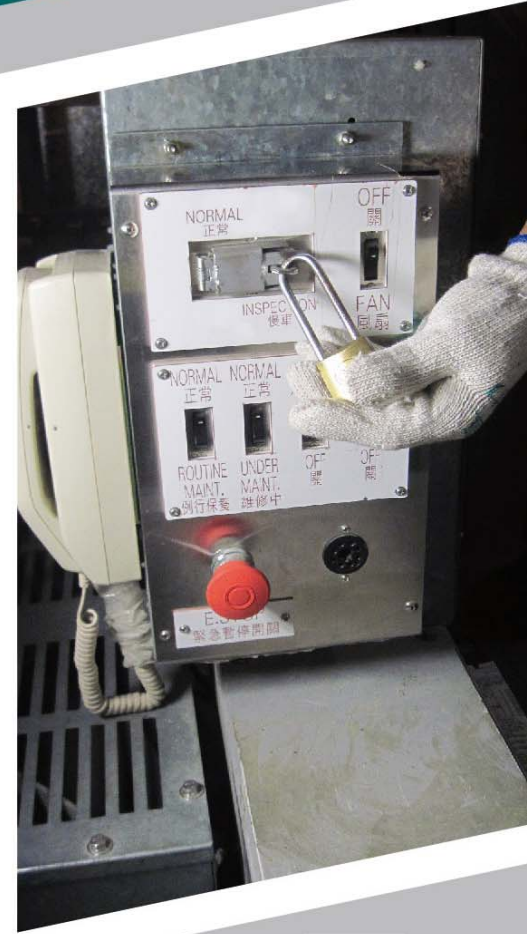




CONSTRUCTION  
INDUSTRY COUNCIL  
建造業議會



# GUIDELINES ON SAFETY OF LIFT SHAFT WORKS

VOLUME 3 – Throughout the Occupation Stage of Building

## **Disclaimer**

*Whilst reasonable efforts have been made to ensure the accuracy of the information contained in this publication, the CIC nevertheless would encourage readers to seek appropriate independent advice from their professional advisers where possible and readers should not treat or rely on this publication as a substitute for such professional advice for taking any relevant actions.*

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## Preface

The Construction Industry Council (CIC) is committed to seeking continuous improvement in all aspects of the construction industry in Hong Kong. To achieve this aim, the CIC forms Committees, Task Forces and other forums to review specific areas of work with the intention of producing Alerts, Reference Materials, Guidelines and Codes of Conduct to assist participants in the industry to strive for excellence.

The CIC appreciates that some improvements and practices can be implemented immediately whilst others may take more time to adjust. It is for this reason that four separate categories of publication have been adopted, the purposes of which are as follows:

|                     |   |
|---------------------|---|
| Alerts              | Reminders in the form of brief leaflets produced quickly to draw the immediate attention of relevant stakeholders to the need to follow some good practices or to implement some preventative measures in relation to the industry.   |
| Reference Materials | Reference Materials for adopting standards or methodologies in such ways that are generally regarded by the industry as good practices. The CIC recommends the adoption of these Reference Materials by industry stakeholders where appropriate.  |
| Guidelines          | The CIC expects all industry participants to adopt the recommendations set out in such Guidelines and to adhere to such standards or procedures therein at all times. Industry participants are expected to be able to justify any course of action that deviates from those recommendations.   |
| Codes of Conduct    | Under the Construction Industry Council Ordinance (Cap 587), the CIC is tasked to formulate codes of conduct and enforce such codes. The Codes of Conduct issued by the CIC set out the principles that all relevant industry participants should follow. The CIC may take necessary actions to ensure the compliance with the Codes. |

If you have attempted to follow this publication, we do encourage you to share your feedback with us. Please take a moment to fill out the Feedback Form attached to this publication in order that we can further enhance it for the benefit of all concerned. With our joint efforts, we believe our construction industry will develop further and will continue to prosper for years to come.

## Terminology

In this document, unless the context otherwise requires:

|            |   |
|------------|---|
| AP         | Authorized Person                               |
| BA         | Building Authority                              |
| BD         | Buildings Department                            |
| BO         | Buildings Ordinance                             |
| CCTV       | Closed Circuit Television                       |
| CIC        | Construction Industry Council                   |
| CWT        | Counterweight                                   |
| EMSD       | Electrical and Mechanical Services Department   |
| FRR        | Fire resistance rating                          |
| FS         | Fire Service                                    |
| Guided-SWP | Guided suspended working platform               |
| LALG       | Lifting Appliances and Lifting Gear             |
| LD         | Labour Department                               |
| LOTO       | Lockout / Tagout                                |
| OP         | Occupation Permit                               |
| OSHC       | Occupational Safety and Health Council          |
| PPE        | Personal Protective Equipment                   |
| RC         | Registered Contractor under Buildings Ordinance |
| RLE        | Registered Lift Engineer                        |
| RPE        | Registered Professional Engineer                |
| RSE        | Registered Structural Engineer                  |
| RSO        | Registered Safety Officer                       |
| UCMP       | Unintended Car Movement Protection              |
| VOC        | Volatile Organic Compounds                      |

## **Guidelines on Safety of Lift Shaft Works (Volume 3 – Throughout the Occupation Stage of Building)**

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### **1. Purpose**

- 1.1 This publication (Volume 3) sets out the good practices recommended by the Construction Industry Council (CIC) for enhancing work safety of site personnel working near or inside a lift shaft throughout the occupation stage. Three volumes of publications covering various stages are outlined below –

Volume 1 – During Construction Stage and Before Handing Over to Lift Installation Contractor

Volume 2 – During Lift Installation Stage until Issue of Occupation Permit and Handing Over to Developer

Volume 3 – Throughout Occupation Stage of Building

## 2. Definitions

2.1 In this publication, unless the context otherwise specifies –

|     |                              |  |
|-----|------------------------------|--|
| (a) | <b>Lift Contractor</b>       | means a contractor registered under the Lifts and Escalators Ordinance, Cap 618. (i.e. Registered Lift Contractor) and being appointed to carry out the Lift Works on site. The Lift Contractor should engage Lift Workers to undertake Lift Works and should ensure that all the works are carried out in accordance with the requirements of the Lifts and Escalators Ordinance, Cap 618. The Lift Contractor is obliged to supervise the Lift Workers and to provide instructions and guidelines to the Lift Workers. |
| (b) | <b>Lift Worker</b>           | means any frontline tradesman who performs Lift Works under the direct supervision of a Lift Contractor. Lift Worker includes “qualified person” as defined in the Lifts and Escalators Ordinance, Cap 618 and other workers who work under the supervision of a qualified person.   |
| (c) | <b>Registered Contractor</b> | means a prescribed registered contractor appointed for the project under the Buildings Ordinance, Cap 123.   |
| (d) | <b>Lift Works</b>            | includes any kind of work concerning Lift Alteration Works, and Lift Maintenance and Repair Works as described in following definitions (e) and (f) throughout the occupation stage of building.   |
| (e) | <b>Lift Alteration Works</b> | means works including but not limited to lift major alteration as defined in the Lifts and Escalators Ordinance, Cap 618, modernisation, modification, replacement of the lift, relocation, demolition, refurbishment works, alteration and addition works of a lift, other than Lift Maintenance and Repair Works.  |



|     |  |  |
|-----|--|--|
| (f) | <b>Lift Maintenance and Repair Works</b> | means works that are for the purposes of keeping a lift or any of its associated equipment or machinery in safe working order, including but not limited to any examination, inspection, testing, cleaning, oiling, adjusting, repairing, and replacement of associated equipment or machinery of the lift for those purposes. |
| (g) | <b>FS Code</b>                           | refers to the Code of Practice for Fire Safety in Buildings 2011 or its latest version published by the Buildings Department.  |
| (h) | <b>Authorized Person (AP)</b>            | means a person whose name is on the authorized persons' register kept under section 3(1) of the Buildings Ordinance, Cap 123 –<br>(i) as an architect;<br>(ii) as an engineer; or<br>(iii) as a surveyor.  |
| (i) | <b>Competent Personnel</b>               | is a person who is suitably trained, qualified by knowledge and practical experience, provided with necessary information and instructions, and appointed by a Lift Contractor to enable assigned works to be carried out thoroughly and safely.   |
| (j) | <b>Management Company</b>                | means a property management company for the purpose of day-to-day management and maintenance of a building. It generally refers to the management company appointed on contract basis.   |
| (k) | <b>Responsible Person</b>                | means the owner of a lift, or any other person who has the management or control of the lift.  |

2.2 For other definitions of the technical terms or related personnel, please refer to Volumes 1 and 2 of the Guidelines.

### **3. Introduction**

- 3.1 Upon completion of lift installation and the grant of Occupation Permit (OP), the completed facilities will be handed over to the Responsible Person and / or Management Company. Lift Works for the lift installation will become necessary throughout the occupation period of building. This publication will focus on the precautionary measures recommended for enhancing the safety of Lift Works throughout the occupation period.
- 3.2 This publication promotes safe practices for Lift Works, with reference to core ingredients of a safe system of work in the principles of risk assessment and elimination, hazard reduction, accident prevention and protection of occupants, workers and other personnel.
- 3.3 In developing and implementing a safe system of work for any Lift Works, the Lift Contractor should make their best effort to comply with the advice delivered in the Code of Practice for Safety at Work (Lift and Escalator), and to observe and follow other requirements governing the safety aspects of Lift Works stipulated under the Ordinance(s) / Regulation(s) / Code(s) of Practice / Practice Notes including but not limited to those listed in Annex A. The safety measures for lift shaft works stipulated in Volumes 1 and 2 of the Guidelines on Safety of Lift Shaft Works published by the CIC (Volumes 1 and 2 of the Guidelines) should also be followed wherever applicable.

## **4. Limitations**

- 4.1 It is important to note that compliance with this publication does not of itself confer immunity from legal obligations in Hong Kong. Employers or contractors are reminded to observe and comply with statutory provisions, relevant codes of practice and all other government departments' requirements so as to discharge their legal and other pertinent duties in respect of Lift Works.
  
- 4.2 Any standards, procedures, forms or specifications stipulated in this publication are by no means exhaustive. The Lift Contractor should critically examine their applicability and suitability taking into account the actual site conditions and the specific hazards of the project.

## **5. Safe System of Work of Lift Works**

5.1 To ensure the safety and health of workers engaged in Lift Works, the Lift Contractor should –

- (a) plan the Lift Works, including lift alteration works, and lift maintenance and repair works (paragraph 6 refers);
- (b) conduct risk assessment and prepare risk control measures for the Lift Works (paragraph 7 refers);
- (c) implement general precautions for Lift Works (paragraph 8 refers);
- (d) pay special attention to safety and health of workers for specific works or special working conditions like lift alteration works, rope replacement work, machine room-less lift work, common lift shaft, double deck lift works, high speed lift works, building / structural works, and demolition of lift (including associated building and structural (alteration and addition) works) (paragraph 9 refers);
- (e) develop and implement permit-to-work systems for Lift Works (paragraph 10 refers);
- (f) provide effective communication system, safety and health training and personal protective equipment (PPE) to workers (paragraph 11 refers);  
and
- (g) pay special attention to safety of occupants and other personnel (paragraph 12 refers).

5.2 It is strongly recommended that the Lift Contractor and Responsible Person should make reference to and comply with the relevant safety measures for lift shaft works including those for fire safety, occupants' safety and workers' safety, as stipulated in Volume 1 and Volume 2 of the Guidelines as appropriate.

## **6. Planning of Lift Works**

- 6.1 Before the commencement of a contract for Lift Works, the Lift Contractor should provide a safety plan for Lift Works. The safety plan should include the details of Lift Works, its method statement and its risk assessment to ensure that the safety of Lift Workers and other occupants of the building are well covered. General and specific safety measures for the Lift Works shall also be specified.
- 6.2 If the Lift Works involve any necessary / associated building / structural (including demolition, alteration or addition) works before the commencement of the works, advice from AP / RSE should be sought if prior approval and consent by the BA are required for such works, unless the same fall within minor works or exempted works under the BO. For details, please refer to paragraph 9.7. (If the carrying out of the alteration or addition works will result in a "new building" as defined under BO, Occupation Permit should be obtained from the BA prior to the "new building" can be occupied.)
- 6.3 (a) All safety measures in the occupied building, including fire safety and occupants' safety, should be properly maintained at all times during and after the completion of the Lift Works and building / structural works.
- (b) All temporary safety measures required for the building / structural works should also be maintained at all times until the completion of such works and also Lift Works. For details, please refer to paragraph 9.7.
- (c) As the Lift Alteration Works and the associated building / structural works are to be carried out in an occupied building and thus, in terms of fire hazard, special attention should be paid to the FS Code to adopt the corresponding fire safety protective measures therein, in particular Part F where applicable, including the necessary safety measures for fire safety and occupants' safety, like hoarding with purposely designed self-closing access doors, restriction of access, warning signs, etc. They should be strictly adhered to.

- (d) The Lift Contractor / Registered Contractors should inform the Management Company / Responsible Person about the designated Lift Works and building / structural works and observe / maintain the arrangements / protective measures during the course of works as specified in Clause F5.7 of the FS Code and paragraph 12 of Volume 2 of the Guidelines, where applicable.

6.4 Safety measures for Lift Works should be well considered and addressed in safety plan / method statement with the implementation details for managing and reducing potential risks. In addition, the Lift Contractor should also consider the following in formulating safety plan / method statement:

- (a) Develop a safe system of work to ensure that the works are carried out in a safe and controlled manner;
- (b) Establish and implement a permit-to-work system for controlling hazardous processes;
- (c) Avoid Lift Workers working alone as far as practicable and observe the relevant requirements laid down in the Codes of Practice. When it is unavoidable to work alone, the Lift Worker should have sufficient communication devices including a motion sensor to generate alarm in addition to the provision of walkie talkie, etc., taking into consideration the effectiveness of the communication device in the environment;
- (d) Provide adequate safety / refreshment training for Lift Workers on work processes / procedures / PPE / manual handling, etc. to enhance their safety awareness;
- (e) Provide a safe access to and egress from every place of work, including the lift car top and lift pit;
- (f) Take adequate steps to prevent any Lift Worker from falling from height. Where necessary, proper fall protection (e.g. suitable guard-rails and toe-boards, temporary covers for openings, working platforms and personal fall protection equipment, etc.) should be provided for use;

- (g) Use proper lifting equipment for hoisting / transportation / positioning of heavy parts / components (e.g. chain block, electric winch, etc.). Lifting equipment shall be checked before use and certified in accordance with the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Cap 59J;
- (h) Avoid working on live electrical equipment. Where it is unavoidable, proper protection and control measures (isolation, insulation, use of protective gloves / mat, etc.) should be adopted; and
- (i) Use proper PPE as specified by relevant ordinances, regulations, codes of practices and guidelines. When the work involves the use of chemicals, suitable PPE should be readily available for use. In addition, every container holding chemicals should be properly labeled and all used / waste chemicals should be properly disposed.

6.5 The safe plan should be reviewed whenever there is a substantial change in working environment, working method or risk assessment.

## **7. Risk Assessment and Method Statement**

- 7.1 Risk assessment is a systematic and comprehensive examination to identify any potential hazards associated with Lift Works, to decide who might be harmed and how. It is also to evaluate the risks and decide on the necessary precautions for elimination / mitigation of the risks, to record the findings and to review the assessment. It should be revised and reviewed whenever necessary.
- 7.2 Before the commencement of Lift Works of a contract, the Lift Contractor should appoint a Competent Personnel to conduct an initial site safety assessment to establish necessary precautions for ensuring the safety and health of persons at work.
- 7.3 For Lift Alteration Works or other Lift Works carried out inside a lift shaft involving different contractors / parties, the Lift Contractor should line up a risk assessment team comprising a Competent Personnel and site managerial representatives from relevant contractors / parties to participate in the risk assessment. The Lift Contractor should consult a Registered Safety Officer for completeness of the risk assessment process and the report should be endorsed by a Project Manager / Engineer of the Lift Contractor.
- 7.4 Upon completion of the risk assessment, it should be properly recorded and communicated to the contractors / parties concerned. Safety measures required by the risk assessment should be implemented to ensure the safety and health of those parties involved.
- 7.5 The risk assessment should be regularly reviewed. If there is any significant change to the Lift Works concerned, re-assessment should be made to mitigate the risks.
- 7.6 A method statement for the Lift Works should be prepared, taking into consideration all safety measures from the risk assessment report. The precautionary measures should be disseminated to all relevant parties to ensure that they are properly understood and followed.



7.7 The table in Annex B shows the common types of hazards typically encountered in the following lift works:

- (a) Lift Maintenance Works;
- (b) Main Rope Replacement (1:1 Roping – Mid Rise); and
- (c) Lift Major Alteration Works.

7.8 The hazards as mentioned in Annex B are by all means not exhaustive and the Lift Contractor should review the actual site situation when developing their own risk assessment.

## **8. General Precautions for Lift Works**

To ensure the safety and health of workers engaged in Lift Works, the Lift Contractor should implement general precautionary measures and pay attention to the following issues:

- (a) Work inside lift pit;
- (b) Work inside lift shaft;
- (c) Work on lift car top;
- (d) Work inside lift machine room;
- (e) Lifting operation;
- (f) Hot work; and
- (g) Safe use of electricity.

### **8.1 General Precautions**

8.1.1 Lift Works are essential to keep lifts in safe working order. The Lift Contractor has the responsibility for ensuring the safety and health of Lift Workers carrying out the works and occupants / users of the building. To proper discharge this duty, the Lift Contractor should:

- (a) conduct a site specific risk assessment to identify fire, safety and health hazards associated with the works, formulate and implement necessary safety measures, including relevant method statements for implementation of safety measures, and provide suitable equipment and tools, including personal protective equipment, for carrying out the works;
- (b) make reference to the relevant provisions in this Volume as well as Volumes 1 and 2 of the Guidelines for safety of Lift Workers, occupants and other personnel;
- (c) refer to the provisions in paragraph 9.7 if the works involve new, relocation or alteration of lift shaft openings;
- (d) maintain all fire safety measures in the occupied building to ensure the safety of the occupants at all times;

- (e) if alteration / modification has an implication to the fire safety requirements, for example fire doors, in the occupied building prior to the commencement of any Lift Works, advice from AP should be sought to confirm if the proposed works comply with the requirements stipulated in the FS Code and if approval from the BA is required before the commencement of the related alteration / modification;
- (f) provide adequate training and specific instructions to Lift Workers for them to carry out the works properly and in a safe manner;
- (g) provide Lift Workers with all the necessary information, including relevant layout drawings, method statements, and corresponding manuals issued by the lift manufacturer;
- (h) supervise the works to ascertain that safety measures are taken and instructions are followed by the Lift Workers;
- (i) employ sufficient number of Lift Workers who are competent to carry out the works;
- (j) ensure that necessary plant, equipment and tools are properly maintained and are available for immediate use; and
- (k) ensure that an effective communication means is provided for Lift Workers during the works.

8.1.2 The Lift Contractor in discharging his duty in lift shaft works should make reference to relevant legislation, codes of practice and guidelines. For example, the Code of Practice for Safety at Work (Lift and Escalator) issued by the Labour Department, and the Code of Practice for Lift Works and Escalator Works issued by the Electrical and Mechanical Services Department.

8.1.3 For the Lift Works and associated building works, in order to inhibit the spread of fire between floor compartments through the lift shaft and openings, fire separation integrity of the lift shaft should be maintained at all times according to Clause F5.7 of the FS Code.

8.1.4 Use of volatile organic compounds (VOC) during Lift Works should be properly controlled. To avoid health hazards to Lift Workers, the Lift Contractor should ensure that adequate ventilation is provided and maintained at the workplace. In addition, the Lift Workers involved should be provided with suitable respiratory protective equipment and effective supervision should be taken to ensure that the equipment is used properly. As far as practicable, VOC should not be used in enclosed areas. For flammable VOC, the requirements related to hot work as stipulated in paragraph 8.7 should also be observed.

8.1.5 Lift Workers have the general duty of care for their own safety at work as well as for others. Lift Workers should carry out work in accordance with the instructions of the Lift Contractor or their supervisors, and should follow closely the safe practices and any emergency procedures that have been set down. Before conducting any work, Lift Workers should:-

- (a) understand their own duties at work;
- (b) follow the instructions and take heed of the information provided to them;
- (c) inform the Lift Contractor or their supervisors if the works being or to be carried out are unsafe or beyond their capability; and
- (d) check their tools and equipment, and report to their supervisors of any defects or abnormalities found.

## **8.2 Work inside Lift Pit**

8.2.1 The Lift Contractor should ensure the following safety measures in place before the commencement of work or during execution of work, as appropriate, inside a lift pit:

- (a) The stopping device (emergency stop) of the lift should be suitably tested for its effectiveness. To test the functionality of the stopping device, the manufacturer's manual should be followed. Where more than one car stopping devices are fitted, each of these should be checked independently;

- (b) Counterweight screen of an appropriate height above the lift pit floor should be provided with a safe sign prominently displayed to warn the Lift Workers concerned of the hazards created by descending counterweight;
- (c) Adequate lighting and ventilation should be provided. Lighting for working in the lift pit should be switched on when Lift Workers are working inside the lift pit. For emergency purpose, portable torches or emergency lights should be provided to lift workers working inside the lift pit;
- (d) The lift pit should be kept clean and dry to prevent any slipping hazard. No Lift Worker or any other person is allowed to carry out works in a lift pit with standing water;

(e) Safe access to and egress from the lift shaft openings should be provided;

(f) If Lift Workers need to access to the lift pit via the lowest landing, suitable precautions such as the following should be taken to keep the lift car stationary:

- actuate the stopping device located near the landing door at the lowest floor;
- actuate the stopping device located at the car top; or
- switch off the main power supply to the lift.



**Figure 1(8.2.1e):**  
Safe access to and egress from the lift shaft openings should be provided

(g) Suitable barriers with warning signs should be erected in front of the landing doors of the lowest floor and inside the lift car to prevent any person from getting close to the working area, falling into the lift pit or entering the lift car;

- (h) Before carrying out any work in the lift pit, Lift Contractor should as far as practicable identify, confirm and demarcate a designated location (safety refuge) at the lift pit that can allow Lift Worker(s) to take cover if the lift car moves towards the lowest landing. Any Lift Worker who works in the lift pit should know this designated location and should try to stay at that location during execution of the work as far as possible;
- (i) The stopping device located at the lift pit should be activated immediately once inside the lift pit;
- (j) Direct and effective communication between the Lift Worker(s) staying in the pit and the Lift Worker(s), if any, on the lift car top should be ascertained before the lift car is allowed to be moved. The Lift Worker(s) staying in the lift pit should have priority to give commands for car movement;
- (k) Where the car is at its lowest landing and the underside of the car cannot be safely reached from the lift pit floor, a suitable means should be provided, installed and maintained in the lift pit to provide access to the equipment at the underside of the car. When access is provided by means of a working platform, it shall conform to the requirements under the Construction Sites (Safety) Regulations, Cap 59I;
- (l) Where the space below the car is insufficient to accommodate a rectangular block not less than 0.5 m x 0.6 m x1.0 m resting on one of its faces, or when the works to be carried out involve extended invasive activities such as repairing / replacing / adjusting suspension ropes or chains, sheaves or brakes maintenance inside lift pits, an appropriate restraint device should be provided to prevent any unintended car movement;
- (m) In case of working in the lift pit of a hydraulic lift, the restraint device should be set in place to keep the lift car or platform stationary in position; and
- (n) When leaving the lift pit, the stopping device as well as the door blocking device should be reset / removed only if the safe situation is ascertained. It is also needed to ensure that no tools or materials are left in the lift pit.

8.2.2 Any scaffolding used inside a lift pit should be of non-combustible type.

### **8.3 Work inside Lift Shaft**

8.3.1 The Lift Contractor should ensure the implementation of the following safety measures before work or during execution of work, as appropriate, inside a lift shaft:

- (a) The number of persons working inside a lift shaft at the same time should be kept to a minimum. A permit-to-work system should be put in place where simultaneous operation by workers of different trades is unavoidable;
- (b) Suitable entrance protection should be provided for guarding of openings in lift shaft. Barriers with warning notices should be erected in front of the landing doors. Landing doors should not be allowed to remain open any longer than necessary;
- (c) Safe means of access and egress should be provided as necessary. Fall preventive measures should also be provided to protect Lift Workers working at height;
- (d) 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 before entering the lift shaft;
- (e) Any temporary works including scaffoldings, formworks, planking and strutting, etc. erected inside a lift shaft during maintenance or replacement works should be constructed of non-combustible materials;
- (f) 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. For emergency purpose, portable torches or emergency lights should be provided to Lift Workers working inside the lift shaft;

- (g) When more than one lift is installed within a common lift shaft, adequate measures shall be taken to prevent trapping hazards;
- (h) 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 stopping device and manual control mode switch should be checked before the commencement of any work;
- (i) Any parts and materials used or dismantled should be hoisted or lowered under control. Safe rigging and lifting method, including suitable lifting equipment should be used. Dismantled parts and materials should not be dropped down under all circumstances;
- (j) Working under a suspended load (e.g. a counterweight or a suspension rope under installation) inside the lift shaft should be avoided and adequate safety measures are in place to prevent accidental fall, slipping or displacement of the suspended load;
- (k) For checking the position of the lift car, the landing doors should be opened not more than a clearance of 90 mm in width;



**Figure 2(8.3.1k):**

The landing door should be opened not more than a clearance of 90mm in width for checking the position of the lift car

- (l) When landing doors are required to remain open, a proper door blocking device should be fitted in place to mechanically hold the doors in the open position; and



- (m) A lift should not be returned to normal operation after completion of work until it has been ascertained that no persons, tools, etc. remain inside the lift shaft.

8.3.2 Unauthorised persons should be prevented from entering the machine room whilst Lift Workers are working within the lift shaft.

8.3.3 If a guided-SWP is used, design calculations should be carried out to determine the safe working load of the SWP. The SWP should be of good construction. The Lift Contractor should also follow relevant provisions in Volume 2 of the Guidelines, including paragraphs 6.12, 7.21, 7.31, 9.5, 9.7 and 10.5. The requirements of the Compliance Notes for Guided-SWP issued by the Labour Department (LD) should be complied with.

8.3.4 If a platform lift is used for the Lift Works, the design and construction should be suitable. The Lift Contractor should also follow relevant provisions in Volume 2 of the Guidelines, including paragraphs 7.22, 9.5 and 10.5. The requirements of the Compliance Notes for Platform Lift issued by LD should be complied with.

#### **8.4 Work on Lift Car Top**

8.4.1 The Lift Contractor should ensure the following safety measures are in place before and during execution of work, as appropriate, on a lift car top:

- (a) 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 metre/second;
- (b) Functionalities of the car top stopping device, the car top Inspection / Operation Switch, and the car top control movements in down and then up directions should be checked before carrying out any work on the car top;



- (g) Measures should be taken to prevent trapping hazard. Among other things, foothold should be provided on the lift car top as far as practicable;
- (h) Where there is a fall hazard from the car top, an appropriate vertical screen, a suitable horizontal extension of the car top, or proper guard-rails and toe-boards should be installed. Such screens, extensions, guard-rails and toe-boards should be sufficiently strong and secure;
- (i) The car top should be clean, free from oil and grease, and structurally sound. Standing on the emergency exit cover of the lift car is prohibited unless it is rigid enough for the purpose;
- (j) Communication protocol should be established and followed for Lift Workers working on the car top. All Lift Workers on the car top should understand the plan and procedures for the car movement in the works;
- (k) Whenever the car is stationary, the stopping device should be actuated and;
- (l) 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 accidental ignition by the lamp.



Good Practice



Bad Practice

**Figure 4 (8.4.11):**

The portable service lamp on the top of lift should be properly placed

## 8.5 Work inside Lift Machine Room

8.5.1 The Lift Contractor should ensure the following safety measures are in place before and during execution of work, as appropriate, in lift machine room. Access to Lift Machine Room should be:

- (a) A safe access to and egress from every place of work inside the machine room, such as proper stairs, should be provided and maintained;
- (b) Where a fixed access ladder of 3 metres or more is installed, it should be fitted with a suitable fall arresting device or suitable safety hoops. The spacing between rungs of the hoops should be at intervals not exceeding 1 metre. The lowest safety hoop should be installed at a height not exceeding 2 metres above the ground and the highest safety hoop should be installed 1 metre above the upper end of access and egress; and
- (c) Passageway should be unobstructed and the floor surfaces should be non-slippery. Adequate measures should be taken to prevent any tripping hazards.



**Figure 5(8.5.1c):**

Passageway should be unobstructed and the floor surfaces should be non-slippery

## 8.5.2 Working Safety in Lift Machine Room

- (a) All Lift Workers working within a machinery space or pulley room should abide by all relevant safety signs;
- (b) All lift machine room door(s) should be locked at all times when unattended during the works to prevent intrusion by other persons;
- (c) Adequate ventilation and lighting should be provided in the lift machine room;
- (d) Working platforms at height should be guarded with suitable guard-rails and toe-boards to prevent fall;



**Figure 6(8.5.2d):**

Working platform at heights should be guarded with suitable guard-rails and toe-boards

- (e) The lift should be rendered inoperative as far as practicable before any inspection, cleaning, oiling or lubrication of wire ropes and moving parts. If it is impracticable to do so, adequate safety measures should be taken to prevent injury;
- (f) All dangerous parts of the machine, the whole lift installation and machines nearby should be effectively guarded to prevent injury to Lift Workers carrying out the Lift Works. As far as practicable, guards with a viewing window should be fitted for ropes or pulleys inspection. The protection guard should be reinstated immediately once the maintenance or repair work for the dangerous part of any machinery is completed;



Bad Practice

**Figure 7(8.5.2f):**

Dangerous parts of the machine are not guarded



Good Practice

**Figure 8(8.5.2f):**

Any dangerous part of the machine should be guarded effectively

- (g) No work should be carried out on machinery while it is in motion or which is capable of intermittent motion. If it is not practicable, the Lift Contractor should provide other protective measures to prevent Lift Workers from injury;
- (h) Risk assessment for manual handling operation should be carried out. Suitable lifting equipment should be provided for raising, lowering or suspension of heavy machine parts, materials and equipment; and
- (i) The floor of the machine room should be non-slippery and measures should be taken to prevent any tripping hazards.

### 8.5.3 Controlling Electrical Hazards in Lift Machine Room

- (a) No work should be carried out on or close to any live electrical equipment that electric shock danger is foreseeable. If this is unavoidable, adequate precautions such as wearing of suitable insulated gloves and boots, etc. should be taken to avoid electrical hazards. Also, the work should only be conducted by workers with adequate qualification and experience on electric work, and with adequate guidance / warnings and supervision given to the workers. Working alone in this situation is not recommended;

- (b) Suitable guards or other forms of protection should be installed to isolate electrical parts to reduce the risk of electrical shock by electrical parts inside the lift control panels;
- (c) Lockout and tagout procedure should be devised and implemented as appropriate to isolate the source of electrical energy; and
- (d) Electric shock treatment notices should be prominently displayed in the lift machine room.



**Figure 9(8.5.3c):**  
Source of electrical energy to be properly isolated with lockout/ tagout

## 8.6 Lifting Operation

- 8.6.1 The Lift Contractor should prepare a lifting plan to define the rigging method applied to each machine part, material and equipment to be hoisted for the Lift Works. Properly designed, installed and maintained lifting equipment should be provided for conveying machine parts, material and equipment.
- 8.6.2 Any lifting appliances and lifting gear (LALG) used in the operation should be properly constructed and securely supported. The LALG should be also properly and regularly maintained, inspected, tested and thoroughly examined.
- 8.6.3 The Lift Contractor should ensure that erection of the appliances, including the installation and dismantling of anchor bolts, are carried out safely by a competent Lift Worker.
- 8.6.4 The operator of a power-driven lifting appliance should be trained and competent to operate the appliance. He should be familiar with the lifting appliance he is using.
- 8.6.5 Loads, including lift parts and materials, should be securely rigged and fastened in order to prevent any undesirable movement or falling when they are being raised or lowered.

- 8.6.6 Lifting gear should be properly used during the lifting operation. It should be protected from damage by sharp edges.
- 8.6.7 No Lift Workers should be allowed to stay or work below the suspended load inside the lift shaft during the lifting operation. If this is unavoidable, the Lift Contractor should provide and maintain a lift shaft platform to act as a separation formwork to protect the Lift Workers working below the platform. Such lift shaft platform should comply with the requirements of any relevant regulations, practice notes and codes of practice published by the Government such as the Buildings Department (BD) and the Labour Department (LD).
- 8.6.8 All 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 thoroughly examined in accordance with the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Cap 59J.
- 8.6.9 If the lifting equipment is required to hoist heavy parts / equipment, such as lift car, driving motor and counterweight, or when a particular anchorage, whether existing or new, with the intended applied load may have effect on the parent structure by way of overstressing or overloading, the requirements specified in paragraphs 9.1.9 to 9.1.11 of this Volume and the relevant provisions in paragraphs 9.8 and 9.9 of Volume 2 of Guidelines should be followed.

## **8.7 Hot Work**

- 8.7.1 Prior to the commencement of any Lift Works, Lift Workers should be informed about the emergency arrangements in case of fire. The arrangements include the method of activating the fire alarm, fire escape route of leaving from the place of work, etc.



- 8.7.2 Special fire precautions should be adopted and implemented for hot work, including welding process. The safety requirement on carrying out of hot works in the lift shaft stipulated in paragraph 8.1.3 of this Volume, paragraphs 6.10 and 10.5(d) of Volume 2 of the Guidelines should be observed. A permit-to-work system (for hot work) should be developed and implemented.
- 8.7.3 A hot work supervisor should be present at the site during the whole time while hot work relating to Lift Works is being carried out. 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 (OSHC).
- 8.7.4 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 relevant legislation, Codes of Practice and guidelines, including the Codes of Practice on Safety and Health at Work for Gas Welding and Flame Cutting and Safety and Health at Work for Manual Electric Arc Welding issued by the LD.
- 8.7.5 Work process involving the use of flammable substance should not be carried out in the vicinity. All combustible materials should be moved to a safe place.
- 8.7.6 Fire retarding sheet should be used to prevent sparks of electric arc process from falling onto combustible materials or suspension ropes. Suitable protective screen of fire retardant nature, such as tarpaulin should be used, where necessary. If tarpaulin is being used as protective screen, its fire retardant characteristics should meet the requirements of BS 5867-2: 2008 (Type B performance requirements) or other equivalent standards.
- 8.7.7 The Lift Contractor should provide and maintain sufficient and suitable fire fighting facilities such as portable fire extinguisher(s) in the close vicinity of place of work.
- 8.7.8 Ventilation should be provided in order to maintain adequate fresh air for the workers during the hot work. As far as reasonably practicable, effective local exhaust for the work process should be provided and maintained.

8.7.9 Special care should be given where harmful or toxic metal fumes would be released from the work process, such as molten metal operation. In addition to the provision of effective local exhaust, Lift Workers should also be provided with suitable PPE during use and handling of molten metal.

## 8.8 Safe Use of Electricity

8.8.1 All electrical appliances including electric tools, lighting devices and mechanical ventilation equipment should be effectively earthed except that it is an approved type that does not require earthing.

8.8.2 Proper connectors and power cables should be used for portable tools.

8.8.3 Where power is not required to perform Lift Works, the correct point of isolation should be identified and an appropriate means of isolation should be established and followed on site to prevent unintended or unauthorised reconnection of electrical energy during the work.

8.8.4 The point of isolation should be locked off using unique keys by the persons carrying out the work, with a caution notice attached to the point of isolation. If more than one person is working on circuits supplied from an isolated point, a proper LOTO procedures should be in place and implemented for isolation and reconnection of electrical supply.



**Figure 10(8.8.4):**

Display the warning label  
「Electrical Hazard」 at switch

8.8.5 Work on live electrical equipment should be avoided. If it is unavoidable, the following special precautions should be taken.

- (a) the work should only be carried out by Competent Personnel;
- (b) working alone is not recommended;
- (c) sufficient guidance / warnings and supervision should be given to the Lift Workers; and
- (d) suitable protective overalls and electrical insulation gloves / shoes should be provided to and worn by the Lift Workers, and suitable electrical insulation mats should be made available for them to stand on during the work.



**Figure 11(8.8.5d):**

Lift workers should use suitable PPE with electrical insulated gloves/shoes and stand on insulation mat when working on live electrical equipment

8.8.6 Caution should be exercised when working around electrical equipment of the lift system. Reference should be made to updated drawings and maintenance manuals of the manufacturers.

8.8.7 For controlling electrical hazards in the Lift Machine Room, please also refer to paragraph 8.5.3.

## **9. Specific Precautions for Lift Works**

In addition to the requirements stipulated by relevant provisions under these Guidelines, Lift Contractors should pay special attention to safety and health of workers for specific works or special working conditions including:

- (a) Lift Alteration Works;
- (b) Rope Replacement Work;
- (c) Machine room-less Lift Work;
- (d) Common Lift Shaft Work;
- (e) Double Deck Lift Work;
- (f) High Speed Lift Work;
- (g) Building / Structural (including Demolition, Alteration or Addition) Works;  
and;
- (h) Demolition of Lift

### **9.1 Lift Alteration Works**

9.1.1 Special attention on safety and health is required for Lift Alteration Works. The Lift Contractor should ensure that an initial site risk assessment is carried out and necessary controls should be implemented for all the foreseeable risks according to the risk assessment. Where Lift Works involve alteration and addition works (A & A works), safety measures for lift shaft works stipulated in Volumes 1 and 2 of the Guidelines on Safety of Lift Shaft Works should be referred if applicable. Where works involve lift relocation, demolition, and refurbishment works, those specific precautions mentioned in Volume 2 of the Guidelines on Safety of Lift Shaft Works should also be referred if applicable. A permit-to-work system should be implemented, where necessary.

9.1.2 The Lift Contractor who is responsible for the Lift Alteration Works should pay special attention to providing extra safety precautions to ensure occupants' safety and to avoid damage to any property while the works are being carried out. Please also note paragraphs 6.3, 8.1.3 and 12 for other safety and fire protective measures for workers and occupants.

9.1.3 Suitable working platforms should be provided for carrying out the alteration works as appropriate. Adequate measures should also be taken to prevent

fall hazards. There should be safe access to and egress from the place of work.

- 9.1.4 Use of flammable substance should be properly controlled. Solvents giving off flammable or harmful vapour should neither be used in restricted space without adequate ventilation, nor used in an area close to an ignition / heat source. Flammable substances should be stored safely and adequate fire extinguisher(s) should be provided for ready use. As far as practicable, water-based cleaners should be used as substitute to remove oils and grease. As flammable paint spraying is a fire hazardous process, it should be avoided to be carried out inside occupied buildings. If it is impracticable to do so, risk assessment with stringent preventive measures should be adopted.
- 9.1.5 The carrying out of drilling activity through lift shaft walls should not jeopardize the fire separation function of the lift shaft walls. Such holes if become obsolete after the work should be filled up with suitable fire rated materials.
- 9.1.6 If the Lift Alteration Works involve building / structural (alteration and addition) (A&A) works of a building (e.g. demolition of part of the parent building to form new lift shaft opening, relocation of lift shaft or its openings, etc.) please refer to paragraph 9.7 for the details.
- 9.1.7 The lift should be switched to inspection mode at the control panel in the lift machine room whenever the lift is under alteration except testing stage.

#### Major Alterations of Lift

- 9.1.8 The Lift Contractor should adopt the following special precautions for preventing falling and trapping of Lift Workers working on lift car top for major alteration, such as addition / replacement of any driving-machine, safety components or safety equipment, controller and change of rated speed or rated load.
  - (a) After the Lift Alteration Works and before the lift is used to carry Lift Workers either inside its lift car or on its car top for the first time, the lift should be examined by a Registered Lift Engineer (RLE) to ensure that the operating switches and safety devices are functioning properly. The examination should be properly documented for checking;

- (b) As far as practicable, front guard-rails and toe-boards (facing the door side), in addition to guard-rails and toe-boards at other edges, should be installed at the lift car top, and foothold should be provided on the lift car top. The guard-rails should be so designed and constructed to allow safe access to and egress from the lift car top;



**Figure 12(9.1.8b):**

Suitable guard-rails and toe-boards should be provided at lift car top

- (c) A switch lock on the Inspection / Operation Switch at the lift car top or other similar device should be installed and the Lift Contractor should ensure that its key is kept by a site supervisor not on the lift car top and the operation of the lift is under the sole control by Lift Workers working on the lift car top;
- (d) Proper anchorage should be provided for the use of every Lift Worker wearing a safety harness with a lanyard of suitable length; and

- (e) 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.

The access door should be affixed with a warning notice as stipulated in paragraph 7.3 in Volume 1 of the Guidelines. It should be locked but can be opened without any key from inside of the lift shaft at any time.



**Figure 13(9.1.8e):**

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

Notwithstanding the installation of the hoarding, a fixed barrier consisting of suitable guard-rails and toe-boards should be securely fixed across the landing door opening when the Lift Worker is liable to fall. If a guided-SWP or a platform lift is used, lift shaft fencing in addition to protection hoarding should also be provided which are hinged to allow the access to and egress from the guided-SWP or the platform lift.

#### Hoisting a Lift Car or Heavy Parts

- 9.1.9 When hoisting a lift car or heavy parts, such as a driving motor or a counterweight, is required, safe method should be implemented and suitable lifting equipment should be used. The lifting equipment should be tested and thoroughly examined in accordance with the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Cap 59J. The lifting operation should not cause overstressing or overloading to the parent structure.
- 9.1.10 If the lifting operation involves the use of the existing built-in anchor / hoisting beam, the corresponding applied load should not exceed the original designed load of the built-in anchor / hoisting beam; otherwise, a new anchorage should be employed.
- 9.1.11 If a new anchorage is to be installed for permanent use, a RSE should be appointed to check, prepare and certify the plans, design information / justification, load bearing capacity, fixing details and / or method statement of such anchorage and to ensure that the structural integrity of the parent structure would not be adversely affected. The RSE should also certify the completion of such installation / alteration. Prior to the installation of the new permanent anchorage, advice from AP / RSE should be sought to confirm if approval and consent from the BA are required for the associated building works. If required, prior approval and consent by the BA should be obtained before the commencement of such building works.
- 9.1.12 Chain sling or rope sling used for rigging should be of adequate strength and length, and should be anchored to appropriate anchor point Sharp corners should be padded to avoid any damage to the slings.

- 9.1.13 As a safety precaution, when the lift car is hoisted up to the required position for working purposes, the safety gear of the lift car should be immediately activated so as to securely fix the lift car in position.
- 9.1.14 A permit-to-work system should be devised and implemented for the hoisting operation.

## 9.2 Rope Replacement Work

- 9.2.1 Prior to the commencement of rope replacement work, the Lift Contractor should implement the following safety measures:
- a risk assessment should be carried out;
  - a method statement with suitable control measures should be devised and implemented; and
  - a permit-to-work system should be adopted, where necessary.
- 9.2.2 Adequate measures should be taken to ensure that the lift car is securely in position by means of suitable anchorage as necessary during the rope replacement work.
- 9.2.3 The main switch of the lift should be turned off, locked out and tagged out. Proper warning notices warning that the lift is out of service should also be posted at prominent positions so as to avoid any disturbances caused by the persons in the building intending to use the lift.



**Figure 14 (9.2.3):**

Proper warning notices warning that the lift is out of service should also be posted at prominent positions



- 9.2.4 A sufficient space at lowest floor or ground floor landing shall be fenced off for ease of access and temporary storage of ropes. Adequate lighting shall be provided at all working areas.



**Figure 15(9.2.4):**

A sufficient space at lowest floor or ground floor landing shall be fenced off for ease of access and temporary storage of ropes

- 9.2.5 Good housekeeping practice should be exercised for new hoisting ropes. Each hoisting rope especially the rope end should be properly protected to avoid contaminations and damages during transportation and delivery.
- 9.2.6 Replacement of all the old main hoisting ropes in one go should be prohibited. For the sake of safety during the rope replacement work, sufficient number and at least nearly half of hoisting ropes should be in place and remain intact to hold the lift car.
- 9.2.7 If the counterweight is set near the lowest level at the lift pit, it should be securely and adequately supported to prevent it from moving during the replacement work.
- 9.2.8 If the lift car is set at the highest landing, it should be securely fixed and supported to prevent it from moving during the replacement work. For machine room-less lift, specific car mechanical locking devices should also be used to prevent the car from movement.
- 9.2.9 Special attention should be given to ventilation when rope socket is being babbitted as babbitt metal contains lead. Adequate mechanical ventilation system should be provided and maintained on the site to remove harmful fumes. Suitable protective face shields, protective gloves and respiratory protective equipment should be worn by Lift Workers.

- 9.2.10 Naked flame process to heat up and molten the babbitt should be avoided. Otherwise, adequate fire safety precautions should be made, such as the place where the naked flame process is to be conducted should be kept clear of combustible materials. Care should be taken to pre-heat the babbitt basket prior to pouring, to prevent the babbitt being chilled by contact with cold metal. Lift Workers should wear suitable personal protective equipment, including eye protectors. Portable fire extinguisher should be so placed as to be readily available for use.
- 9.2.11 Suitable and adequate measures should be in place to eliminate fire hazards arising from hot work.
- 9.2.12 When using resins instead of babbitt for socketing, only the heaters recommended by the resins manufacturer should be used for curing of resins.
- 9.2.13 Suitable measures should be put in place to prevent disconnected or dismantled ropes from falling accidentally.
- 9.2.14 The Lift Contractor should ensure the safety of rope lifting or lowering work. The old ropes should be properly transported down to the ground for removal from the work site. Where retrieving or hoisting of ropes is in progress, Lift Workers should not be allowed to stay inside the lift pit. If it is impracticable to do so, adequate safety measures should be taken to prevent injury to workers.

9.2.15 Regarding the use of “reeving splice”, the weight of the new wire rope and the maximum permissible weight to be suspended by the “reeving splice” should be taken into account in planning the operation with



**Figure 16(9.2.15):** Reeving Splice

adherence to the relevant manufacturer’s instructions concerning its usage. In addition, the manufacturer’s manual, including the requirements on overlapping should be strictly followed. Re-use of the “reeving splice” should be prohibited.

- 9.2.16 The Lift Contractor should provide suitable access to and egress from the place of work and take adequate steps to prevent Lift Workers from falling from height. Spanning a ladder from lift landing / door sill across the lift pit for carrying out the work should be prohibited.
- 9.2.17 Sufficient number of Lift Workers should be assigned for performing the rope replacement work. At least 4 numbers of Lift Workers should normally be required for replacement of main hoisting ropes.
- 9.2.18 The Lift Contractor should check and ensure the proper positioning of the rope on pulley grooves with rope tension evenly distributed among all ropes, and should check that the rope guard has been reinstated before lift operation is resumed.

### **9.3 Machine Room-less Lift Work**

- 9.3.1 Machine room-less lift has the entire lift system including traction machine, machine brake and overspeed governor located within the lift shaft with maintenance access panel located usually on the topmost landing floor. Specific safety measures for machine room-less lift work including the following:
- (a) The Lift Contractor should ensure that every working position such as the traction and the driving motor can be reached safely by the worker. Adequate safety measures should be taken to prevent fall of person;
  - (b) Safe means of access and egress should be provided to the place of work;
  - (c) A suitable maintenance platform should be provided and maintained, where necessary;
  - (d) Specific car mechanical locking devices should be used to prevent the car from movement during the maintenance works on the car top at topmost working zone;
  - (e) The maintenance access panel should be locked at all times and should only be accessible by authorized personnel. Specific notice for rescue

operation should be posted at the maintenance access panel. Safe and clear access to the maintenance access panel should be provided and maintained;

- (f) Machine components of the lift should be properly and securely rigged when being conveyed, e.g. onto the structures of the lift shaft top. Suitable lifting equipment should be provided and used by Lift Workers as necessary; and
- (g) Specific training for rescue operation for the machine room-less lift should be provided to Lift Workers. In case of rescue operation, the status of the ropes, machine brake and lift car should be closely monitored through the sight glass of the maintenance access panel and dedicated CCTV system. If the lift car is in balanced condition with the counterweight, the portable weight should be securely attached to the compensation chain or lift car top before operating the lift car via the maintenance access panel.

#### **9.4 Common Lift Shaft**

9.4.1 The following specific safety measures should be complied with /observed for lift work in common lift shaft:

- (a) The requirements as stipulated in Clause F5.7 of the FS Code; and
- (b) Trapping Hazards arising from adjacent lifts:
  - (i) When more than one lift is installed within a common lift shaft, a partition of appropriate height where practicable should be provided between adjacent lifts to prevent trapping hazards. The requirement of the partition should comply with the Code of Practice on the Design and Construction of Buildings and Building Works for the Installation and Safe Use of Lifts and Escalators (paragraphs 3.7.1 and 3.7.2) issued by the BA;

- (ii) If the partition requirement stated in (i) above is not provided, the lifts adjacent to the lift under maintenance or repair should be suspended in order to prevent trapping hazards. However, if the adjacent lift service has to be maintained to provide minimum service to particular lift floor zone, that adjacent lift should not be allowed to move to the floor zone of the lift which is under maintenance in order to prevent trapping hazards, for instance, by means of programming to disable the lift car and landing calls of floor zone under maintenance.

## **9.5 Double Deck Lift**

9.5.1 Double deck lift is a lift with two lift cars attached together, one on top of the other. This allows passengers on two consecutive floors to be able to use the lift simultaneously. The following safety measures should also be observed for the Lift Works of double deck lift:

- (a) The Lift Contractor should ensure that risk assessment in particular for those works between two lift car cages is carried out before any work is carried out for double deck lift;
- (b) When working between two lift car cages is required, safe and sufficient working space should be provided. The working space should be clearly defined before the commencement of works;
- (c) Before entering the car top of any lift car cages or space between the two lift car cages, the stopping device should be activated to keep the lift in a stationary condition; and
- (d) Specific training for double deck lift should be provided to Lift Workers. Specific notices for the lift car emergency trap doors should be posted at lift car top.

## **9.6 High Speed Lift**

9.6.1 High speed lift is a lift with rated speed greater than 6 metre/second. Owing to its high speed features, high speed lift is usually built with a deeper lift pit which needs special attention on work in lift pit. The safety measures for high speed lift work are as follows:

- (a) The Lift Contractor should ensure that risk assessment is carried out before any work is carried out for high speed lift;
- (b) Safe and clear access to the machine and lift pit equipment should be provided and maintained;
- (c) Lift pit access door and lift pit platforms should be provided to ensure safe and clear access to the lift pit equipment. The provisions of safe access to deep lift pit should make reference to paragraphs 8.2.1(f) in this Volume and 9.2(a) and 10.5(c) in Volume 2 of the Guidelines.
- (d) In case of the aerodynamic shell installed at car top, sufficient standing spaces on car top for Lift Workers should be provided; and
- (e) The Lift Contractor should provide specific training for high speed lift to Lift Workers.

## **9.7 Building / Structural (including Demolition, Alteration or Addition) Works**

9.7.1 Relocation of lift shaft or lift shaft opening or provision of new openings for the change in number of landing entrances, e.g. additional landing entrances constituting building / structural (alteration and addition) works, should be subject to approval and consent by the BA prior to the commencement of such works unless the same fall within minor works or exempted works under the BO.

9.7.2 The structural and fire resistance integrity of the lift shaft should be maintained at all time during the course of such works. Under no circumstances should the carrying out of such works jeopardize the structure

and fire resistance / separation function of various parts of the building. Subject to advice from AP / RSE, appropriate prior approval and consent by the BA on such works should be obtained before the commencement. The works should be carried out by a RC according to the approved plans including compliance with the imposed conditions and provision of the required precautionary measures like hoarding with adequate FRR and protected lobbies.

- 9.7.3 Prior to the commencement of building / structural (alteration and addition) works, the Lift Contractor should liaise with the RC for a work plan. A risk assessment should be carried out and method statement for the work should be prepared.
- 9.7.4 The Lift Contractor and RC involved should work out handover arrangement which should be properly documented. The safety provisions to be handed over to and maintained by the respective contractors should be clearly addressed.
- 9.7.5 Necessary controls should be implemented for all the foreseeable risks according to the risk assessment and safe work procedures should be in place.
- 9.7.6 If a scaffold is used for the building / structural work, the RC involved should examine the loading capacity of the scaffold. The scaffold should be properly erected, tested, examined, maintained and dismantled after the work.
- 9.7.7 For the necessary safety measures for fire safety and occupants' safety, please refer to paragraphs 6.3 and 12 for details.

## **9.8 Demolition of Lift**

- 9.8.1 Measures should also be taken to ensure not to adversely affect the structural integrity of the parent structure of the building. If the demolition of the lift involves building / structural (alteration and addition) works including removal of part of the parent building, please refer to paragraph 9.7 for the detailed requirements.

- 9.8.2 Before any lift demolition work is commenced, the Lift Contractor undertaking the demolition work should assess the condition of the lift and the adjacent structure including the possibility of unplanned or unintended detachment of parts from the lift, or the building structure to ensure no demolition of the permanent structure except those parts shown to be demolished in the building / structural (alteration and addition) works plan approved by the BA pursuant to paragraph 9.7.1.
- 9.8.3 Where work cannot be safely done on or from the ground or from part of a permanent structure, the Lift Contractor should provide and ensure the use of a scaffold, ladder or other means of support, all of which should be safe for the purpose, having regard to the work to be done. Suitable working platforms should be provided and maintained.
- 9.8.4 The Lift Contractor should take such precautions as necessary to prevent any Lift Workers working at that place from being struck by any falling material or object. Steps should also be taken to ensure that debris and materials are not thrown, tipped, or shot down from a height where they are liable to cause injury to any person on or near the site.
- 9.8.5 Debris machine parts, etc. should be properly lowered in a safe manner by means of a lifting appliance and lifting gear. The Lift Contractor should also take all reasonable steps which are necessary to protect the workers employed at the site from injury caused by falling or flying debris.
- 9.8.6 The demolition area should be fenced off by suitable hoarding and clearly marked to ensure that only authorised Lift Workers are allowed to enter the working area. All Lift Workers should wear appropriate personal protective equipment and be informed of safety practices and emergency procedures. Signs and warning notices of falling debris and materials should be prominently posted.



## **10. Implementation of a Permit-to-Work System**

10.1 The Lift Contractor should develop and implement a permit-to-work system for controlling hazardous trade processes during Lift Works. As regards lift shaft works, each permit should specify its length of validity in terms of shift and the type of trade workers who are required to work inside the lift shaft.

10.2 The following are some examples of hazardous trade processes:

- (i) When other trade worker(s) is / are required to work inside the lift shaft where Lift Worker(s) is / are engaging in lift works;
- (ii) When Lift Worker(s) is / are required to work below a guided-SWP or a platform lift;
- (iii) Hot work or electric arc welding is conducted inside or near a lift shaft;
- (iv) Lift Alteration Works inside lift shaft;
- (v) Demolition of lift;
- (vi) Rope replacement work;
- (vii) Hoisting of a lift car or heavy parts; and
- (viii) Paint spraying process with the use of flammable liquids.

10.3 A permit-to-work should be in writing with the following details:

- (i) Work to be undertaken;
- (ii) Procedures involved;
- (iii) Precautions needed;
- (iv) Emergency procedures to be in place;
- (v) Persons authorised to undertake the work;
- (vi) Timescale of the work to be undertaken; and
- (vii) Restrictions on the workplace or equipment.

10.4 Please refer to a sample form of the permit-to-work at Annex C of the Volume 1 of the Guidelines.

## **11. Provision of Effective Communication System, Safety and Health Training and Personal Protective Equipment**

### **11.1 Effective Communication System**

11.1.1 The Lift Contractor should develop and implement an effective and reliable communication system for Lift Works. Such system should be clearly defined before the commencement of the work and properly recorded.

11.1.2 When choosing a means of communication, the effectiveness of the communication device in the working conditions and environment should be assessed, and all foreseeable risks should be duly considered by the Lift Contractor.

11.1.3 The Lift Contractor should provide adequate and effective communication means / equipment, such as mobile phones, walkie-talkies, etc, to Lift Workers. The Lift Contractor should ensure that the communication means / equipment would not be interfered by other communication system in use. When choosing radio frequency based or wireless devices as a communication means, special attention should be given to the limitation of the reception in lift shaft or area shielded by metal and concrete wall. Site supervisors and Lift Workers should check the reception of the communication devices before they start the works. If the reception is poor or intermittent, an alternative communication means should be adopted. In addition, the Lift Contractor should know the working locations of the Lift Workers concerned.

11.1.4 It is important to ensure that all messages can be communicated easily, instantly and clearly.

11.1.5 An effective monitoring mechanism should be in place to ascertain the well-being of Lift Workers, such as by conducting regular confirmation with mobile phones or walkie-talkies.

11.1.6 Unless under special circumstances, Lift Workers are not allowed to work alone inside a lift shaft. Lift Workers inside the lift shaft should be able to verbally communicate with nearby Lift Workers in the workplace at all times. If it is practically unavoidable to work alone after assessing the risks involved,

Lift Workers should have sufficient communication devices including motion sensors to generate alarm in addition to the provision of mobile phones, walkie talkies, and suitable arrangement including regular contact with their supervisors should be made to ensure that the continued well-being of Lift Workers is confirmed. Please refer to the requirements as stipulated in paragraph 6.16 of the Volume 2 of the Guidelines and paragraph 4.10 of the Code of Practice for Lift Works and Escalator Works issued by the Electrical and Mechanical Services Department where appropriate.

## **11.2 Safety and Health Training**

- 11.2.1 The Lift Contractor should assess the training needs of all Lift Workers. In addition to induction safety training to all Lift Workers, regular safety and health training in relation to Lift Works should also be provided to the workers concerned.
- 11.2.2 Lift Workers should be explained of the findings of risk assessment reports, the safety procedures of a method statement and the implementation of a permit-to-work system by the Lift Contractor. The safety and health training should include emergency preparedness.
- 11.2.3 Lift Workers should receive the following training:
- (a) The mandatory basic safety training (Green Card) from a government recognised organization; and
  - (b) Lift Works related training (including related safety precautions) by a Lift Contractor.
- 11.2.4 Lift Workers who perform rope replacement work should receive special training offered by the Lift Contractor, not less than once in every two years.
- 11.2.5 Records of safety training should be kept properly and training needs should be reviewed periodically.

### **11.3 Personal Protective Equipment**

- 11.3.1 The Lift Contractor should provide suitable personal protective equipment (PPE) (such as safety helmets, safety gloves, hearing protectors, eye protectors, respirators, safety shoes and safety harnesses where necessary) for Lift Workers to use.
- 11.3.2 As a protection against risks of fall from height inside a lift shaft, the Lift Contractor should provide and maintain a fall protection system. Among others, whenever there is a falling hazard, Lift Workers should be provided with suitable safety harnesses and suitable fittings. They should also be instructed to wear safety harnesses with their lanyards attached to suitable anchorages. In providing suitable anchorages and using personal protective equipment against fall from height, the Lift Contractor should make reference to the Code of Practice for Safety at Work (Lift and Escalator), Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems issued by the Labour Department, or relevant international standards.
- 11.3.3 For Lift Works involving different tasks to be performed at the same time on different levels inside a lift shaft, all workers, including other trade workers, should be provided with reflective vests or clothes when they are required to work inside the lift shaft. They should wear reflective garment (vest or clothes with reflective strips) when they remain inside the lift shaft.

## **12. Special Attention to Safety of Occupants and Other Personnel**

### **12.1 In General**

- 12.1.1 All the necessary safety measures (including features and provisions) for and pertaining to buildings, including those for fire safety, occupants' safety and workers' safety, should be maintained at all times as described in paragraph 6.3 during the carrying out of Lift Alteration Works until the completion of such works.
- 12.1.2 The Lift Contractor and the RC if appointed should strictly maintain and follow all permanent and temporary safety measures, to ensure the occupied area is under sufficient protection at all times when carrying out the Lift Works. Those measures should also be included in the contractor's on-site induction safety training.
- 12.1.3 If it is required to alter / modify the building works in particular related to safety as shown on the approved building plans for the subject building, prior to the commencement of any such work, advice from the AP should be obtained to confirm if the proposed works including the corresponding proposed alternative protective measures need prior acceptance / approval from the BA.
- 12.1.4 The fire protection / barrier should not be penetrated by temporary supply of electricity, ventilation or the like. However, if unavoidable, where an opening is formed for ducts, pipes and wires or the like passing through the fire protection / barrier, the opening should be adequately protected in compliance with the corresponding fire resisting construction / fire barriers requirements stipulated in Parts C and E of the FS Code.
- 12.1.5 The Management Company should also observe the requirements of Training Plan and Fire Action Plan as stipulated in Section 4 and 5 in Part F of the FS Code by the Buildings Department.

## **12.2 Safety of Occupants**

- 12.2.1 Throughout the Lift Works, the Lift Contractor, the RC if appointed, the Management Company and / or the Responsible Person should work cooperatively to administer, manage and maintain the safety measures including fire protection / separation for ensuring occupants' safety.
- 12.2.2 A lift barrier or hoarding as appropriate should be erected to prevent any unauthorized entry to the lift under repair and maintenance. The barrier concerned should be suitably placed away from the sills of landings at the lift lobbies and it is capable of standing securely on its own. Relevant safety signs and warning notices in both Chinese and English should be prominently displayed.
- 12.2.3 The lift landing doors in question should be kept closed at all times as far as practicable. If the lift landing doors need to remain open, the Lift Contractor should implement control measures to prevent any falling hazards.

## **12.3 Safety of Other Personnel**

### Emergency Door

- 12.3.1 Emergency doors are designed and constructed to provide access to and egress from lift shafts by firemen and Lift Workers for rescue purpose in case of emergency. Only authorized rescuers and competent Lift Workers employed by Lift Contractors are permitted to get access to the lift shaft through emergency doors for emergency operations. As such, any emergency access panel / door located in the lift shaft walls forming part of the fire separation should not be opened or used for access to the lift shaft for carrying out general Lift Works.
- 12.3.2 To avoid or mitigate such risk, a safe system of work should be provided by the Responsible Person, among other things, including the development and maintenance of proper procedures for the safe custody, issue and use of specific keys and master keys capable of opening emergency doors. The key of the emergency doors should be, as far as practicable, exclusively used for the emergency doors and lift landing doors only. In the normal situation, the emergency doors should be kept in closed and locked position.

Warning notices about the danger of unauthorised access should be displayed on the outside face of the emergency doors. For details of the emergency door and the requirement on the warning signs, reference should be made to paragraph 3.2 of the Code of Practice for the Design and Construction of Buildings and Building Works for the Installation and Safe Use of Lifts and Escalators 2011 published by the Building Authority.

- 12.3.3 The system of work should also embrace steps to ensure that the procedures are thoroughly communicated to, understood and observed by all parties involved in the custody, issue and use of the aforesaid keys.

Non-lift works inside lift shaft

- 12.3.4 There are occasions when workers or personnel other than Lift Workers, are required to perform works other than Lift Works inside the lift shaft, including removal of rubbish from lift pit, general cleaning and building-related repairing work.

- 12.3.5 It is strongly recommended that the contractor involved in the non-Lift Works should liaise with the Lift Contractor for a work plan. A risk assessment should be carried out and method statement for the work should be prepared. There should be sufficient co-ordination between the contractors and the Management Company concerned to ensure the safety of the personnel involved in the operation.

- 12.3.6 Non-Lift Works workers should only be allowed to work inside a lift shaft under the supervision of a lift worker. If a lift worker is not available to supervise the non-Lift Work inside the lift shaft, the following conditions should be satisfied:

- a) The lift has been locked out & tagged out at the main switch by a Lift Worker; and
- b) The other lift(s) in a common lift shaft has been suspended from operation or mechanically separated from contact by a Lift Worker when working on car top.

- c) The information of non-lift works inside lift shaft such as works area and content should be provided by Responsible Person for the Lift Contractor in order to allow Lift Workers to check prior to the lift operation.

12.3.7 The non-Lift Worker(s) should be equipped with all necessary PPEs as recommended.

12.3.8 Relevant safety measures such as safe means of access and egress, work-at-height protection and electrical safety measures as stipulated in other sections of this Volume should also be observed by the Responsible Person / contractors / parties concerned.

12.3.9 Safety training, including induction safety training should be provided by the responsible contractor to all non-Lift Works workers. Specific safety training should also be given as appropriate.

#### **12.4 Special Attention to be paid by Responsible Person**

12.4.1 To ensure safety of work at lift shaft and relevant workplace, Responsible Person shall properly manage the following: -

- a) Render proper protective guards for all machinery or equipment;
- b) Provide a safe route of access and egress to the lift machine room, machinery space, lift shaft and lift pit;
- c) Provide sufficient and suitable lighting, including emergency lighting, for entry into or working in the lift machine room and lift shaft;
- d) Provide a clear and clean working environment, for instance, lift machineroom and lift lobby are free of water;
- e) Remove water accumulated in lift shaft and lift pit;
- f) Provide adequate and sufficient ventilation of the lift machine room;



- g) Prevent unauthorized person from entering into the lift works environment;
- h) Provide adequate working area for lift major alteration works as far as possible (For example, lowest landing lobby area shall be allowed as working area for repair work inside lift pit.);
- i) Provide adequate storage area for some of the common items as far as possible (For example, portable barriers, ladder and warning signs could be stored on-site for easy retrieval whenever needed, as lift maintenance is a regular feature.);
- j) Ensure proper fall protection means in place when lift landings are opened for non-lift works, for example, portable barriers for routine maintenance and hoardings for lift major alteration works; and
- k) Liaise and coordinate with the Lift Contractor and Registered Contractor to provide a safe working environment.

**List of Relevant Existing Ordinance(s) / Regulation(s)/ Code(s) of Practice / Practice Notes**

**Ordinance / Regulation**

1. Construction Sites (Safety) Regulations, Chapter 59I
2. Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Chapter 59J
3. Factories and Industrial Undertakings (Suspended Working Platforms) Regulation, Chapter 59AC
4. Lifts and Escalators Ordinance, Chapter 618

**Labour Department**

1. Code of Practice for Safety at Work (Lift and Escalator)
2. Code of Practice for Safe Use and Operation of Suspended Working Platforms
3. Code of Practice for Bamboo Scaffolding Safety
4. Code of Practice for Metal Scaffolding Safety
5. Code of Practice for Safety and Health at Work for Gas Welding and Flame Cutting
6. Code of Practice for Safety and Health at Work for Manual Electric Arc Welding
7. Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems
8. Compliance Notes for Guided-SWP
9. Compliance Notes for Platform Lift
10. Compliance Notes for Lift-under-Repair
11. A Casebook of Fatal Accidents in Lift Installation, Maintenance and Repairing Work

**Buildings Department**

1. Code of Practice for the Design and Construction of Buildings and Building Works for the Installation and Safe Use of Lifts and Escalators 2011
2. Code of Practice for Fire Safety in Buildings 2011
3. PNAP APP-29 (formerly PNAP 84) "Lift and Escalator Installations"

**Electrical & Mechanical Services Department**

1. Code of Practice on the Design and Construction of Lifts and Escalators
2. Code of Practice for Lift Works and Escalator Works
3. Code of Practice for the Electricity (Wiring) Regulations 2009

## Annex B – Common Hazards and Recommended Safety Measures for Lift Maintenance Works, Main Rope Replacement and Lift Major Alteration Works

**(Remarks :** The purpose of this annex is to describe the common hazards encountered in lift maintenance works, main rope replacement and lift major alteration works and recommend safety preventive and protective measures associated with the common hazards for reference. Please note that these common hazards and the associated safety measures should not be deemed exhaustive and reference should also be made to the relevant sections of the main text of this Volume. It is highly recommended to consult relevant personnel such as a qualified and competent Registered Safety Officer prior to commencement of lift works.

### 1.0 Lift Maintenance Works

| Activities / Locations  | Common Hazards  | Safety Measures   | Action Parties                          | PPE  | Training   |
|---|---|---|---|--|--|
| <b>Maintenance Works in Lift Machine Room</b>                       |   |   |   |  |  |
| 1.1 Checking / inspection / cleansing / adjustment of control panel | Fall of person<br>- Unprotected raised floor<br>- Inadequate strength or insecure fencing<br>- Defective ladder / staircase<br>- Lack of proper access / working platform<br>- Slippery floor | - Inform and remind “Responsible Person” to rectify any unsafe conditions observed in lift machine room<br>- Fence off unprotected raised floor with barriers of adequate strength<br>- Provide and use a proper access / working platform<br>- Keep lift machine room in clean and tidy condition<br>- Remove waste and debris frequently<br>- Keep passageway free from obstruction | Competent Personnel<br>+<br>Lift Worker | Safety shoes                                       | Green card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
|   | Striking against object<br>- Improperly stack or store material / tools / equipment<br>- Inadequate lighting  | - Properly stack and store material / tools / equipment<br>- Remove waste and debris frequently<br>- Keep passageway free from obstruction<br>- Provide and maintain adequate lighting<br>- Protect sharp edges   | Competent Personnel<br>+<br>Lift Worker | Safety helmet with chin strap<br>+<br>Safety shoes |  |
|   | Falling object<br>- Defective concrete on ceiling / wall<br>- Improperly stack material<br>- Improperly handle material / tools   | - Check and inspect before entering into lift machine room<br>- Fence off the area where defective concrete observed with barrier<br>- Display warning notice<br>- Properly stack material<br>- Equip hand-held tool with hand strap  | Competent Personnel<br>+<br>Lift Worker | Safety helmet with chin strap                      |  |

|  |   |  |   |                       |  |
|--|---|--|---|-----------------------|--|
|  |   | - Provide suitable and adequate toe-boards   |   |                       |  |
|  | <p>Electrocution</p> <ul style="list-style-type: none"> <li>- Substandard / Defective electric distribution board</li> <li>- Use damaged electrical tools / equipment</li> <li>- Damaged electric wire / cable</li> <li>- Contact with live parts inside control panel</li> </ul> | <ul style="list-style-type: none"> <li>- Isolate electric power supply before work</li> <li>- Apply LOTO mechanism</li> <li>- Check and inspect electrical tools / equipment before use</li> <li>- Properly place electric wire / cable</li> <li>- Use water-proof type socket, plugs and couplers</li> <li>- Use electrical hand-held tools / equipment with double insulation</li> </ul> | Competent Personnel<br>+<br>Lift Worker | Insulated gloves      | Tool-box training on LOTO mechanism<br>+<br>Tool-box training on electrical safety |
|  | <p>Scald / burn</p> <ul style="list-style-type: none"> <li>- Contact with hot object</li> </ul>   | <ul style="list-style-type: none"> <li>- Display a notice illustrating the part / item which is hot inside control panel</li> </ul>  | Competent Personnel<br>+<br>Lift Worker | Heat resistant gloves |  |
|  | <p>Contact with moving parts / nip points</p> <ul style="list-style-type: none"> <li>- Lack of machine guarding</li> <li>- Guarding removed</li> </ul>  | <ul style="list-style-type: none"> <li>- Provide a suitable guarding for dangerous parts of machinery</li> <li>- Isolate power supply before work</li> <li>- Apply a padlock system</li> </ul>   | Competent Personnel<br>+<br>Lift Worker |                       | Tool-box training on machine guarding  |

| <b>Maintenance Works in Lift Shaft</b>  |   |  |   |  |   |
|---|---|--|---|--|---|
| 1.2<br>Checking / inspection /<br>cleansing / adjustment<br>/ lubricating of<br>machinery / selector on<br>car top /pit | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Lack of fencing on car top</li> <li>- Substandard fencing</li> <li>- Lack of anchorage point</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven car top</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <ul style="list-style-type: none"> <li>- Provide adequate strength guard-rail on car top</li> <li>- Check and ensure the guard-rail erected on car top is secure</li> <li>- Check and verify the control / safety switches before access to car top</li> <li>- Lock up the "Inspection" (INS) switch after it has been turned to inspection mode</li> <li>- Develop in-house safety rules and regulations for working on car top</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | Competent Personnel<br>+<br>Lift Worker | <p>Safety harness<br/>+<br/>Retractable<br/>safety device<br/>+<br/>Safety shoes</p> | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety<br/>training<br/>+<br/>Tool-box training in<br/>relation to in-house<br/>safety rules and<br/>regulations for working<br/>on car top</p> |
|   | <p>Contact with moving parts of<br/>machinery / nip points</p> <ul style="list-style-type: none"> <li>- Lack of machine guarding</li> <li>- Guarding removed</li> </ul>   | <ul style="list-style-type: none"> <li>- Provide a suitable guarding for dangerous parts of machinery</li> <li>- Isolate power supply before work</li> <li>- Apply a padlock system</li> <li>- Press "Emergency Stop" device</li> <li>- Activate "INS" mode</li> </ul>   | Competent Personnel<br>+<br>Lift Worker |  | <p>Tool-box training on<br/>machine guarding</p>  |
|   | <p>Striking against object</p> <ul style="list-style-type: none"> <li>- Improperly stack or store material / tools / equipment</li> <li>- Inadequate lighting</li> </ul>  | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Remove waste and debris frequently</li> <li>- Keep access / passageway free from obstruction</li> <li>- Provide and maintain adequate lighting</li> <li>- Protect sharp edges</li> </ul>   | Competent Personnel<br>+<br>Lift Worker | <p>Safety helmet<br/>with chin strap<br/>+<br/>Safety shoes</p>                      | <p>Tool-box training in<br/>relation to in-house<br/>safety rules and<br/>regulations for working<br/>on car top</p>  |
|   | <p>Falling object</p> <ul style="list-style-type: none"> <li>- Improperly stack material</li> <li>- Improperly handle material / tools</li> </ul>   | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Equip hand-held tool with hand strap</li> <li>- Provide suitable and adequate toe-boards</li> <li>- Apply permit-to-work system to control task carried out at</li> </ul>  | Competent Personnel<br>+<br>Lift Worker | <p>Safety helmet<br/>with chin strap</p>   |   |

|   |   |  |   |   |  |
|---|---|--|---|---|--|
|   | - Carry out task at multi-level   | multi-level  |   |   |  |
|   | <p>Dermatitis / eye injury</p> <ul style="list-style-type: none"> <li>- Contact with chemical substances (e.g. lubricant)</li> </ul>  | <ul style="list-style-type: none"> <li>- Conduct a survey to identify chemical substances to be used</li> <li>- Identify the health risk and the associated precautions with relevant material safety data sheet</li> <li>- Properly store containers holding chemical substances</li> </ul>   | Competent Personnel<br>+<br>Lift Worker | Chemical resistant gloves<br>+<br>Goggles                             |  |
| 1.3 Cleansing and adjustment of landing doors / landing sills | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Lack of fall protection</li> <li>- Lack of anchorage point</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <ul style="list-style-type: none"> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the "INS" switch after it has been turned to inspection mode</li> <li>- Attach / fix lanyard on a designated anchorage point</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | Competent Personnel<br>+<br>Lift Worker | Safety harness<br>+<br>Retractable safety device<br>+<br>Safety shoes | Green card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
|   | <p>Striking against object</p> <ul style="list-style-type: none"> <li>- Improperly stack or store material / tools / equipment</li> <li>- Inadequate lighting</li> </ul>  | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Remove waste and debris frequently</li> <li>- Keep access / passageway free from obstruction</li> <li>- Provide and maintain adequate lighting</li> <li>- Protect sharp edges</li> </ul>   | Competent Personnel<br>+<br>Lift Worker | Safety helmet with chin strap<br>+<br>Safety shoes                    |  |

## 2.0 Main Rope Replacement (1:1 Roping – Mid Rise)

(Remarks : It is highly recommended to well plan and take appropriate preparation works prior to commencement of rope replacement including:

- Check tool and PPE;
- Determine the position to secure lift car and counterweight;
- Well consider and adopt suitable fall protection before allowing workers accessing to and egressing from counterweight;
- Provide adequate and suitable fire-fighting equipment on spot; and
- Check to ensure lifting appliances and lifting gear are in good working order and held with valid statutory certificates.)

| Activities / Locations                        | Common Hazards   | Safety Measures   | Action Parties                          | PPE   | Training   |
|---|--|---|---|---|--|
| 2.1 Positioning of lift car and counterweight | Fall of person <ul style="list-style-type: none"> <li>- Lack of fall protection</li> <li>- Lack of anchorage point</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <ul style="list-style-type: none"> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the “INS” switch after it has been turned to inspection mode</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | Competent Personnel<br>+<br>Lift Worker | Safety harness<br>+<br>Retractable safety device<br>+<br>Safety shoes | Green card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
|   | Falling object <ul style="list-style-type: none"> <li>- Improperly stack material</li> <li>- Improperly handle material / tools</li> <li>- Carry out task at multi-level</li> </ul>  | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Equip hand-held tool with hand strap</li> <li>- Provide suitable and adequate toe-boards</li> <li>- Apply permit-to-work system to control task carried out at multi-level</li> <li>- Well study and understand the procedures recommended by the manufacturer of the lift to replace main rope</li> <li>- Strictly follow the procedures to replace main rope</li> </ul>       | Competent Personnel<br>+<br>Lift Worker | Safety helmet with chin strap   | Tool-box training on replacement of main rope  |
|   | Back injury <ul style="list-style-type: none"> <li>- Lack of / insufficient mechanical aids</li> <li>- Improper posture</li> </ul>   | <ul style="list-style-type: none"> <li>- Carry out manual handling assessment by a competent personnel</li> <li>- Provide mechanical aids to assist in moving material and equipment</li> </ul>   | Competent Personnel<br>+<br>Lift Worker |   | Tool-box training on manual handling   |

|   |   |  |   |   |  |
|---|---|--|---|---|--|
|   |   | <ul style="list-style-type: none"> <li>- Adopt correct posture to handle material and equipment</li> <li>- Supervise manual handling activity by a competent personnel</li> </ul>  |   |   |  |
| 2.2 Hoist up and secure lift car to release the tension of the rope | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Lack of fall protection</li> <li>- Lack of anchorage point</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <ul style="list-style-type: none"> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the "INS" switch after it has been turned to inspection mode</li> <li>- Press "Emergency Stop" device</li> <li>- Turn off and apply LOTO mechanism to the main switch</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul>   | Competent Personnel<br>+<br>Lift Worker | Safety harness<br>+<br>Retractable safety device<br>+<br>Safety shoes | Green card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
|   | <p>Failure of lifting appliances or lifting gear</p> <ul style="list-style-type: none"> <li>- Overloading</li> <li>- Not conform to the method statement</li> <li>- Normal or abnormal wear and tear</li> <li>- Slipping/displacement of load</li> </ul>                  | <ul style="list-style-type: none"> <li>- Well consider and estimate the loads to be applied</li> <li>- Prepare a method statement by a qualified and experienced Engineer</li> <li>- Communicate the method statement to the parties concerned</li> <li>- Select, provide and use suitable lifting appliances and lifting gear</li> <li>- Strictly follow the method statement to install the lifting appliances and lifting gear</li> <li>- Thoroughly examine and test the installed lifting appliances and lifting gear</li> <li>- Regularly check and inspect the lifting appliances and lifting gear</li> <li>- Verify statutory certificates are valid</li> <li>- Display statutory certificates of lifting appliances and lifting gear</li> <li>- Safely secure the load</li> </ul> | Engineer<br>+<br>Lift Worker            |   | Tool-box training on replacement of main rope  |



|   |  |  |                                   |   |  |
|---|--|--|-----------------------------------|---|--|
| 2.3 Cut and remove existing rope on car top / counterweight | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Lack of proper access / egress</li> <li>- Lack of fall protection</li> <li>- Lack of anchorage point</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul>  | <ul style="list-style-type: none"> <li>- Provide safe access and egress</li> <li>- Provide suitable and adequate guard-rails and toe-boards</li> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the "INS" switch after it has been turned to inspection mode</li> <li>- Press "Emergency Stop" device</li> <li>- Turn off and apply LOTO mechanism to the main switch</li> <li>- Securely and adequately support the counterweight and lift</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | Competent Personnel + Lift Worker | Safety harness + Retractable safety device + Safety shoes | Green card training + Induction safety training + Trade specific safety training |
|   | <p>Falling object</p> <ul style="list-style-type: none"> <li>- Improperly stack material</li> <li>- Improperly handle material / tools</li> <li>- Fall of disconnected or dismantled ropes</li> <li>- Carry out task at multi-level</li> <li>- Existing rope not firmly and securely fixed</li> <li>- Detachment of lift car</li> <li>- Strike or trap by a lift car while working in a common lift shaft</li> </ul> | <ul style="list-style-type: none"> <li>- Well study and understand the procedures recommended by the manufacturer of the lift to replace main rope</li> <li>- Strictly follow the procedures to replace main rope</li> <li>- Select appropriate type of rope connection method</li> <li>- Properly deliver old ropes down to the ground</li> <li>- Collect and place the existing rope at landing</li> <li>- Properly and securely fix the existing rope</li> <li>- Properly stack and store material / tools / equipment</li> <li>- Equip hand-held tool with hand strap</li> <li>- Provide suitable and adequate toe-boards</li> <li>- Apply permit-to-work system to control task carried out at multi-level</li> </ul>   |                                   | Safety helmet with chin strap                             |  |
|   | Trapping Hazards   | <ul style="list-style-type: none"> <li>- Provide barriers at the bottom of lift pit (for common lift shaft)</li> <li>- Make reference to the requirements stipulated in the paragraph 9.4</li> </ul>   |                                   |   |  |
|   | Fire (related to hot work involving babbitt type socket)   | <ul style="list-style-type: none"> <li>- Refer to paragraph 8.7 in respect of the precautions to</li> </ul>  | Competent                         | Heat resistant  | Tool-box training on fire  |

|  |   |  |  |  |   |
|--|---|--|--|--|---|
|  | <ul style="list-style-type: none"> <li>- Use of flammable substances</li> </ul>   | <p>prevent fire hazards</p> <ul style="list-style-type: none"> <li>- Develop and implement hot-work-permit system</li> <li>- Provide and maintain adequate fire fighting facilities on the site</li> <li>- Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out</li> <li>- Place suitable protective screens of the retardant nature at the work spot</li> <li>- Check to ensure fire doors should be kept close</li> <li>- Do not use flammable substances nearby and properly store flammable substances</li> <li>- Provide suitable and sufficient ventilation</li> </ul>  | <p>Personnel<br/>+<br/>Lift Worker</p>           | <p>gloves<br/>+<br/>Eye and face protector</p>                                   | <p>prevention and fighting</p>  |
|  | <p>Back injury</p> <ul style="list-style-type: none"> <li>- Lack of / insufficient mechanical aids</li> <li>- Improper posture</li> </ul>   | <ul style="list-style-type: none"> <li>- Carry out manual handling assessment by a competent personnel</li> <li>- Provide mechanical aids to assist in moving material and equipment</li> <li>- Adopt correct posture to handle material and equipment</li> <li>- Supervise manual handling activity by a competent personnel</li> </ul>   | <p>Competent Personnel<br/>+<br/>Lift Worker</p> |  | <p>Tool-box training on manual handling</p>   |
| <p>2.4 Fix new rope on car top / counterweight</p> | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Lack of proper access / egress</li> <li>- Lack of fall protection</li> <li>- Lack of anchorage point</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <ul style="list-style-type: none"> <li>- Provide safe access and egress</li> <li>- Provide suitable and adequate guard-rails and toe-boards</li> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the "INS" switch after it has been turned to inspection mode</li> <li>- Press "Emergency Stop" device</li> <li>- Turn off and apply LOTO mechanism to the main switch</li> <li>- Securely and adequately support the counterweight and lift</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | <p>Competent Personnel<br/>+<br/>Lift Worker</p> | <p>Safety harness<br/>+<br/>Retractable safety device<br/>+<br/>Safety shoes</p> | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety training</p> |

|                                    |  |   |   |  |  |
|------------------------------------|--|---|---|--|--|
|                                    | Falling object   | <ul style="list-style-type: none"> <li>- Well study and understand the procedures recommended by the manufacturer of the lift to replace main rope</li> <li>- Strictly follow the procedures to replace main rope</li> <li>- Select appropriate type of rope connection method</li> <li>- Collect and place the existing rope at landing</li> <li>- Properly and securely fix the existing rope</li> <li>- Properly stack and store material / tools / equipment</li> <li>- Equip hand-held tool with hand strap</li> <li>- Provide suitable and adequate toe-boards</li> <li>- Apply permit-to-work system to control task carried out at multi-level</li> <li>- Keep clear of the lift pit</li> <li>- Make reference to the requirements stipulated in the paragraph 9.4</li> </ul> | Competent Personnel<br>+<br>Lift Worker | Safety helmet with chin strap  | Tool box training on rope replacement procedure            |
|                                    | Fire (related to hot work involving babbitt type socket) | <ul style="list-style-type: none"> <li>- Refer to paragraph 8.7 in respect of the precautions to prevent fire hazards</li> <li>- Develop and implement hot-work-permit system</li> <li>- Provide and maintain adequate fire fighting facilities on the site</li> <li>- Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out</li> <li>- Place suitable protective screens of the retardant nature at the work spot</li> <li>- Check to ensure fire doors should be kept close</li> <li>- Do not use flammable substance nearby and properly store flammable substances</li> <li>- Provide suitable and sufficient ventilation</li> </ul>  | Competent Personnel<br>+<br>Lift Worker | Heat resistant gloves<br>+<br>Eye and face protector<br>+<br>Protective clothing | Tool-box training on fire prevention and fighting          |
| 2.5 Resume lift to normal services | Fall of person   | <ul style="list-style-type: none"> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the INS switch after it has been turned to inspection</li> </ul>   | Competent Personnel<br>+<br>Lift Worker | Safety harness<br>+<br>Retractable safety device                                 | Green card training<br>+<br>Induction safety training<br>+ |

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|  | <ul style="list-style-type: none"> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <p>mode</p> <ul style="list-style-type: none"> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> |  | <p>+<br/>Safety shoes</p> | <p>Trade specific safety training</p> |
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### 3.0 Lift Major Alteration Works

(Remarks : Registered contractor and lift contractor shall ensure no alteration to the existing fire safety measures unless prior acceptance / approval is obtained from the Building Authority. If it is unavoidable that carrying out lift alteration works would necessitate alteration of existing fire safety measures, you shall seek and consult an Authorized Person (AP) and full compliance with the requirements stipulated in the FS Code.)

| Activities / Locations                       | Common Hazards   | Safety Measures   | Action Parties   | PPE | Training   |
|--|--|---|--|-----|--|
| <b>Lift Demolition</b>                       |  |   |  |     |  |
| 3.1 Project planning, management and control | <p>Safety and Health Risk and Potential Hazards may not be properly addressed due to underestimate of the project complexity</p> <ul style="list-style-type: none"> <li>- Project management and supervisory staff awareness and emphasis on safety and health may not be sufficient</li> <li>- Risk assessment or impact and aspect analysis may not be properly carried out and written down</li> <li>- Safety and health measures may not be properly implemented on a construction site</li> <li>- Implementation of safety and health measures may not be properly monitored</li> </ul> | <ul style="list-style-type: none"> <li>- Develop and endorse a policy to state safety and health commitments and objectives</li> <li>- Establish a steering committee to review and monitor safety and health performance and give advices to keep continuous improvement</li> <li>- Formulate a working group with project management and supervisory staff as well as safety personnel to conduct a comprehensive risk assessment with associated safety preventive and protective measures</li> <li>- Compile a method statement to describe the work procedure and safety measures required in accordance with the risk assessment</li> <li>- Carry out regularly site safety inspection to monitor safety preventive and protective measures are in place</li> <li>- Engage a Registered Safety Auditor to conduct safety and health management audit</li> </ul> | <p>Project Manager<br/>+<br/>Construction Manager<br/>+<br/>Front-line supervisory staff<br/>+<br/>Registered Safety Officer (where necessary)<br/>+<br/>Registered Safety Auditor (where necessary)</p> |     | <p>Modern Safety Management<br/>+<br/>Risk Assessment and Hazard Identification<br/>+<br/>Safety Supervisor<br/>+<br/>Basic Accident Prevention and Investigation<br/>+<br/>Safe Working Cycle<br/>+<br/>Fire Prevention and Fire Fighting<br/>+<br/>Working at Height Safety<br/>+<br/>Occupational Safety and Health Trainer<br/>+<br/>Safety Workshop / Seminar - Guidelines on Safety of Lift Shaft Works (Volume 3)</p> |

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| 3.2 Dismantle landing fixtures, guide rails, equipment and the associated accessories inside lift shaft | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Lack of fall protection</li> <li>- Lack of anchorage point</li> <li>- Lack of proper access / working platform</li> <li>- Inadequate strength or insecure fencing</li> <li>- Sudden movement of lift car</li> <li>- Slippery / uneven floor</li> <li>- Inadequate lighting</li> <li>- Improper posture</li> </ul> | <ul style="list-style-type: none"> <li>- Provide and use a proper access / working platform</li> <li>- Provide fencing of adequate strength</li> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the "INS" switch after it has been turned to inspection mode</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> | <p>Safety harness<br/>+<br/>Retractable safety device<br/>+<br/>Safety shoes</p> | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety training</p> |
|   | <p>Falling object</p> <ul style="list-style-type: none"> <li>- Improperly stack material</li> <li>- Improperly handle material / tools</li> <li>- Carry out task at multi-level</li> </ul>   | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Equip hand-held tool with hand strap</li> <li>- Provide suitable and adequate toe-boards</li> <li>- Apply permit-to-work system to control task carried out at multi-level</li> </ul>   | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> | <p>Safety helmet with chin strap</p>   | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety training</p> |
|   | <p>Striking against object</p> <ul style="list-style-type: none"> <li>- Improperly stack or store material / tools / equipment</li> <li>- Inadequate lighting</li> </ul>   | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Remove waste and debris frequently</li> <li>- Keep passageway free from obstruction</li> <li>- Provide and maintain adequate lighting</li> <li>- Protect sharp edges</li> </ul>   | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> | <p>Safety helmet with chin strap<br/>+<br/>Safety shoes</p>                      | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety training</p> |
|   | <p>Failure of lifting appliances or lifting gear</p> <ul style="list-style-type: none"> <li>- Overloading</li> <li>- Not conform to the method statement</li> </ul>  | <ul style="list-style-type: none"> <li>- Well consider and estimate the loads to be applied</li> <li>- Prepare written documentation by a qualified and experienced Engineer to define the rigging methods applied to each material and equipment to be hoisted and the step-by-step procedures for the entire lifting operation</li> </ul>   | <p>Engineer<br/>+<br/>Foreman<br/>+<br/>Lifting Worker</p>                                     |  | <p>Training on lifting operation</p>  |

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| <ul style="list-style-type: none"> <li>- Normal or abnormal wear and tear</li> <li>- Slipping / displacement of load</li> </ul>   | <ul style="list-style-type: none"> <li>- Communicate the method statement to the parties concerned</li> <li>- Select, provide and use suitable lifting appliances and lifting gear</li> <li>- Strictly follow the method statement to install the lifting appliances and lifting gear</li> <li>- Thoroughly examine and test the installed lifting appliances and lifting gear</li> <li>- Regularly check and inspect the lifting appliances and lifting gear</li> <li>- Verify statutory certificates are valid</li> <li>- Display statutory certificates of lifting appliances and lifting gear</li> <li>- Safely secure the load</li> <li>- Supervise the lifting operation</li> </ul>  |  |  |  |
| <p>Fire hazard to occupant / user / worker</p> <ul style="list-style-type: none"> <li>- Flame cutting</li> <li>- Smoking</li> <li>- Use of flammable substances</li> <li>- Dismantling activities jeopardized the existing fire safety measures stipulated in Occupation Permit (OP)</li> </ul> | <ul style="list-style-type: none"> <li>- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures stipulated in Occupation Permit (OP)</li> <li>- Check and ensure that fire doors and fire separation are maintained in good working order</li> <li>- Provide training to enhance fire safety awareness of workers</li> <li>- Refer to paragraph 8.7 in respect of the precautions to prevent fire hazards</li> <li>- Develop and implement hot-work-permit system</li> <li>- Provide and maintain adequate fire fighting facilities on the site</li> <li>- Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out</li> <li>- Place suitable protective screens of the retardant nature at the work spot</li> <li>- Check to ensure fire doors should be kept close</li> <li>- Properly store flammable substances</li> <li>- Develop and implement "No Smoking" policy</li> <li>- Display "No Smoking" sign</li> </ul> | <p>Construction Manager<br/>+<br/>Foeman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> |  | <p>Tool-box training on fire prevention and fire fighting as well as fire safety measures (including features and provisions required or specified under OP)</p> |

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| 3.3 Dismantle car cage, counterweight and equipment installed at lift pit inside lift shaft | Fall of person | <ul style="list-style-type: none"> <li>- Provide and use a proper access / working platform</li> <li>- Provide fencing of adequate strength</li> <li>- Provide and use retractable safety device</li> <li>- Erect barrier at lift shaft opening</li> <li>- Check and verify the control / safety switches before work</li> <li>- Lock up the "INS" switch after it has been turned to inspection mode</li> <li>- Attach / fix lanyard on a designated anchorage point or an independent lifeline</li> <li>- Provide and maintain adequate lighting</li> <li>- Avoid improper posture at work</li> </ul> | Foreman<br>+<br>Safety Supervisor<br>+<br>Competent Personnel<br>+<br>Lift Worker | Safety harness<br>+<br>Retractable safety device<br>+<br>Safety shoes | Green card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
|   | Falling object | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Equip hand-held tool with hand strap</li> <li>- Provide suitable and adequate toe-boards</li> <li>- Apply permit-to-work system to control task carried out at multi-level</li> </ul>   | Foreman<br>+<br>Safety Supervisor<br>+<br>Competent Personnel<br>+<br>Lift Worker | Safety helmet with chin strap<br>+<br>Safety shoes                    | Green card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |



|  |  |  |  |                                      |
|--|--|--|--|--------------------------------------|
| <p>Failure of lifting appliances or lifting gear</p> <ul style="list-style-type: none"> <li>- Overloading</li> <li>- Not conform to the method statement</li> <li>- Normal or abnormal wear and tear</li> <li>- Slipping/displacement of load</li> </ul> | <ul style="list-style-type: none"> <li>- Well consider and estimate the loads to be applied</li> <li>- Prepare written documentation by a qualified and experienced Engineer to define the rigging methods applied to each material and equipment to be hoisted and the step-by-step procedures for the entire lifting operation</li> <li>- Communicate the method statement to the parties concerned</li> <li>- Select, provide and use suitable lifting appliances and lifting gear</li> <li>- Strictly follow the method statement to install the lifting appliances and lifting gear</li> <li>- Thoroughly examine and test the installed lifting appliances and lifting gear</li> <li>- Regularly check and inspect the lifting appliances and lifting gear</li> <li>- Verify statutory certificates are valid</li> <li>- Display statutory certificates of lifting appliances and lifting gear</li> <li>- Safely secure the load</li> <li>- Supervise the lifting operation</li> </ul> | <p>Engineer<br/>+<br/>Foreman<br/>+<br/>Lifting Worker</p> |  | <p>Training on lifting operation</p> |
|--|--|--|--|--------------------------------------|

|  |   |  |  |   |  |
|--|---|--|--|---|--|
|  | <p>Fire hazard to occupant / user / worker</p> <ul style="list-style-type: none"> <li>- Flame cutting</li> <li>- Smoking</li> <li>- Use of flammable substances</li> <li>- Dismantling activities jeopardized the existing fire safety measures stipulated in Occupation Permit (OP)</li> </ul> | <ul style="list-style-type: none"> <li>- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures stipulated in Occupation Permit (OP)</li> <li>- Check and ensure that fire doors and fire separation are maintained in good working order</li> <li>- Provide training to enhance fire safety awareness of workers</li> <li>- Refer to paragraph 8.7 in respect of the precautions to prevent fire hazards</li> <li>- Develop and implement hot-work-permit system</li> <li>- Provide and maintain adequate fire fighting facilities on the site</li> <li>- Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out</li> <li>- Place suitable protective screens of the retardant nature at the work spot</li> <li>- Check to ensure fire doors should be kept close</li> <li>- Properly store flammable substances</li> <li>- Develop and implement "No Smoking" policy</li> <li>- Display "No Smoking" sign</li> </ul> | <p>Construction Manager<br/>+<br/>Foeman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> |   | <p>Tool-box training on fire prevention and fire fighting as well as fire safety measures (including features and provisions required or specified under OP)</p> |
|  | <p>Striking against object</p> <ul style="list-style-type: none"> <li>- Improperly stack or store material / tools / equipment</li> <li>- Inadequate lighting</li> </ul>  | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Remove waste and debris frequently</li> <li>- Keep passageway free from obstruction</li> <li>- Provide and maintain adequate lighting</li> <li>- Protect sharp edges</li> </ul>  | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p>                               | <p>Safety helmet with chin strap<br/>+<br/>Safety shoes</p>     | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety training</p>  |
| <p>3.4 Dismantle controller, traction machine, suspension ropes inside lift machine room</p> | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Unprotected raised floor</li> <li>- Inadequate strength or insecure fencing</li> <li>- Defective ladder / staircase</li> </ul>   | <ul style="list-style-type: none"> <li>- Fence off unprotected raised floor with barriers of adequate strength</li> <li>- Provide and use a proper access / working platform</li> <li>- Keep lift machine room in clean and tidy condition</li> <li>- Remove waste and debris frequently</li> </ul>  | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel</p>   | <p>Safety harness<br/>+<br/>Retractable safety device<br/>+</p> | <p>Green card training<br/>+<br/>Induction safety training<br/>+</p>   |

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|--|---|--|---|---|---|
|  | <ul style="list-style-type: none"> <li>- Lack of proper access / working platform</li> <li>- Slippery floor</li> </ul>  | <ul style="list-style-type: none"> <li>- Keep passageway free from obstruction</li> </ul>  | <p style="text-align: center;">+<br/>Lift Worker</p>  | <p style="text-align: center;">Safety shoes</p>     | <p style="text-align: center;">Trade specific safety training</p>   |
|  | <p>Failure of lifting appliances or lifting gear</p> <ul style="list-style-type: none"> <li>- Overloading</li> <li>- Not conform to the method statement</li> <li>- Normal or abnormal wear and tear</li> <li>- Slipping/displacement of load</li> </ul>                          | <ul style="list-style-type: none"> <li>- Well consider and estimate the loads to be applied</li> <li>- Prepare written documentation by a qualified and experienced Engineer to define the rigging methods applied to each material and equipment to be hoisted and the step-by-step procedures for the entire lifting operation</li> <li>- Communicate the method statement to the parties concerned</li> <li>- Select, provide and use suitable lifting appliances and lifting gear</li> <li>- Strictly follow the method statement to install the lifting appliances and lifting gear</li> <li>- Thoroughly examine and test the installed lifting appliances and lifting gear</li> <li>- Regularly check and inspect the lifting appliances and lifting gear</li> <li>- Verify statutory certificates are valid</li> <li>- Display statutory certificates of lifting appliances and lifting gear</li> <li>- Safely secure the load</li> <li>- Supervise the lifting operation</li> </ul> | <p style="text-align: center;">Engineer<br/>+<br/>Foreman<br/>+<br/>Lifting Worker</p>                            |   | <p style="text-align: center;">Training on lifting operation</p>  |
|  | <p>Electrocution</p> <ul style="list-style-type: none"> <li>- Substandard / Defective electric distribution board</li> <li>- Use damaged electrical tools / equipment</li> <li>- Damaged electric wire / cable</li> <li>- Contact with live parts inside control panel</li> </ul> | <ul style="list-style-type: none"> <li>- Isolate electric power supply before work</li> <li>- Apply LOTO mechanism</li> <li>- Check and inspect electrical tools / equipment before use</li> <li>- Properly place electric wire / cable</li> <li>- Use water-proof type socket, plugs and couplers</li> <li>- Use insulated hand-held tools / equipment with double insulation</li> </ul>  | <p style="text-align: center;">Licensed Electrical Worker<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> | <p style="text-align: center;">Insulated gloves</p> | <p style="text-align: center;">Tool-box talk on LOTO mechanism<br/>+<br/>Tool-box training on electrical safety</p> |

|  |   |  |  |   |  |
|--|---|--|--|---|--|
|  | <p>Fire hazard to occupant / user / worker</p> <ul style="list-style-type: none"> <li>- Flame cutting</li> <li>- Smoking</li> <li>- Use of flammable substances</li> <li>- Dismantling activities jeopardized the existing fire safety measures stipulated in Occupation Permit (OP)</li> </ul> | <ul style="list-style-type: none"> <li>- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures stipulated in Occupation Permit (OP)</li> <li>- Check and ensure that fire doors and fire separation are maintained in good working order</li> <li>- Provide training to enhance fire safety awareness of workers</li> <li>- Refer to paragraph 8.7 in respect of the precautions to prevent fire hazards</li> <li>- Develop and implement hot-work-permit system</li> <li>- Provide and maintain adequate fire fighting facilities on the site</li> <li>- Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out</li> <li>- Place suitable protective screens of the retardant nature at the work spot</li> <li>- Check to ensure fire doors should be kept close</li> <li>- Properly store flammable substances</li> <li>- Develop and implement "No Smoking" policy</li> <li>- Display "No Smoking" sign</li> </ul> | <p>Construction Manager<br/>+<br/>Foeman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p> |   | <p>Tool-box training on fire prevention and fire fighting as well as fire safety measures (including features and provisions required or specified under OP)</p> |
|  | <p>Striking against object</p> <ul style="list-style-type: none"> <li>- Improperly stack or store material / tools / equipment</li> <li>- Inadequate lighting</li> </ul>  | <ul style="list-style-type: none"> <li>- Properly stack and store material / tools / equipment</li> <li>- Remove waste and debris frequently</li> <li>- Keep passageway free from obstruction</li> <li>- Provide and maintain adequate lighting</li> <li>- Protect sharp edges</li> </ul>  | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel<br/>+<br/>Lift Worker</p>                               | <p>Safety helmet with chin strap<br/>+<br/>Safety shoes</p>     | <p>Green card training<br/>+<br/>Induction safety training<br/>+<br/>Trade specific safety training</p>  |
| <p>3.5 Remove dismantled material, machinery and equipment</p> | <p>Fall of person</p> <ul style="list-style-type: none"> <li>- Unprotected raised floor</li> <li>- Inadequate strength or insecure fencing</li> <li>- Defective ladder / staircase</li> </ul>   | <ul style="list-style-type: none"> <li>- Fence off unprotected raised floor with barriers of adequate strength</li> <li>- Provide and use a proper access / working platform</li> <li>- Keep lift machine room in clean and tidy condition</li> <li>- Remove waste and debris frequently</li> </ul>  | <p>Foreman<br/>+<br/>Safety Supervisor<br/>+<br/>Competent Personnel</p>   | <p>Safety harness<br/>+<br/>Retractable safety device<br/>+</p> | <p>Green card training<br/>+<br/>Induction safety training<br/>+</p>   |

|  |   |  |   |              |  |
|--|---|--|---|--------------|--|
|  | <ul style="list-style-type: none"> <li>- Lack of proper access / working platform</li> <li>- Slippery floor</li> </ul>  | <ul style="list-style-type: none"> <li>- Keep passageway free from obstruction</li> </ul>  | <ul style="list-style-type: none"> <li>+ Lift Worker</li> </ul>   | Safety shoes | Trade specific safety training   |
|  | <p>Fire hazard to occupant / user / worker</p> <ul style="list-style-type: none"> <li>- Flame cutting</li> <li>- Smoking</li> <li>- Use of flammable substances</li> <li>- Dismantling activities jeopardized the existing fire safety measures stipulated in Occupation Permit (OP)</li> </ul> | <ul style="list-style-type: none"> <li>- Caution should be taken such that dismantling activities would not jeopardize the existing fire safety measures stipulated in Occupation Permit (OP)</li> <li>- Check and ensure that fire doors and fire separation are maintained in good working order</li> <li>- Provide training to enhance fire safety awareness of workers</li> <li>- Refer to paragraph 8.7 in respect of the precautions to prevent fire hazards</li> <li>- Develop and implement hot-work-permit system</li> <li>- Provide and maintain adequate fire fighting facilities on the site</li> <li>- Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out</li> <li>- Place suitable protective screens of the retardant nature at the work spot</li> <li>- Check to ensure fire doors should be kept close</li> <li>- Properly store flammable substances</li> <li>- Develop and implement “No Smoking” policy</li> <li>- Display “No Smoking” sign</li> </ul> | <ul style="list-style-type: none"> <li>Construction Manager</li> <li>+ Foeman</li> <li>+ Safety Supervisor</li> <li>+ Competent Personnel</li> <li>+ Lift Worker</li> </ul> |              | <p>Tool-box training on fire prevention and fire fighting as well as fire safety measures (including features and provisions required or specified under OP)</p> |
|  | <p>Back injury</p> <ul style="list-style-type: none"> <li>- Lack of / insufficient mechanical aids</li> <li>- Improper posture</li> </ul>   | <ul style="list-style-type: none"> <li>- Carry out manual handling assessment by a competent personnel</li> <li>- Provide mechanical aids to assist in moving material and equipment</li> <li>- Adopt correct posture to handle material and equipment</li> <li>- Supervise manual handling activity by a competent personnel</li> </ul>   | <ul style="list-style-type: none"> <li>Competent Personnel</li> <li>+ Safety Supervisor</li> <li>+ Foreman</li> <li>+ Lift Worker</li> </ul>                                |              | <p>Tool-box training on manual handling</p>  |

## Feedback Form

### [Guidelines on Safety of Lift Shaft Works (Volume 3 – Throughout the Occupation Stage of Building)]

Thanks for reading this publication. To pursue improvement in our future versions, we appreciate your valuable suggestions.

(Please check the appropriate box " " . )

|   |                          |                          |                          |                          |                          |
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| <b>1. As a whole, I feel that the publication is:</b>   | Strongly Agree           | Agree                    | Neutral                  | Disagree                 | Strongly Disagree        |
| <b>Informative</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Comprehensive</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Useful</b>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Practical</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>2. Does the publication enable you to understand more about the Safety of Lift Shaft Works?</b>  | Yes                      |                          | No                       |                          | No Comment               |
|   | <input type="checkbox"/> |                          | <input type="checkbox"/> |                          | <input type="checkbox"/> |
| <b>3. Have you made reference to the publication in your work?</b>                                  | Quite Often              |                          | Sometimes                |                          | Never                    |
|   | <input type="checkbox"/> |                          | <input type="checkbox"/> |                          | <input type="checkbox"/> |
| <b>4. To what extent have you incorporated the recommendations of the publication in your work?</b> | Most                     |                          | Some                     |                          | None                     |
|   | <input type="checkbox"/> |                          | <input type="checkbox"/> |                          | <input type="checkbox"/> |
| <b>5. Overall, how would you rate our publication?</b>  | Excellent                | Very Good                | Satisfactory             | Fair                     | Poor                     |
|   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
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^ Circle the appropriate option.

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