.1	"Building Authority" replaced by "Buildings Department"
4.	2.3(viii)	The title of the guide "Guide on Safety in Lift Repair and Maintenance issued by the Labour Department" replaced by "Guide on Safety in Lift Repair & Maintenance issued by the Labour Department"
5.	3.1.2	The sentence "RPs are required to cause RCs and REs to respectively maintain and examine their lifts and escalators to fulfill the statutory requirements." replaced by "RPs are required to cause <u>their lifts or escalators to respectively be maintained and examined by</u> RCs and REs to fulfill the statutory requirements."
6.	3.3.2	The clause "at least 7 days" added
7.	3.3.3	The clause "required for the lift works or escalator works" added

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Item	Clause	Amendment
8.	3.3.5, 3.3.6, 3.3.7, 3.4.3(a), 3.4.5, 3.5.2(a), 4.2.2, 4.3.2, 4.6.3, 4.8.3, 4.9.3, 4.14.1, 4.14.2, 4.15.5, 4.16.1, 4.17.2, 4.20.1, 4.20.2, 4.21.2, 4.22.1, 4.22.2, 4.23.1, 4.27.4, 4.32.1, 5.2.3(a), 5.2.6, 5.3.3(c), 5.3.4, 5.4.4, 5.4.6(a), 5.4.9(a), 5.4.9(d), 5.4.9(f), 5.5.2, 5.5.10, 5.6.7, 5.8.3, 5.8.9, 5.8.10(a), 5.8.11, XIV.1.3, XIV.1.3(a), XIV.2.2	The word "shall" replaced by "is required to" or "are required to"
9.	3.3.5(a)	New footnote for system of work added
10.	3.3.5(b)	"See also Clause 4.15." added to footnote 2
11.	3.3.7	The sentence "In determining adequacy of equipment and tools, due regards must be given to the nature of works, instructions and recommendations given by the manufacturer and results drawn from risk assessment for the works" added
12.	3.3.9, 3.3.16, 5.4.11(a), 5.8.3(d)	The word "shall" replaced by "must"
13.	3.3.11	The sentences "RCs are highly recommended to act on behalf of the RPs to notify the Director when they are aware of the existence of reportable incidents. Notification should be made sooner the better, and in any event it should be made within 24 hours from notice of the incident." added
14.	3.3.12	The sentence "An RC who subcontracts any lift works or escalator works to any person is required under section 4 or 19 of the General Regulation to notify in the specified form the Director before the works are to commence. " replaced by "An RC who subcontracts any lift works or escalator works to any person is required under section 4 or <u>section</u> 19 of the General Regulation to notify the Director <u>in the specified form</u> before the works are to commence. "

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Item	Clause	Amendment
15.	3.3.12	The sentences "The requirement covers notification for cover subcontracting of examination of a lift or an escalator within the scope of services of the RC to a RE who is not under the employment of the RC responsible for the examination. See also Clause 3.6.3." added
16.	3.3.16, 3.4.3(b), 3.5.2(b), 4.4.3, 4.5.2, 4.8.5, 4.10.1, 4.15.4, 4.16.1(d), 4.16.1(f), 4.18.1, 4.18.2, 4.19.1, 4.21.3, 4.23.1, 4.23.2, 4.24.1, 4.25.1, 4.27.1, 4.27.2, 4.27.5, 4.27.6, 4.27.7, 4.27.9, 4.28.3, 4.28.6, 4.29.2, 4.29.3, 4.29.6, 4.29.7, 4.29.8, 4.29.9, 4.29.10, 4.30.5, 4.30.6, 4.30.7, 4.30.8, 4.30.9, 4.30.10, 4.31.2, 4.32.1, 5.3.2, 5.3.7, 5.3.9, 5.3.12, 5.4.5(b), 5.4.5(c), 5.4.8(a), 5.4.8(c), 5.4.9(e), 5.4.12(b), 5.6.1, 5.8.3(b), 5.8.3(c), 5.8.3(d), 5.9.8, X.2.1(d), XIV.1.2, XIV.1.2(a), XIV.1.2(b), XIV.1.2(c), XIV.1.2(d), XIV.1.2(e), XIV.1.2(f), XIV.1.2(g), XIV.1.2(h), XIV.1.2(i), XIV.1.2(j), XIV.1.2(k), XIV.1.2(l), XIV.1.2(m), XIV.1.3, XIV.1.3(a), XIV.2.2(a), XIV.2.2(b), XIV.2.2(c), XIV.2.2(d), XIV.2.2(e), XIV.2.2(f), XIV.2.2(h), XVII.3, XXIIIA.1.1, XXIIIA.2.1, XXIIIA.3.1, XXIIIB.1.1, XXIIIB.2.1, XXIIIB.3.1, XXIIIC.1	The word "shall" replaced by "should"
17.	3.4.5(d), 3.5.6(d)	The clause "or other proof of registration" added

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Item	Clause	Amendment
18.	4.2.1	The clause “undertaking installation of” replaced by “who undertakes to install”
19.	4.3.2	The clause “the installation of” replaced by “installing”
20.	4.4.2	The word “concerned” replaced by “new”
21.	4.4.4	The clause “provide a certified copy of the type-examination certificate” added
22.	4.7.4	A new Clause 4.7.4 with a related footnote added
23.	4.8.4	The sentence “The supervising QP is responsible for the well-being of the workers as well as the work performed by the workers.” replaced by “The supervising QP is responsible for the well-being of the workers as well as the <u>quality of the</u> work performed by the workers.”
24.	4.9.3	A new footnote for management system for safety and health added
25.	4.12.1 (b)	The clause “be sufficient to provide support enabling” added
26.	4.13.3	The word “incompletion” replaced by “any shortfall”
27.	4.14.1 (Footnote)	The clause of the footnote “ A Guide to the Factories and Industrial Undertakings Ordinance (Section 6A) – General Duties of Proprietors and A Guide to the Factories and Industrial Undertakings Ordinance (Section 6B) – General Duties of Persons Employed issued by the Labour Department, which are available from” replaced by “ <u>Relevant guidelines include</u> A Guide to the Factories and Industrial Undertakings Ordinance (Section 6A) – General Duties of Proprietors and A Guide to the Factories and Industrial Undertakings Ordinance (Section 6B) – General Duties of Persons Employed issued by the Labour Department. <u>The guidelines can be downloaded from the Labour Department website at...</u> ”

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Appendix XXIV

Item	Clause	Amendment
28.	4.14.2 (Footnote 2), IIIC.5, Note of the table in Appendix IV, Note of the table in Appendix V	The title of the practice note "Practice Note for APs and RSEs" replaced by "Practice Note for <u>Authorized Persons, Registered Structural Engineers, and Registered Geotechnical Engineers</u> "
29.	4.15.2	The sentence "The risk assessment should be made up of hazard identification, assessment of the risk of injury or harm arising from each identified hazard, and control of the risks through implementation of measures to eliminate or reduce the risks to acceptable level" replaced by "The risk assessment should be made up of identification <u>of potential hazards</u> , assessment of the risk of injury or harm arising from each identified hazard, and control of the risks through implementation of <u>control</u> measures to eliminate or reduce the risks to <u>acceptable level</u> "
30.	4.15.3	The clause "Clause 6.6 of the Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department" replaced by "Clause 6.6 <u>and relevant clauses</u> of the Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department"
31.	4.16.1(i)	A new Clause 4.16(i) added
32.	4.17.1	The sentence "'Hot work' means welding or frame cutting" replaced by " <u>For example</u> , welding or frame cutting"
33.	4.20.1	The department name "Building Authority" replaced by "Building <u>Department</u> "
34.	4.21.4	The word "shall" replaced by "are to"
35.	4.21.5	The phrase "permit to work arrangement" replaced by "permit-to-work system"

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Item	Clause	Amendment
36.	4.22.1	The sentences "RCs shall remind its QPs to take necessary safety precautions in carrying out work, in particular when any safety circuit of a lift or an escalator is bypassed or interfered. If that is the case, the lift or the escalator shall be taken out of service to prevent people from using the facility." replaced by " <u>RCs are required to remind their QPs to take necessary safety precautions in carrying out work, in particular when any safety circuit of a lift or an escalator is bypassed or interfered. If works involving a lift or an escalator are to be carried out, the lift or the escalator is required to be taken out of service to prevent people from using the facility.</u> "
37.	4.22.2	The sentence "The QP shall display a warning sign" replaced by " <u>The QP in charge for the works is required to display a warning sign</u> "
38.	4.23.1	The sentence "Good housekeeping practice shall be exercised for the upkeep of lifts and escalators." replaced by " <u>RCs are required to exercise good housekeeping practice for proper upkeep of lifts and escalators.</u> "
39.	4.23.3	A new Clause 4.23.3 added
40.	4.23.4	A new Clause 4.23.4 added
41.	4.27.4	The clause "shall be provided" replaced by "are required to be taken"
42.	4.28.7	The clause "machine room or" added
43.	4.29.1	A new footnote for the speed of lift under inspection mode added
44.	4.29.7	The phase "free from" replaced by "of no accumulation of"
45.	4.30.12	The clause "or the electrical reset device outside the well (where provided)" added
46.	5.2.5	The word "shall" replaced by "need to"
47.	5.3.2	The word "to complete" replaced by "for completing"
48.	5.3.5(d)	The footnote for "Design Code" deleted

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Item	Clause	Amendment
49.	5.3.11	A new Clause 5.3.11 and related footnotes added
50.	5.3.11	The requirement for RE in recording the examination activities in the log-book moved to Clause 5.3.12
51.	5.3.12	The requirement for RE in recording the examination activities in the log-book added
52.	5.4.2	The responsibilities of RC for carrying out maintenance works and related footnote added
53.	5.4.4	A new footnote on subcontracting of works involving maintenance of a lift or an escalator added
54.	5.4.5(a)	A new footnote on checking and disassembly inspection of the flexible coupling of an escalator added
55.	5.4.5(c)	The clause "...or a large quantity of lifts or escalators are being taken over all at the same time..." added
56.	5.4.6(b)	The sentence "Handover and takeover of lift/escalator maintenance from outgoing registered lift/escalator contractor to incoming RC should be arranged in sufficient advance before the handover date" replaced by "Handover and takeover of lift <u>or</u> escalator maintenance from outgoing <u>RC</u> to incoming RC should be arranged <u>ahead of</u> the handover date"
57.	5.4.6(b)	The sentences "The incoming RC is required to submit a "Lift or Escalator Unsatisfactory/Uncompleted Maintenance Works and Common Anomalies Report" to the RP and copied to EMSD before the date of maintenance works handover (first submission)." replaced by "The incoming RC is required to submit a "Lift or Escalator Unsatisfactory/Uncompleted Maintenance Works and Common Anomalies Report" to the RP and copied to EMSD before <u>commencement</u> of <u>any</u> maintenance works.

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Item	Clause	Amendment
58.	5.4.6(b)	The sentences "The incoming RC could also submit this Report together with the Form LE3. The second submission shall be made after the maintenance works handed over with reporting of the status of each defect/outstanding item." replace by "The incoming RC could also submit this Report together with the Form LE3 <u>which is to be made at least 7 days before commencement of works. Completion of the defect/outstanding items could be reported by the incoming RC by subsequent notifications.</u> "
59.	5.4.7(a)	The sentence "RCs are required to regularly update the maintenance schedules of lifts or escalators within their maintenance responsibility to the Director via the e-platform established by EMSD." added
60.	5.4.7(c)	The clause "basic information on the lift including lift type, lift number and lift installed address (e.g. building name)..." replaced by "basic information on the lift <u>or the escalator</u> including type, number and address (e.g. building name) <u>of the lifts or the escalators.</u> "
61.	5.4.8(d)(ii)	The sentence "If any rope on a sheave needs to be replaced, all other ropes on that sheave should be replaced." replaced by "If any rope <u>in a set of suspension ropes</u> needs to be replaced, <u>the whole set of ropes is required to</u> be replaced."
62.	5.4.8(d)(ii)(dd), 5.4.8(f)	The word "shall" replaced by "is to" or "are to"
63.	5.4.8(d)(ii)(ee)	The word "be varied" replaced by "deviate"
64.	5.4.8(f)	Disposal and replacement requirements for chain elongation and related footnote added
65.	5.4.8(g)	A new Clause 5.4.8(g) and related footnote added
66.	5.4.8(h)	A new Clause 5.4.8(h) and a related footnote added
67.	5.4.11(c)(ii)	The clause "the suspension of" replaced by "suspend"
68.	5.4.12(e)	The clause "the requirement of" added
69.	5.4.13(a)	The word "blockage" replaced by "hindrance to maintenance of the facilities"
70.	5.5.12	A new Clause 5.5.12 and a related footnote added

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Item	Clause	Amendment
71.	5.5.12	The requirement for RE in recording the examination in the log-book moved to Clause 5.5.13
72.	5.5.13	The requirement for RE in recording the examination in the log-book added
73.	5.7.8	A new Clause 5.7.8 and related footnotes added
74.	5.7.8	The requirement for RE in recording the examination in the log-book moved to to Clause 5.7.9
75.	5.7.9	The requirement for RE in recording the examination in the log-book added
76.	5.7.11	“Although installation of air-conditioner on car top of lifts may not be considered as major alteration works, the following precautions/actions prior to consider installation of air-conditioner on car top should be taken” replaced by “Although installation of air-conditioner on <u>the car top of an existing lift</u> may not be considered as major alteration works ³ , the following precautions/actions should be taken <u>prior to installation of an air-conditioner on the car top</u> ”
77.	5.7.11	A footnote regarding major alteration works added
78.	5.7.11(a)	The requirements stated in the Design Code regarding the top clearance at car top added
79.	5.7.11(b)	The clause “too small for maintenance after installation” replaced by “ <u>provision of the air-conditioner may jeopardise execution of maintenance works on the car top</u> ”
80.	5.7.11(f)	The sentence “Where appropriate, approval for subcontracting the air-conditioner maintenance work to a competent contractor should be sought prior to commencement of the modification and/or maintenance work.” added

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Item	Clause	Amendment
81.	5.7.11(h)	The sentence "If the installation of air-conditioner on car top of existing lifts does not involve change in the type of control or operation of the lift, a safety certificate is required to be signed by a registered lift engineer after the safety test and load test." replaced by "If the installation of air-conditioner on <u>the</u> car top of <u>an</u> existing lift does not involve <u>any</u> change in the type of control or operation of the lift, nor be regarded as major alteration, the installation of the <u>air-conditioner</u> is still required to be checked to be in safe working order and be certified so by an RE or an RW on the log-book following necessary performance tests."
82.	5.8.10(a)	Minor textual amentments
83.	5.9.3	The requirement of RC for making notification to the Director regarding the subcontracting of examination works added
84.	6.7.3	The clause "within 14 days after the date on which the incident occur" replaced by "within 14 days after the date on which the incident <u>occurs</u> "
85.	6.8	A new Clause 6.8 "Notification of major incident" added
86.	IIA.1.1(f)	The clause "or alternatively confirmation by the lift manufacturer (with quality assurance scheme) of the quality of the safety component(s) to be used"added
87.	IIA.1.2(d)	The clause "or alternatively confirmation by the lift manufacturer that the safety component(s) to be in compliance with the Design Code" added
88.	IIB.5.3	The testing procedure standard of lift safety components and other devices updated from "EN81" to "EN81-50:2014"
89.	IV Item 6	The clause "or machinery space at the top of the lift well for machine-room-less lift"added
90.	IV Item12	The clause "and lift pit access door" added
91.	IV Item 25	Item 25 on permanent anchorage(s) added

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Appendix XXIV

Item	Clause	Amendment
92.	V Item 6	The required clearance between the balustrade exterior paneling and any adjacent guard rail/wall at each landing updated as 75 mm
93.	VI.2	The clause "of a lift" deleted
94.	VI.2(a)	The clause "or escalator" added
95.	VI.2(b) & (c)	The requirements related to the obsolete log-book version deleted
96.	IX.2.1(b)	The clause "(as specified in Section E Part 1 Annex A of the Design Code)" added
97.	IX.2.1(h)(iii)	The clause "150% of rated load of the lift" replaced by "the <u>percentage of</u> rated load of the lift <u>as stated in</u> Section E Part 1 Clause 5.4.2.2.1 of the Design Code"
98.	IX.2.1(j)(ii)	The clause "150% of rated load of the lift" replaced by "the <u>percentage of</u> rated load of the lift <u>as stated in</u> Section E Part 1 Clause 5.4.2.2.1 of the Design Code"
99.	IX.2.1	Item (t), item (u), and item (v) added
100.	IX.2.2(a), IX.2.2(d)(iii)	The Clause "150 % of rated load of the lift" replaced by "the <u>percentage of</u> rated load of the lift <u>as stated in</u> Section E Part 1 Clause 5.4.2.2.1 of the Design Code"
101.	IX.2.2(p)	A new item (p) added
102.	XIII - Annex B (item 1)	The clause "The spring clip/cotter pin or equivalent parts of the chains not in good condition" added.
103.	XIV.1.1(c)	The clause "and other components including brake arm, plunger, spacer, brake drum/disc" added
104.	XIV.1.3(a)	Additional requirement to incorporate checking of brake arm and spacer added
105.	XIV.2.2(h)	Requirement to check clips and cotter pins during the checking of chain elongation added
106.	XIV.2.2(i)	A new item XIV.2.2(i) and a related footnote added
107.	XVI.1	Additional requirement to incorporate checking of brake arm, plungers and spacer added