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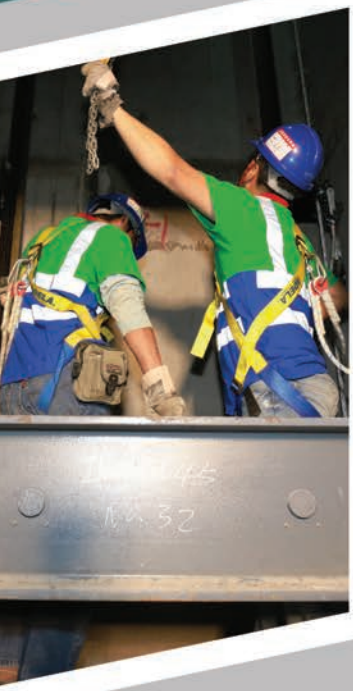

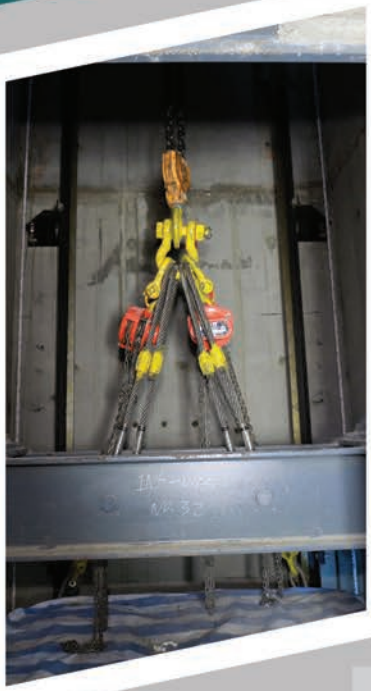


# GUIDELINES ON SAFETY OF LIFT SHAFT WORKS

## VOLUME 4 – Builders' Lift within Lift Shaft

www.cic.hk

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## 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:

| | |
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| 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:

| | |
|---|---|
| CCTV | Closed Circuit Television |
| CIC | Construction Industry Council |
| CWT | Counterweight |
| EMSD | Electrical and Mechanical Services Department |
| LALG | Lifting Appliances and Lifting Gear |
| LD | Labour Department |
| OSHC | Occupational Safety and Health Council |
| PPE | Personal Protective Equipment |
| RPE | Registered Professional Engineer |
| RSE | Registered Structural Engineer |
| RSO | Registered Safety Officer |

## Guidelines on Safety of Lift Shaft Works (Volume 4 – Builders' Lift within Lift Shaft)

# 1. Purpose

1.1 This publication (Volume 4) sets out the good practices recommended by the Construction Industry Council (CIC) for enhancing work safety of site personnel working near or inside Builders' Lift (within lift shaft) for construction work at a construction site. The Builders' Lift is mainly intended for the conveyance of builders and materials to different landings.

Four volumes of publications covering various stages on safety of lift shaft works are published by the CIC 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

Volume 4 – Builders' Lift within Lift Shaft

## 2. Definitions

2.1 In this publication, unless the context otherwise specifies –

| | | |
|---|---|---|
| (a) | **Authorized Person (AP)** | 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. |
| (b) | **Builders' Lift** | means a lift that is used for vertical transportation within a lift shaft at a construction site for this Guideline only. |
| (c) | **Builders' Lift Work** | means any kind of work, not being construction work, connected with the installation, commissioning, testing, inspection, maintenance, repair, alteration, demolition and conversion of a Builders' Lift or any machinery or equipment provided in or connected with a Builders' Lift, and includes the supervision and certification of that work and the certification of design of that installation. |
| (d) | **Competent Lift Worker (same as the definition of Cap 470 (i.e. Competent Worker))** | means any frontline tradesman who performs Builders' Lift Work under the employment of Registered Contractor as defined under the Builders' Lifts and Tower Working Platform (Safety) Ordinance, Cap 470. |
| (e) | **Competent Operator** | means a person who has undergone basic training on the general construction and operating principles of a Builders' Lift. |
| (f) | **Contractor** | means any person or firm engaged in carrying out construction work by way of trade or business, either on his own account or pursuant to a contract or arrangement entered into with another person, including the private sector, the Government of the Hong Kong Special Administrative Region or any public body. |
| (g) | **Hoisting Rope** | means a wire rope used for lifting and lowering a load. |

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| (h) | **Lift Contractor (same as the definition of Cap 470 (i.e. Registered Contractor))** | means a contractor registered under the Builders' Lifts and Tower Working Platform (Safety) Ordinance, Cap 470. (i.e. Registered Contractor) and being appointed to carry out the Builders' Lift Work on site. The Registered Contractor shall engage Competent Workers to undertake Builders' Lift Work and shall ensure that all the works are carried out in accordance with the requirements of the Builders' Lifts and Tower Working Platform (Safety) Ordinance, Cap 470. |
| (i) | **Lift Worker** | means any frontline tradesman who performs all types of lift works under the supervision of a "Competent Lift Worker" as defined in (e) above. |
| (j) | **Main Contractor** | means a contractor who sub-contracts the lift installation works to or enters into a sub-contract with a Lift Contractor to carry out the lift installation works; this includes the prescribed registered contractor appointed for the project under the Buildings Ordinance. A Main Contractor may also engage other subcontractors to provide temporary works and installation appliances to facilitate the lift installation works. A Main Contractor is usually the Owner of the Builders' Lift as defined under Section 2.1(j). |
| (k) | **Major Alteration** | means works including but not limited to Builders' Lift major alteration as defined in the Builders' Lifts and Tower Working Platforms (Safety) Ordinance, Cap 470. |
| (l) | **Owner** | means the owner of a Builders' Lift, or where a Builders' Lift is leased, means the lessee of it, and includes any agent or person in charge or having the control or management of a Builders' Lift; and the contractor who is responsible for the construction site at which the Builders' Lift is being used. |
| (m) | **Planning Team** | A planning team comprised of site managerial and supervisory representatives from main contractor and subcontractors such as project manager, project engineer, site agent, registered safety officer (RSO), Contractor's Engineer and general foreman of the Contractor, with at least one of them holding TCP T4 or equivalent qualifications, and the related personnel including subcontractor's representatives who will be involved in the lift shaft works should be lined up to participate in the planning process. The plan should be properly documented by the RSO. |

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| (n) | **Project Manager/ Engineer** | means the assigned person(s) of the Main Contractor or the Lift Contractor, whose primary responsibility is to coordinate the lift installation progress of a specific contract. |
| (o) | **Registered Examiner** | means an examiner registered under the Builders' Lifts and Tower Working Platform (Safety) Ordinance, Cap 470. (i.e. Registered Examiner) and being appointed to carry out testing and examination of Builders' Lift on site. The Registered Examiner shall ensure that all the works are carried out in accordance with the requirements of the Builders' Lifts and Tower Working Platform (Safety) Ordinance, Cap 470. |
| (p) | **Registered Professional Engineer (RPE)** | means a person who has been registered under the Engineers Registration Board, Cap 409. |
| (q) | **Registered Structural Engineer (RSE)** | means a person whose name is for the time being on the structural engineers' register kept under Para.3 (3) of the Buildings Ordinance, Cap 123. |
| (r) | **Responsible Person** | means the owner of a lift, or any other person who has the management or control of the lift. |
| (s) | **Suspension Rope** | means a wire rope used for suspending the Builders' Lift car and counterweight in the Builders' Lift. |

2.2. In this volume, reference to some definitions should be made to Builders' Lifts and Tower Working Platforms (Safety) Ordinance, Cap 470, while other definitions of the technical terms or related personnel should be referred to Volumes 1, 2 and 3 of the Guidelines.

## 3. Introduction

3.1 This publication will focus on the precautionary measures recommended for enhancing the safety of Builders' Lift Work throughout the construction period. The basic Configuration of a Builders' Lift and the typical works flow of Builders' Lift are shown in Annex A and Annex B respectively.

3.2 This publication promotes safe practices for Builders' Lift Work, 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 Builders' Lift Work, the Main Contractor and Lift Contractor should make their best endeavor to comply with the advices as stipulated in the Code of Practice on the Design and Construction of Builders' Lifts, and to observe and follow other requirements governing the safety aspects of Builders' Lift Work stipulated under the Ordinance(s)/Regulation(s)/ Code(s) of Practice/Circulars including but not limited to those listed in Annex C. The safety measures for lift shaft works stipulated in Volumes 1, 2 and 3 of the Guidelines on Safety of Lift Shaft Works published by the CIC (Volumes 1, 2 and 3 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 Builders' Lift Work.

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 Builders' Lift Work

5.1 To ensure the safety and health of workers engaged in Builders' Lift Work, the Lift Contractor should:

(a) Plan the Builders' Lift Work and consider all safety issues relating to design and planning stage, installation stage and the operation period, as well as coordination and housekeeping issues (Section 6 refers);

(b) Consider the general safety precautions for Builders' Lift Work, including the use of lifting appliances and lifting gear, falling objects, electrical safety and working at height (Section 7 refers);

(c) Conduct risk assessment and prepare risk control measures for the Builders' Lift Work (Section 8 refers);

(d) Consider the installation sequence and specific precautions for Builders' Lift Work (Section 9 refers);

(e) Plan and provide a comprehensive emergency operation for the Builders' Lift (Section 10 refers);

(f) Develop and implement permit-to-work systems (Section 11 refers);

(g) Provide effective communication system, personal protective equipment (PPE) and safety and health training to workers (Sections 12–14 refers); and

(h) Remind and pay special attention to safety of users and other personnel (Section 15 refers).

5.2 It is strongly recommended that the Main Contractor and the Lift Contractor should make reference to and comply with the relevant safety measures for lift shaft works including those for fire safety and workers' safety, as stipulated in Volumes 1, 2 and 3 of the Guidelines as appropriate.

## 6. Planning of Builders' Lift Work

### 6.1 Considerations during Design and Planning Stage

6.1.1 The use of Builders' Lifts or Passenger Hoists, if properly planned, designed and used, can provide a convenient means of vertical transportation for site personnel. It reduces travelling time, increases productivity and reduces the risks associated with human fatigue and manual handling operations in a construction site.

6.1.2 To select a suitable vertical transportation for the construction site, the following factors should be well considered and addressed:

| | External Passenger Hoist | Builders' Lift within Lift Shaft |
|---|---|---|
| General Description | Location of external passenger hoist on site should be considered in conjunction with the location of tower crane, material hoist, temporary refuse chute, erected scaffoldings, temporary water mains and the associated drainage pipeline and the integrity of the structure to support the lift. | Builders' Lift within lift shaft is more adaptable than other types of lift in operation as it will not be affected by adverse weather condition especially during typhoon and rainy seasons. |
| Usage | Solely for lifting or lowering passengers for any building height. | It can be used for lifting and lowering passengers as well as goods. Gain efficiency to install for high rise building with more than 30 floors or above. |
| Limitation | Not suitable for building with slanting facade. | Less effective for building with less than 30 floors. |
| Key factors to be properly considered | (a) Contract Arrangement:<br>● Feasibility of providing vertical transportation installation<br>● Time of availability<br><br>(b) Effect to Master Construction Programme<br><br>(c) Block Design:<br>● Availability of external mounting and accessibility<br>● Adequacy of structural design for hoisting, lifting work for vertical transportation installation | |

| | |
|---|---|
| | (d) Efficiency<br>● Travelling speed<br>● Loading capacity<br>● Weather condition<br>● Frequency of use<br><br>(e) Process Safety Risk<br>● Considering the hazards and risks associated with the work to be undertaken for specific vertical transportation. |

Planning for Emergency Exit

**6.1.3 Lift Shaft (Lift Well) Rescue Doors**

The provisions of the following items with respect to the rescue doors for lift shaft of Builders' Lift should be considered:

(a) When the distance between consecutive landing doorsills exceeds 11m, intermediate rescue doors shall be provided, such that the distance between sills is not more than 11m.

(b) Rescue doors shall have a minimum height of 1.8m and a minimum width of 500mm. In addition, the rescue doors shall:
   i) be located in a position readily accessible to rescuers; and
   ii) bear on its outside face a notice in English and Chinese in letters and characters not less than 25 mm high as follows (Notice 1):

DANGER
UNAUTHORIZED ACCESS PROHIBITED
LIFTWELL RESCUE DOOR
CLOSE AND LOCK THIS DOOR

危險
不得擅進
升降機槽救生門
請關閉並緊鎖此門

(Notice 1)

(c) Rescue doors shall be imperforate and shall not open towards the interior of the lift shaft.

(d) Rescue doors shall:

i) be equipped with dual key-operated locks requiring the simultaneous operation of two designated keys for opening from the outside and capable of being reclosed and relocked without a key;

ii) be capable of being opened from inside the lift shaft without a key even when locked; and

iii) except for doors in the form of lift landing doors, bear on its outside face a prominent figure-type warning sign of size not less than 100 mm high and immediately above or next to the keyholes of such doors as shown (Notice 2).

(Notice 2)

(e) Where the design and disposition of lift shaft rescue doors can reduce the likelihood of inadvertent entry, Section 6.1.3 (d) i) is not applicable and a single locking device operated by a designated key is acceptable. Typical examples are:

i) lift landing doors serving as the lift shaft rescue doors; or

ii) lift shaft rescue doors with their sills being 1m or more above the adjoining floor.

(f) Builders' Lift is designed to operate in a construction site thus specific issues should be considered in dispatching appropriate worker(s) to handle the operation:

i) Assigning Competent Lift Worker(s) with valid Mandatory Basic Safety Training Card (commonly known as Green Card) to handle emergency operation including answering callback and release trapped passengers, etc. to a Builders' Lift

ii) The workers should be familiar with the site or at least, familiar with construction site conditions

iii) A reminding notice should be posted at the main entrance of the Builders' Lift indicating:

- contact persons and their contact numbers
- location of the cathead (machine room)
- locations of rescue door (every 11m exit), if any

Wall Openings for Hoisting Beams

6.1.4 In cases where openings are required to be formed on the wall structure for the support of the hoisting beams of lifting platform/machine platform, the Project Registered Structural Engineer should assess and review the design of the permanent wall structures, and to include the wall openings in the structural submission for the approval of the Building Authority if necessary.

Special Attention to Buildings under TOP Arrangement

6.1.5 The Contractor should ensure that all types of lift shaft work should be carried out safely and independently. He should address carefully the need and work arrangement of any lift shaft work to cater for situations where a portion of the building would be occupied with the issue of a Temporary Occupation Permit (TOP), including all necessary safety features and provisions. For details, please refer to Section 12 of Volume 1 and Volume 2 of the Guidelines.

## 6.2 Considerations during Installation Stage

In General

6.2.1 No installation of a Builders' Lift shall be carried out unless written approval of the Builders' Lift has been granted by the Director of Electrical and Mechanical Services. Therefore, an application for first installation of a Builders' Lift shall be submitted to Electrical and Mechanical Services Department (EMSD).

6.2.2 Lift Contractor shall be appointed to submit the necessary documents for design approval of Builders' Lift to EMSD for assessment. The details of submission should refer to the "How to Apply" of Builders' Lift and Tower Working Platform First Installation in EMSD webpage.

6.2.3 The Lift Contractor shall notify EMSD of the location of the Builders' Lift to be installed prior to installation.

6.2.4 Job specific risk assessments shall be conducted before the commencement of work.

6.2.5 Method statements taking into account the results of the assessments should be formulated and implemented.

6.2.6 Clear, unobstructed and safe access/routes shall be provided for the delivery of Builders' Lift equipment/components/alteration of height travel and dismantling of Builders' Lift.

6.2.7 All necessary information, instruction, training and supervision shall be provided to all personnel involved.

6.2.8 The Builders' Lift shall be tested and examined by a Registered Examiner after every completion of installation, major alteration or alteration of height of travel and before the use of the Builders' Lift.

6.2.9 At least one suitable and effective fire extinguisher should be provided in the vicinity of the cathead of the Builders' Lift.

Work inside Lift Pit

6.2.10 **Lift Shaft, Lift Pit and Entrance Openings**

Completed portions of lift shaft, lift pit and entrance openings shall be provided according to the approved builders' work/layout drawings prepared by the Lift Contractor. For the purpose of safety at work for Builders' Lifts within a common lift shaft, rigid protection partition to separate Builders' Lifts along the full hoistway should be provided for Builders' Lifts and subsequently removed as necessary.

6.2.11 **Working Platform at Lift Pit**

Safe access to deep lift pit should be provided. Please refer to Section 6.14 (a-d) of Vol. 2 as follows:

(a) Where practicable for lift pit over 2.5m deep, a separate permanent access point instead of cat ladder is recommended to be provided to facilitate the safe access to the lift pit;

(b) If the layout of the building so permits, it is strongly advised that for the pit depth that exceeds 1.6m, an access door should be provided to the pit in the building design/planning stage. The design of the permanent access door should be in compliance with the Code of Practice for Building Works for Lifts and Escalators 2011 paragraphs 3.8.2 and 3.8.3;

(c) It is also recommended to provide a working platform or reserve space for the working platform if the pit depth exceeds 2.5m for installation, future maintenance and repair works; and

(d) If it is impracticable to maintain a permanent access point and to erect a working platform inside a deep pit, the requirements stipulated in Section 9.2(a) of Vol. 2 should be followed.

6.2.12 **Temporary Drainage**

Temporary drainage system/sump pump should be provided and effectively operated to prevent the accumulation of water at lift pit.

Work inside Lift Shaft

6.2.13 **Protection Deck and Working Deck**

Protection deck and working deck above the Cathead should be provided by the Main Contractor to seal off the lift shaft. The decks should be designed/installed/maintained/dismantled/relocated by the Main Contractor to meet the requirements of water-tight and impact-proof against construction works. The design of the decks has to be certified by the Registered Structural Engineer employed by the Main Contractor.

6.2.14 **Wall Pockets and Hoisting Beams**

Wall pocket openings and hoisting beams should be provided inside the lift shaft in accordance with the approved builders' work/layout drawings for the installation of the Cathead. Exact locations, dimensions and reaction loads of the wall pocket openings should be provided by the Lift Contractor to the Main Contractor.

Work on Lift Landings

6.2.15 **Protection Barrier for Landings**

Full height landing gates with suitable toe-board or equivalent provided by the Main Contractor at each landing opening should be provided and maintained at any time. If it is unavoidable to temporarily open or remove it for Builders' Lift work, a suitable fall protection such as adequate strength guard-rail/barrier shall be provided by the Lift Contractor to protect worker from falling from height.

6.2.16 **Protection Barrier for Openings between Cathead and Protection Deck**

Full height landing gates with suitable toe-boards or equivalent should be designed/installed/maintained/dismantled/relocated by the Main Contractor at the floor(s) between the Cathead and protection deck until the landing doors have been installed.

6.2.17 **Illumination at Landings**

Electric lighting of at least 120 lux should be recommended to provide at each landing with on/off switch equipped.

## 6.3 Considerations during Operation Period (Owner of Builders' Lift)

In General

6.3.1 Builders' Lift shall be only be operated by a Competent Operator.

6.3.2 The Lift Contractor shall employ a Registered Examiner to carry out a test and examination of the Builders' Lift after installation, every major alteration or alteration of height of the Builders' Lift before allowing it to be used, so as to ensure it is in safe working order and a proper state of repair.

6.3.3 Builders' Lift shall be properly maintained and periodically inspected, cleaned, oiled and adjusted by Lift Contractor.

6.3.4 Registered Examiner shall be employed to carry out a test and examination of Builders' Lift at intervals not exceeding six months.

6.3.5 Builders' Lift Work shall be carried out by Competent Lift Worker(s) or Lift Workers under supervision by Competent Lift Worker(s).

6.3.6 Builders' Lift shall not be overloaded.

6.3.7 Builders' Lift shall be locked down when it is not in use.

Covering up of Gap between Landing and Builders' Lift Car

6.3.8 Whenever the Builders' Lift car door opens, a gangway or cover should be provided and functioned to protect the gap between landing and Builders' Lift car in order to prevent objects such as hand-tools, construction material, construction waste and debris, etc. from falling into the lift-shaft.

## 6.4 Planning and Coordination

6.4.1 The Main Contractor should establish a planning team consisting of representatives from managerial staff, supervisory staff, safety personnel and workers from both Main Contractor and Lift Contractor. The team should coordinate on matters relating to the Builders' Lift installation.

6.4.2 The Planning Team should assess the result of risk assessment and coordinate the safety control measures accordingly.

6.4.3 The Lift Contractor should brief the Competent Lift Workers and Lift Workers, if any, on the safety measures to be implemented before the workers commence the Builders' Lift installation work.

6.4.4 Any work/processes that deviate from the agreed safety plan should be reviewed and agreed by the Planning Team before execution.

6.4.5 The Main Contractor should make all necessary arrangements to facilitate the maintenance of the Builders' Lift.

**6.5 Lift Work Management and Housekeeping**

6.5.1 Safe means of access and egress shall be provided and maintained for Lift Workers to conduct regular inspections or routine maintenance of the Builders' Lift equipment and components.

6.5.2 No building materials or debris should be stored in front of any lift shaft opening. Any access to and egress from the opening should be kept unobstructed at all times to prevent any tripping hazard.

6.5.3 All portable tools or loose materials should be properly secured and placed before entering the lift shaft.

6.5.4 Builders' Lift car and the lift pit should be kept clean and dry at all times to prevent any slipping hazard. Any debris accumulated in lift car or lift pit should be removed immediately.

6.5.5 Sufficient lighting shall be provided at the common areas for the lift-jumping work and Builders' Lift Work.

# 7. General Safety Precautions for Builders' Lift Work

## 7.1 Use of Lifting Appliances and Lifting Gear

All lifting appliances and lifting gear shall be tested and thoroughly examined by a Registered Professional Engineer (RPE) of relevant disciplinary as prescribed under the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Cap 59J. Before any lifting/hoisting operation, the main contractor, Lift Contractor and/or its subcontractors shall ensure all lifting appliances and lifting gear are not loaded beyond their respective safe working loads. Every part of the load to be raised or lowered by a lifting appliance shall be securely suspended or supported. Prior to the lift-jumping work (tally with Section 9.4), the lift shaft should be free of obstruction; and all the lifting appliances and lifting gear shall be inspected by a competent person. Special attention should be paid to prevent any hoisting rope from abrasion with any machine parts/equipment/stationary objects inside the lift shaft to ensure safe lifting operation.

## 7.2 Falling Objects

The Main Contractor should construct a sound lift shaft protection platform above the cathead so as to withstand objects falling from above. Full height landing gates with suitable toe-boards should be installed at each of the landing openings to prevent materials falling from landing floors to lift shafts. The gates should always be maintained in good condition. Multiple level works with different tasks to be performed at the same time inside the same lift shaft is strongly not advisable. Whenever a lifting/hoisting operation is carried out, no worker is allowed to stay underneath the suspended load.

## 7.3 Electrical Safety

7.3.1 Among others, the lift shaft protection deck should be of waterproof design and construction to avoid any seepage from upper floors so as to protect the electrical equipment and traction machine inside the lift shaft from water damages.

7.3.2 The Main Contractor should coordinate with the Lift Contractor for the arrangement of electrical supply, earthing, illumination and ventilation on site. Temporary electricity at voltage 110V supplied from centre-tapped transformer should be provided by the Main Contractor with circuits equipped with waterproof sockets for use by the Lift Contractor. The location of temporary electricity supply should be indicated clearly on the lift installation safety plan.

**7.4 Working at Height**

7.4.1 The Main Contractor and the Contractors involved shall take adequate steps to prevent any Builders' Lift Worker from falling from height. Whenever feasible, suitable working platforms, guard-rails, toe-boards and coverings for openings, etc. should be provided for use as appropriate.

7.4.2 If this is not practicable, the contractors concerned should provide a protection cage/ safety net and personal fall protection equipment as an alternative. In particular, the Main Contractor should provide at least 3 sets of independent lifelines inside the lift shaft before works are to be carried out. All the lifelines shall be securely fixed to suitable anchorage. Where the provision of independent lifelines inside the lift shaft is not practicable, suitable alternative anchorage system should be provided with reference to the Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems published by the Labour Department. The contractors should ensure workers who have been provided with safety harnesses and suitable fittings to make full and proper use of the fall protection equipment.

7.4.3 During the lift-jumping work (tally with Section 9.5), lift shaft landing with its doors being kept open to facilitate the works shall be protected by suitable guard-rails and toe-boards of adequate strength, e.g. by lift shaft protection cage/safety net (Figure 5 in page 11 of Vol. 1 refers), to prevent fall of person. The vicinity of the landing concerned should also be cordoned off, to prevent unauthorized entry by others. Whenever the guard-rails and toe-boards were required to be removed for the work, workers working near the unprotected lift shaft with the risk of fall from height shall attach their safety harnesses to suitable anchorages before approaching/entering the lift shaft. Landing doors, guard-rails and toe-boards should not be allowed to remain open or be removed any longer than necessary.

## 8. Risks Assessment and Method Statement

8.1 When hazards cannot be physically eliminated and some elements of risks remain, a safe system of work will be required. The system should be able to identify the potential risks and develop the corresponding intervention measures. It should be effectively communicated and should be precisely and fully implemented by all project participants. Workers, supervisors, engineers and project managers should be trained with the necessary skills and be fully aware of the potential risks and the precautions they need to adopt.

8.2 A task-specific risk assessment should be conducted by the Planning Team before the commencement of Builders' Lift installation works. The RSO should be consulted for completeness of the risk assessment process.

8.3 The assessment should include but not be limited to hazards relating to falling objects, fall-from-height, collapse of platform/supporting structures for platform or lifting appliances, defective lifting appliance and lifting gear, improper rigging, absence of lighting and ventilation, electrocution, fire, etc. as are relevant to the Builders' Lift installation works. The assessment should include fire safety measures, especially if hot work is unavoidable and required to be carried out. With reference to each operation involved in the Builders' Lift Work, result of the assessment should include recommendation of safety precautions and appointment of the person responsible for executing the safety measures. The risk assessment report should be signed by the RSO and jointly endorsed by the Project Manager/Engineer of the Lift Contractor and the Project Manager or a site agent of the Main Contractor.

8.4 The Lift Contractor and the Planning Team should carefully identify and assess the safety risks associated to each operation in the method statement of the Builders' Lift Work. A method statement for the Builders' Lift Work should be prepared, taking into consideration all safety measures from the risk assessment reports. The related precautionary measures should be disseminated to all relevant parties to ensure that the measures are properly understood and strictly followed.

8.5 The risk assessment should be regularly reviewed. If there is any significant change to the Builders' Lift Work concerned, re-assessment should be made to mitigate the risks as far as possible.

8.6 The table in Annex D shows the examples of hazards and risks commonly encountered during Builders' Lift Work. It includes:

(a) Builders' Lift Installation Work; and
(b) Builders' Lift-jumping Work.

8.7 The hazards as mentioned in Annex D are not by all means exhaustive and the Lift Contractor should review the actual site situation when conducting their own task-specific risk assessments and developing their method statements.

8.8 All safety measures in the method statements should be fully communicated and implemented on site with adequate supervision to be given to all the personnel concerned.

# 9. Installation Sequence and Specific Precautions for Builders' Lift Work

## 9.1 Installation Sequence of Builders' Lift

9.1.1 The installation sequence of the Builders' Lift and the general precautions of each step are briefly described in Annex B. Detailed installation programme has to be worked out between the Main Contractor and Lift contractor on project basis.

9.1.2 The relevant general precautions as specified in Volumes 1, 2 and 3 of the Guidelines should also be referred to.

| Step | Activity | Action | Cross Reference(s) of the Relevant Guidelines |
|---|---|---|---|
| 1 | Install protection cage/ safety net/provide barrier | Main Contractor | Vol. 1 – Section 7.1 -7.3<br>Vol. 3 – Section 8.2.1(g), 8.3.1(b) &12.2.2<br>Vol. 4 – Section 6.2.15 |
| 2 | Install hoardings for cathead level | Main Contractor | Vol. 3 – Section 9.1.8 (e) |
| 3 | Coordinate with Main Contractor for the position of installation of the supporting I-beams (for future jump) | Lift Contractor | Vol. 1 – Section 6<br>Vol. 2 – Section 3.3, 5 & 6 |
| 4 | Install protection deck and working deck at pre-defined level | Main Contractor | Vol. 1 – Section 9<br>Vol. 2 – Section 9.2(d)<br>Vol. 3 – Section 11.3.3<br>Vol. 4 – Section 6.2.13 |
| 5 | Install scaffold from lift pit to the top of the first installation section | Main Contractor | Vol. 2 – Section 6.14, 7.7 – 7.13<br>Vol. 3 – Section 8.2.2, 9.7.6 & 9.8.3<br>Vol. 4 – Section 9.2.1, 9.3.3 & 9.7.22(d) |
| 6 | Set plumb lines at working deck | Lift Contractor | Vol. 2 – Annex C (Item 2.1) |

| | | | |
|---|---|---|---|
| 7 | Install door frames | Lift Contractor | Vol. 2 – Annex C (Item 2.4) |
| 8 | Install door sills, rail brackets, guide rails | Lift Contractor | Vol. 2 – Annex C (Item 2.2 & 2.4) |
| 9 | Install cathead | Lift Contractor | |
| 10 | Install machine room and lift pit equipment – machine, control panel, governor, buffer | Lift Contractor | Vol. 2 – Annex C (Item 2.5)<br>Vol. 4 – Section 9.2 |
| 11 | Install landing doors | Lift Contractor | Vol. 2 – Section 7.19 & Annex C (Item 2.4)<br>Vol. 3 – Section 12.2.3 |
| 12 | Install electrical accessories inside lift shaft | Lift Contractor | Vol. 2 – Annex C (Item 2.3) |
| 13 | Install counterweight and lift car | Lift Contractor | Vol. 2 – Section 9.5 (i), Annex C (Item 2.7 & 2.8) |
| 14 | Install suspension ropes/ compensation ropes/chains | Lift Contractor | Vol. 2 – Annex C (Item 2.8) |
| 15 | Conduct lift car top and lift car electrical works | Lift Contractor | Vol. 2 – Annex C (item 2.3) |
| 16 | Provide temporary power supply for testing and commissioning | Main Contractor | Vol. 2 – Annex C (Item 2.9) |
| 17 | Examination and testing by Registered Examiner | Lift Contractor | |
| 18 | EMSD's inspection | EMSD / Lift Contractor / Main Contractor | |

| | | | |
|---|---|---|---|
| 19 | Put the Builders' Lift in normal operation after EMSD has issued the certificate | Main Contractor/ Lift Contractor | |
| 20 | Continue the building structure and relocate the protection and working decks according to the "jump schedule" | Main Contractor/ Lift Contractor | |
| 21 | Complete lift shaft works on top of cathead by using suitable scaffold and "jump" the lift in line with the progress of the building structure | Main Contractor/ Lift Contractor | |
| 22 | Repeat Step 2 to Step 18 after each jump and extend the service floors | Main Contractor/ Lift Contractor | Refer to the relevant Sections of Guidelines in Step 2 to Step 18 above. |
| 23 | Upon receipt of permanent machine room, convert Builders' Lift to permanent lift by re-use or replace the equipment/components as agreed by the contract. | Lift Contractor | |

**9.2 Installation of Cathead and Machinery**

9.2.1 The installation of cathead and machinery mainly involves lifting operation, working on scaffold or working platform. Thus the general precautions for installation of cathead and machinery should include but not limited to the following procedures and checks:

(a) Check and inspect all lifting appliances and lifting gear before use;

(b) Identify any damaged equipment and prohibit its use;

(c) Test and examine the temporary anchoring point(s) by a RPE before use;

(d) Check all lifting appliances and lifting gear to ensure that they are in good working order and have been issued with valid statutorily certificates before use;

(e) Inspect and certify the lifting appliances by a competent person on a weekly basis;

(f) Inspect each lifting gear before use on each occasion by a competent person;

(g) Avoid overloading the lifting appliances and lifting gear at all times;

(h) Check, inspect and certify the condition of the scaffold/working platform by a competent person before use at intervals not exceeding 14 days or after any alteration or exposure to adverse weather; and

(i) The full height metal barrier at relevant landing openings should be kept closed during the installation period and after work.

**9.3 Installation of Suspension Ropes**

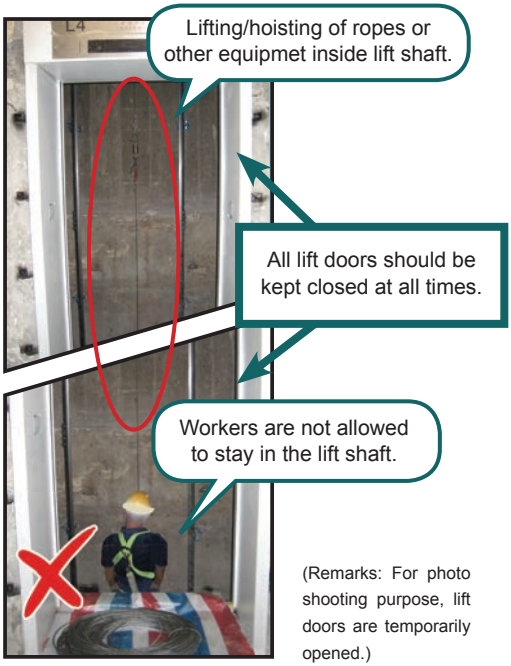
9.3.1 The team leader of the Builders' Lift Work should brief the work processes and assigns work locations to all the Lift Workers. Risk assessment should be carried out and communicated among Lift Workers.

9.3.2 An effective communication means should be provided to the Lift Workers for the installation of suspension ropes.

9.3.3 Proper working platform(s) (e.g. working platform on scaffold, car top, etc.) should be provided to facilitate the installation of suspension ropes on car top and counterweight. When falling hazard exists, proper fall protection should be used.

9.3.4 When the rope hitch requires babbiting to secure the termination, a hot work supervisor should be appointed to oversee the process and a hot work permit should be issued before work gets started. Safety measures for fire prevention should be in place. Adequate mechanical extraction system should be provided and maintained at the pouring site to remove harmful fumes. Suitable respiratory protective equipment, protective face shields and protective gloves should be worn by the worker. Lift Contractor should make reference to the paragraph 7.6 Rope Socketing of "Code of Practice for Safety at Work (Lift and Escalator)" issued by the Labour Department.

9.3.5 No worker is allowed to stay in the lift shaft when the rope hitch is being lowered to the Builders' Lift car/counterweight.




(Remarks: For photo shooting purpose, lift doors are temporarily opened.)

9.3.6 Before going into the lift pit for the suspension rope fixing work, the worker should gain permission from the workers on the top floor level.

### 9.4 Work on Builders' Lift Car Top

9.4.1 A Builders' Lift car top control station consisting of inspection switch with lock-up capability and a stop switch. The stop switch should be reached within 1m from landing. Otherwise, an additional stop switch should be installed and reached within 1m from landing. The operation mode of the Builders' Lift should be switched to inspection mode and the stop switch should be activated before any worker attempts to gain access to the Builders' Lift car top from the landing. The car top inspection switch should be also tested and verified for its effectiveness before working on the Builders' Lift car top. The inspection switch should be also locked and the key should not be kept by any of the persons working on Builders' Lift car top. The INSPECTION mode as well as locking of the switch should be maintained until all workers have left the Builders' Lift car top.

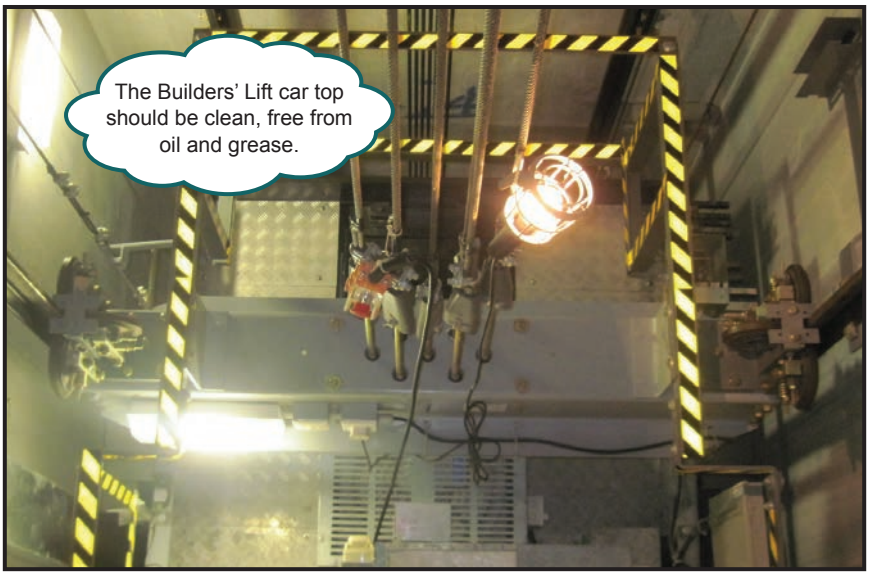

9.4.2 Guard-rails with top and intermediate rails together with toe-board shall be provided on Builders' Lift car top. Such guard-rails and toe-board should be sufficiently strong and secure. They should be so designed and constructed to allow safe access and egress to the lift car top.

9.4.3 A proper door blocking device or similar device should be used to keep the relevant landing doors in an opened position for the purpose of Builders' Lift Work. All other landing doors should be kept closed.

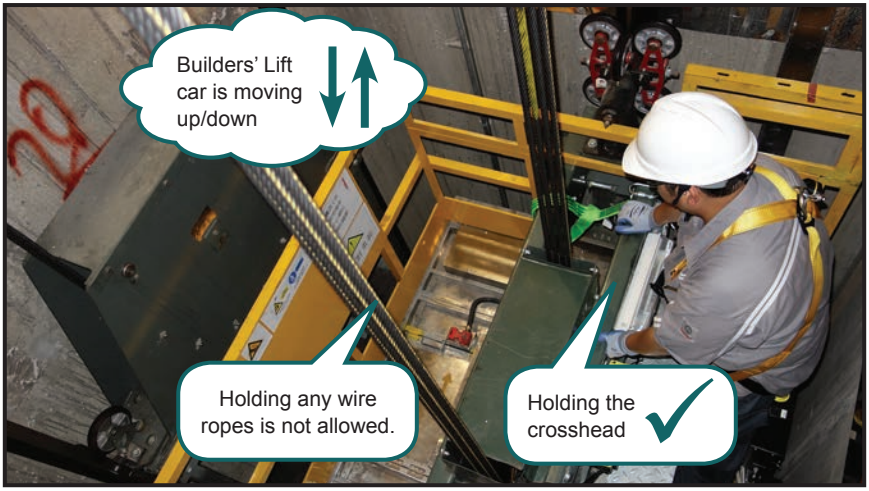
9.4.4 The number of persons allowed to stay/work on the Builders' Lift car top should be kept to a minimum at any time. They should stand clear away from any rotating/ moving ropes, sheaves or other moving objects.

9.4.5 A person should be appointed to take the sole control of the Builders' Lift car movement when 2 or more workers work on the Builders' Lift car top. All workers travelling on the Builders' Lift car top should fully understand the procedures adopted for activating the car movement. Effective communication should be maintained among persons working on Builders' Lift car top. Persons on car top should not position any part of the body out of the Builders' Lift car top area when the Builders' Lift car is in motion. The Builders' Lift car stop switch on Builders' Lift car top should be activated every time the Builders' Lift car is stopped.

9.4.6 The Builders' Lift car top should be kept clean, free from oil and grease. Standing on the emergency exit cover of the Builders' Lift car is not recommended. The Builders' Lift car top should be cleared up and cleaned before leaving and after work.




9.4.7 The working personnel should be able to hold firmly on the crosshead or other rigid parts of the Builders' Lift car structure when the Builders' Lift car is moving. Holding any wire rope may result in serious injury and therefore is not allowed.



## 9.5 Lift-jumping Work

9.5.1. Lift-jumping work means all works for alteration of height of travel of the Builders' Lift. Prior to the lift-jumping work, the workers involved in the jumping work should be briefed about the entire jumping work procedures and the corresponding safety precautions. In general, the lift shaft should be free from obstruction.

9.5.2. Special attention should be paid to prevent any hoisting rope from coming into contact with the machine parts/equipment inside the lift shaft to ensure safe lifting operation.

9.5.3. During the lifting process, both Builders' Lift car and the cathead should be properly balanced to prevent tilting of equipment.

9.5.4. Prior to the lifting operation, all landing doors should be closed and locked to prevent any trapping hazard and falling hazard, except the relevant working landings. For the prevention of fall of person, reference should be made to Section 7.4.

9.5.5. Whenever a lifting/hoisting operation is carried out, no worker is allowed to stay underneath the suspended load.

9.5.6. During the lifting operation, the workers involved in the lifting work should have effective means of communication to prevent any misunderstanding. A signal man (i.e. signaler) should be assigned for such operation.

## 9.6 Routine Maintenance Work

9.6.1 The Lift Contractor should follow the guidelines of the manufacturer of the Builders' Lift in executing the maintenance works for the Builders' Lift.

9.6.2 Routine maintenance of the Builders' Lift shall be carried out by Competent Lift Worker(s) or Lift Workers under supervision by Competent Lift Worker(s) at intervals not exceeding 7 days, so as to ensure the Builders' Lift is kept in a safe working order and a proper state of repair.

## 9.7 Conversion Work of Builders' Lift to Permanent Lift

9.7.1. When the site progress does not require the use of Builders' Lift, the Lift Contractor would convert the Builders' Lift into a permanent lift as planned. Notification in respect of the conversion of the Builders' Lift into a permanent lift shall be given to EMSD with at least 7 days in advance. A list of lift equipment/components that may be retained/ replaced for the conversion of Builders' Lift to permanent lift is shown on Annex E for reference.

Replacement of Controller

9.7.2. The main power supply to the Builders' Lift should be switched off. The lock-out/tag-out procedure should be followed;

9.7.3. Where the removal or positioning of the controller needs lifting operations, lifting appliances and lifting gear shall be examined and certified by RPE before use.

Replacement of Machinery and Suspension Ropes and Removal of Cathead and Hoisting Beams

9.7.4. A clear path way should be maintained for the moving-out and moving-in of existing and new machines;

9.7.5. The Builders' Lift car and counterweight should be supported and secured by appropriate mechanical means to prevent them from unintentional movement;

9.7.6. When lifting appliances and lifting gear are used to support/with-hold the Builders' Lift car, they should be examined and certified by RPE before use with sufficient safe working loads. The wire ropes/webbing slings/lifting gear should be protected from sharp edges;

9.7.7 Where the counterweight is positioned at pit level, a proper working platform (or equivalent means) should be provided for the worker to access the top of counterweight and work on it. When the counterweight is to be replaced, lifting appliances and lifting gear should be used to remove the existing filler weight and / or counterweight frame;

9.7.8 No more than half number of the suspension ropes should be removed in one go. The suspension ropes replacement work should be conducted by trained workers only and be equipped with appropriate communication tools (e.g. walkie-talkie or

9.7.9 Where the suspension rope socket requires babbiting to secure and terminate the new rope, hot work permit should be duly obtained and other fire prevention equipment should be made available. Adequate mechanical extraction system should be provided and maintained at the pouring site to remove the harmful fume. Suitable respiratory protective equipment, protective face shields and protective gloves should be worn by the worker. Lift Contractor should make reference to the paragraph 7.6 Rope Socketing of "Code of Practice for Safety at Work (Lift and Escalator)" issued by the Labour Department.

Builders' Lift Car Replacement

9.7.10 It is recommended to perform the Builders' Lift car replacement work at the lowest floor whenever possible.

9.7.11 Lighting should be provided for the Builders' Lift car replacement work.

9.7.12 The main power supply to the Builders' Lift should be switched off. The lock-out/tag-out procedure should be followed.

9.7.13 The Builders' Lift car top should be suspended/secured by certified lifting appliances and lifting gear before the removal of car panels. The wire ropes/webbing slings/ lifting gear should be protected from sharp edges.

Replacement of Compensation Chain/Rope

9.7.14 The lowest landing door may be required to stay open during the process, and the "landing door by-pass" operation should be applied to allow the Builders' Lift car to run in INSPECTION mode only.

9.7.15 The team leader of the Builders' Lift Work should assign the working position and brief the workers of the hazards and the safety measures. All workers should be equipped with proper PPE.

9.7.16 The team leader should arrange sufficient workers and appropriate transportation tools to deliver the new compensation ropes/chains.

9.7.17 It is necessary to dismantle the existing rope hitches of the compensation ropes/ chains, fasten the new compensation ropes/chains at pit level and ascend the Builders' Lift car. No worker should be allowed to remain at lift pit during the feeding of new compensation ropes/chains and collection of old compensation ropes/chains.

9.7.18 Where the compensation ropes/chains socket requires babbiting to secure the termination, hot work permit should be duly obtained and other fire prevention equipment should be made available. When the replacement work is completed, the “landing door by-pass” device should be removed from controller. Adequate mechanical extraction system should be provided and maintained at the pouring site to remove the harmful fume. Suitable respiratory protective equipment, protective face shields and protective gloves should be worn by the worker. Lift Contractor should make reference to the paragraph 7.6 Rope Socketing of “Code of Practice for Safety at Work (Lift and Escalator)” issued by the Labour Department.

Replacement of Landing Doors and Frames

9.7.19 When the Builders’ Lift car is used as a working platform to facilitate the replacement works, the Builders’ Lift car top INSPECTION switch should be switched to INSPECTION mode and locked. The key should not be kept by anyone working on the Builders’ Lift car top.

9.7.20 No materials, including the doors and/or frames, should be allowed to be stored on the Builders’ Lift car top.

9.7.21 Only one landing door may be removed at a time and it should be re-installed at the end of the work shift.

Dismantling Works

9.7.22 Safety control measures on dismantling the counterweight for Builders’ Lift should include but not be limited to the following:

(a) Supporting counterweight and Builders’ Lift car by proper mechanical means;

(b) Securing the suspension ropes of the counterweight set in position and prevent it from twisting;

(c) Hoisting and rigging of old counterweights;

(d) Provide proper working platform/scaffold for working and accessing the counterweight. If such provision is not practicable due to site constraints, adequate fall protection should be provided to the workers;

(e) Avoiding working at multi-levels at the same time;

(f) Providing proper communication means for the task;

(g) Securely fastening the hoisting hook to the Builders' Lift car;

(h) Hoisting up the Builders' Lift car with the assistance of the electric chain block or similar equipment until the counterweight rested on the counterweight buffer at the lift pit;

(i) Activating the safety gear for Builders' Lift car;

(j) Detaching the roping connection between the Builders' Lift car and counterweight; and

(k) Dismantling the counterweight which is rested on counterweight buffers. *(Remark: In some occasions, the counterweight used for Builders' Lift needs to be reserved as part of the permanent lift.)*

9.7.23 Safety control measures on dismantling the Builders' Lift machine, controller, cathead and hoisting beam should include but not be limited to the following:

(a) Suspending the power supply of the lift by lock-out and tag-out of the main switch;

(b) Using lifting appliances and lifting gear to facilitate the removal of the Builders' Lift's driving machine, controller, cathead and hoisting beam;

(c) Testing and certifying all the lifting appliances and lifting gear by a RPE before use; and

(d) Properly protecting the wire/webbing slings/lifting gear against sharp edges.

9.7.24 Safety control measures on dismantling the Builders' Lift car should include but not be limited to the following:

(a) Securing the Builders' Lift car in position by attaching wire/webbing slings/lifting gear to the Builders' Lift car frame to a structurally sound point;

(b) De-activating the safety gear for the Builders' Lift car and hoisting down the Builders' Lift car to the lift pit; and

(c) Dismantling the Builders' Lift car which is now rested on the lift pit buffers.

## 10. Emergency Operation

Emergency Audible Alarm

10.1 An audible alarm device should be provided in the Builders' Lift car and it should be easily recognizable and accessible to the Competent Operator.

10.2 The device should be a bell or similar device that is capable of functioning for at least 60 minutes after power failure to the Builders' Lift car.

10.3 An additional means such as an intercom, a walkie-talkie or a similar communications system should be provided inside the Builders' Lift car for the Competent Operator to communicate with the rescue personnel if necessary.

10.4 The push-button or switch for actuating the audible emergency alarm should be clearly marked with "LIFT ALARM" in both English and Chinese.

Emergency Lowering Operation

10.5 If there is a power failure or failure of control, it should be possible to bring the Builders' Lift car to a landing where the passengers and Competent Operator can safely leave the Builders' Lift car.

Emergency Manual Lowering

10.6 When the Builders' Lift fails to operate for whatever reason that warrants the manual release of trapped passenger(s) or for the carrying out of trouble-shooting works, the following guidelines should be observed:

(a) The emergency operation should be performed by at least 2 Lift Workers including a Competent Lift Worker.

(b) A Competent Lift Worker should supervise the whole process of the emergency operation.

(c) Prior to the operation, the power supply should be switched-off and the trapped passengers should be notified and be instructed to stand in a proper location inside the Builders' Lift car.

(d) A Lift Worker should stay at the nearest floor of the stopped Builders' Lift car and the Competent Lift Worker should operate the emergency brake to allow the lift car to ascend/descend (depending on the weight difference between the Builders' Lift car and the counterweight).

(e) An effective means of communication should be provided when performing the emergency operation.

(f) The Competent Lift Worker attending to the breakdown should ascertain that no passenger is trapped inside the lift, by physical inspection of the interior of the lift car, before leaving the scene.

(g) The Competent Lift Worker attending to the breakdown shall record in the log-book the actions taken, before leaving the scene.

Emergency Electric Lowering

10.7 When an electrical emergency lowering system is provided, this device should enable the Builders' Lift car movement by continuous pressing of the emergency operation switch. The "Up" and "Down" push-buttons should be clearly marked in Chinese and English. The electrical emergency lowering system shall only be operated by a Competent Lift Worker.

10.8 The movement of the Builders' Lift car should be easily observed by Competent Lift Worker during the emergency operation.

10.9 The Builders' Lift car speed should be controlled automatically and should not exceed the tripping speed of the over speed governor. The maximum emergency lowering speed of the Builders' Lift car should not exceed 0.63m/s.

## 11. Implementation of a Permit-to-Work System

11.1. The Lift Contractor should develop and implement a permit-to-work system for controlling hazardous trade processes of Builders' Lift Work. 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. However, under no circumstances should any work be allowed to be carried out below a suspended load, including a Builders' Lift car, machine room or heavy parts, etc. being lifted.

11.2 The following are some examples of hazardous trade processes:

(a) Conducting hot work or electric arc welding inside or near a lift shaft;
(b) Rope replacement work;
(c) Builders' Lift-jumping work;
(d) Builders' Lift dismantling work; and
(e) Paint spraying process with the use of flammable liquid.

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

(a) Work to be undertaken;
(b) Procedures involved;
(c) Precautions needed;
(d) Emergency procedures in place;
(e) Persons authorized to undertake the work;
(f) Time scale of the work to be undertaken; and
(g) Restrictions on the workplace or equipment.

11.4 A sample form of the permit-to-work is shown at Annex F.

## 12. Provision of Effective Communication System

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

12.2 When choosing 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.

12.3 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 systems 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 walls. 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.

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

12.5 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.

12.6 Lift Workers should not be allowed to work alone inside a lift shaft unless under special circumstances where 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 and walkie-talkies. Suitable arrangement including regular contact with their supervisors should also be made to ensure the continued well-being of Lift Workers.

## 13. Personal Protective Equipment

13.1 The Lift Contractor should provide suitable personal protective equipment (PPE) (such as safety helmets with chin straps, safety gloves, hearing protectors, eye protectors, respirators, safety shoes and safety harnesses where necessary) for Lift Workers to use.

13.2 As a last resort of protection against risks of fall from height inside a lift shaft or near openings to a lift shaft, the Lift Contractor should provide and maintain a fall protection system. Among other preventive measures, 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 (PPE) against fall from height, the Lift Contractor should make reference to the "Code of Practice for Safety at Work (Lift and Escalator)" and "Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems" issued by the Labour Department, and relevant international standards.

13.3 For Builders' Lift Work involving multi-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 enter or remain inside the lift shaft.

## 14. Safety and Health Training

14.1 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.

14.2 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 the proper use of PPE and emergency preparedness.

14.3 Lift Workers should receive the following training:

(a) The Mandatory Basic Safety Training (Green Card) from a government recognized organization; and

(b) Specific training for Builders' Lift Work (including related safety precautions) by a Lift Contractor.

14.4 Lift Workers who perform rope replacement work (e.g. governor rope/suspension rope) should receive specific training offered by the Lift Contractor, not less than once in every two years.

14.5 Records of safety training should be kept properly and training needs should be reviewed periodically.

## 15. From User / Others' Perspective

15.1 Competent Operators and Builders' Lift users have the obligation to take care of their own safety at work as well as for others.

15.2 Competent Operators should:

(a) attend the training and briefing sessions;
(b) follow the instructions, safe practices and emergency procedures that have been set down;
(c) check and inspect the conditions/functions of Builders' Lift before commencement of operation;
(d) stop operation and report immediately to management personnel of any defects or abnormalities found;
(e) assist the contractors to ensure that Builders' Lifts are not overloaded; and
(f) ensure no disturbance to safety devices when the Builders' Lift is in operation.

15.3 Builders' Lift users should:

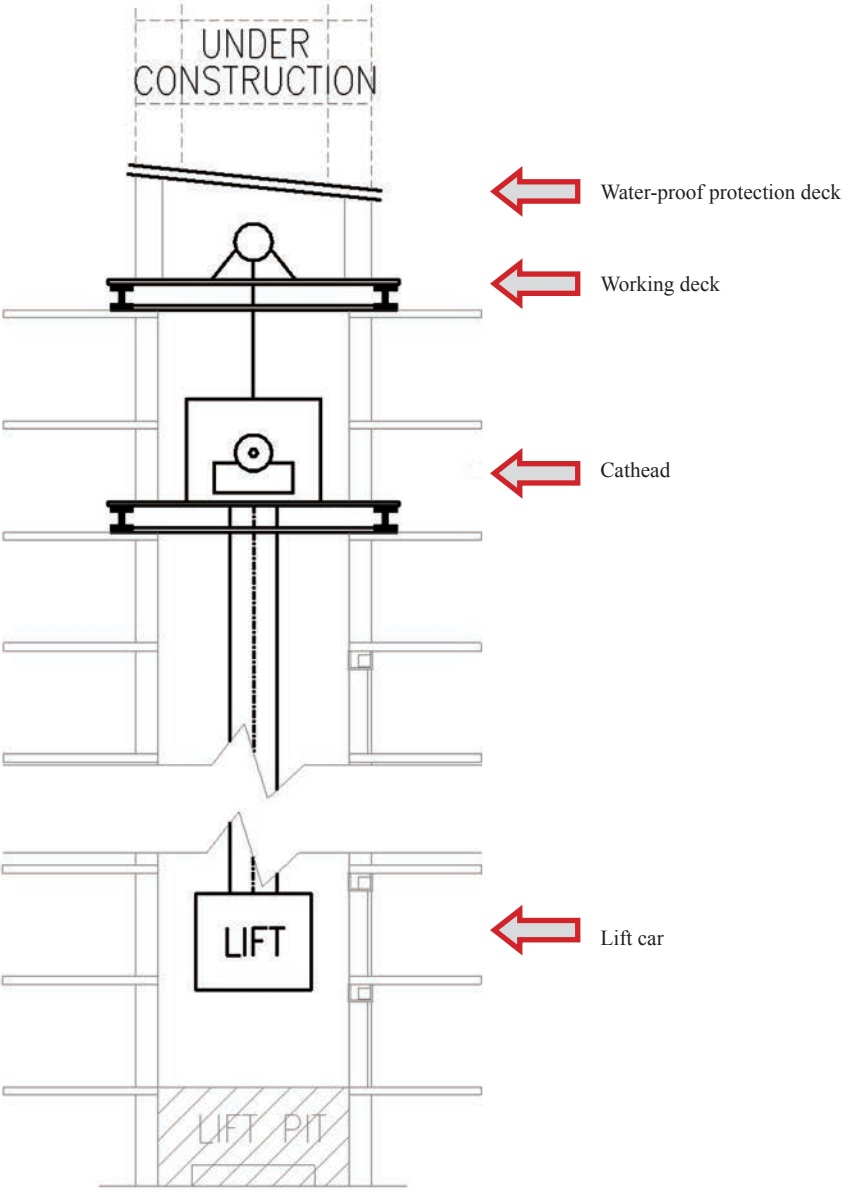
(a) maintain a clean and safe working environment at each landing, and keep the lift shaft in a dry condition;
(b) use call buttons and wait at landing when requesting service;
(c) follow the instructions given by Main Contractor/Lift Contractor; and
(d) co-operate with Competent Operators on safe use of Builders' Lifts.

15.4 Builders' Lift users should NOT:

(a) overload the Builders' Lift;
(b) carry fire risk materials, explosive materials and wet trade materials when using Builders' Lift;
(c) smoke in the Builders' Lift car;
(d) lean against Builders' car doors; and
(e) tamper the gate/door of the Builders' Lift.

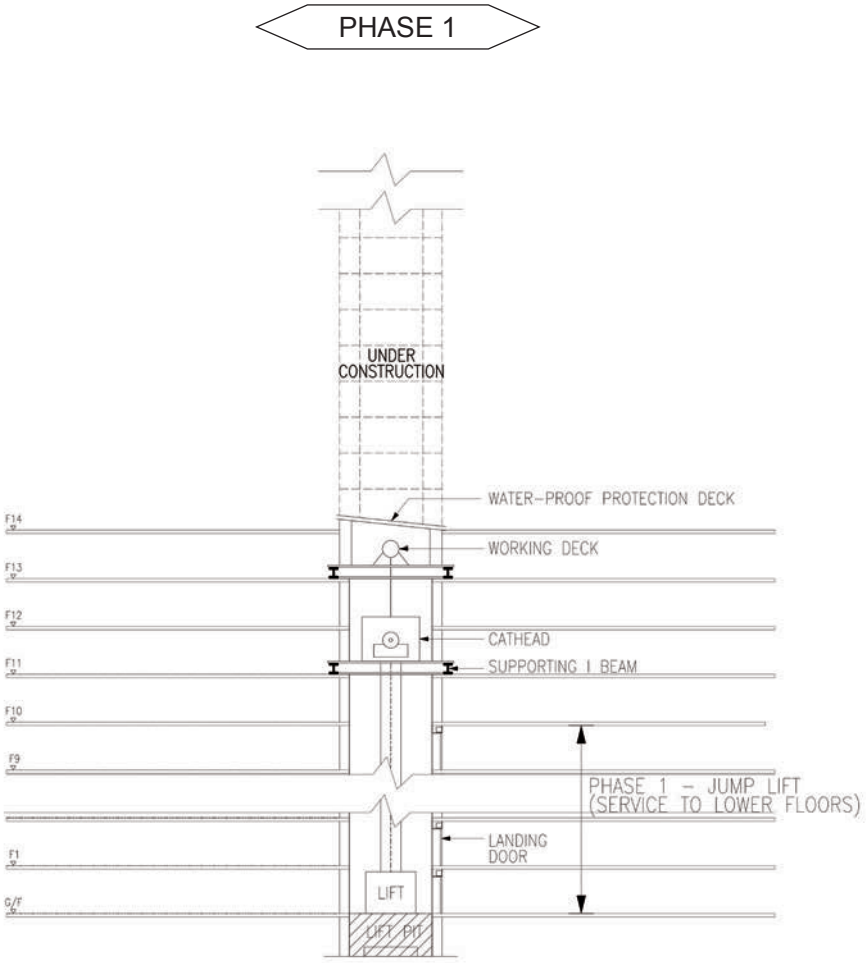
**Annex A**

## Basic Configuration of a Builders' Lift

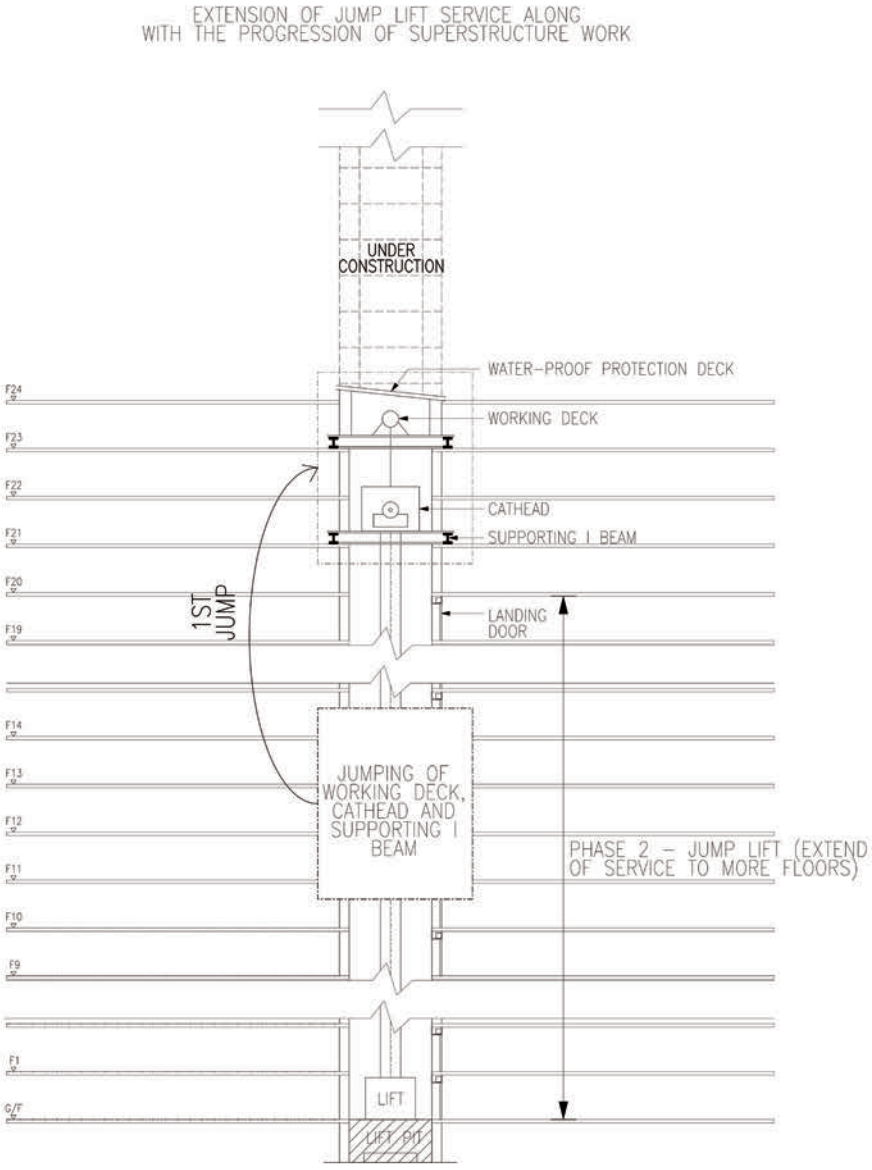


**Annex B**

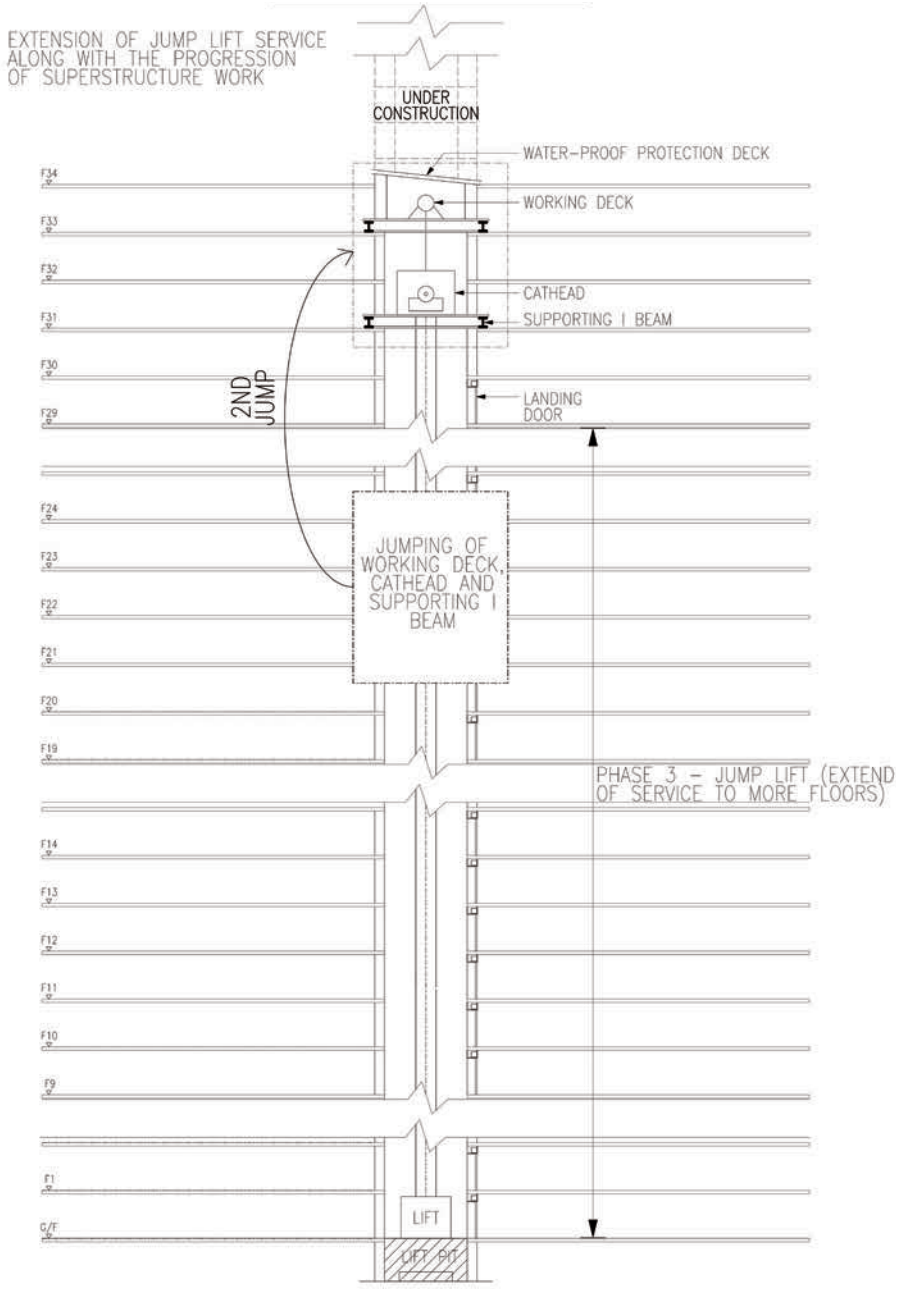
## Typical Works Flow of Builders' Lift



## PHASE 2 (1ST JUMP)



## PHASE 3 (2ND JUMP)



# PHASE 4 - FINAL PERMANENT LIFT

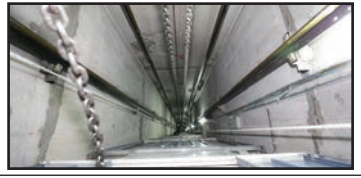
**Annex C**

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

- Builders' Lifts and Tower Working Platforms (Safety) Ordinance, Chapter 470, Law of Hong Kong Special Administrative Region (HKSAR)
- Construction Sites (Safety) Regulations, Chapter 59I, Law of HKSAR
- Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations, Chapter 59J, Law of HKSAR
- Code of Practice on the Design and Construction of Builders' Lifts, EMSD, HKSAR
- Code of Practice for Bamboo Scaffolding Safety, LD, HKSAR
- Code of Practice for Metal Scaffolding Safety, LD, HKSAR
- Code of Practice for Safety at Work (Lift and Escalator), LD, HKSAR
- Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems, LD, HKSAR
- Circular Letters for Builders' Lifts and Tower Working Platforms, EMSD, HKSAR
- Code of Practice for Building Works for Lifts and Escalators 2011, Buildings Department (BD), HKSAR
- PNAP APP-29 (formerly PNAP 84), BD, HKSAR
- PNAP ADV-10 (formerly PNAP 181) and PNRC 29, BD, HKSAR

## Annex D - The Specific Types of Hazards Encountered During Builders' Lift Work

The following specific hazards are commonly encountered in the work activities during Builders' Lift Work. The mentioned hazards in the following table are not exhaustive and the Lift Contractor should properly consider the actual site situation when conducting their own risk assessments and developing safe working procedures/method statements.

| Item | Activities / Locations | Hazards | Control Measures | Actions | PPE | Training |
|---|---|---|---|---|---|---|
| 1 | **Removal of full-height steel barrier erected at lift-shaft opening for preparation of Builders' Lift work**<br>  | Fall of person<br>- Lack of edge protection<br>- Lack of anchorage point to attach safety harness<br>- Failure to properly wear safety harness<br>- Slippery floor | • Provide edge protection at lift shaft landing<br>• Provide anchorage points for fixing of safety harness<br>  <br>• Supervise worker to wear safety harness and attach/fix lanyard on the provided anchorage point or an independent lifeline<br>• Keep working area in clean and tidy condition | Lift Work Foreman<br>+<br>Competent Lift Worker<br>+<br>Safety Supervisor | Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Tool-box briefing conducted by lift work supervisor prior to commencement of work<br>  <br>+<br>Silver Card training<br>+<br>Green Card training<br>+<br>Induction safety training |
| 2 | **Detaching traction machine and lift car** | Fall of person<br>- Lack of anchorage point to attach safety harness<br>- Failure to properly wear safety harness | • Provide edge protection at lift shaft landing<br>• Provide at least three independent lifelines inside lift-shaft and other anchorage points where necessary for fixing of safety harness<br>  | Lift Work Foreman<br>+<br>Competent Lift Worker<br>+<br>Safety Supervisor | Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Tool-box briefing conducted by lift work supervisor prior to commencement of work<br>  |

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| | | | • Supervise worker to wear safety harness and attach/fix lanyard on the provided independent lifeline or anchorage point<br>  | | | Silver Card training<br>+<br>Green Card training<br>+<br>Induction safety training |
| | | Electric shock | • Isolate power supply properly and lock up electrical distribution board<br>• Apply Lock Out/Tag Out (LOTO) procedure<br>• Check and inspect electrical installations by a Registered Electrical Worker<br>• Check and inspect electrical tools and equipment to ensure that they are maintained in good working order<br>• Use water-proof type sockets, plugs and couplers<br>• Provide temporary electrical distribution board with a protection class of IP54 or above<br>• Adopt reduced voltage systems (110V) supplied from centre-tapped transformer for portable and hand-held tools wherever possible<br>• Provide and check the effectiveness of earthing system | Foreman<br>+<br>Safety Supervisor<br>+<br>Registered Electrical Worker | Electrical insulating gloves<br>+<br>Electrical insulating blankets/mats | Silver Card training<br>+<br>Green Card training<br>+<br>Induction safety training |

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| | | Falling of traction machine and lift car<br><br>- Failure to properly fix electric winch (lifting appliance)<br>- Underestimate the loading of traction machine and lift car (overloading)<br>- Failure to follow the approved method statement to fix lifting appliances and lifting gear<br>- Defective lifting appliances and lifting gear | • Properly consider the weight of traction machine and lift car as well as all associated parts to design a lifting system<br>• Prepare a lifting plan to define the rigging method applied to each machine and part to be hoisted<br>• Properly fix the lifting system according to the approved method statement<br>  <br>• Thoroughly examine and test the lifting appliance and lifting gear by a RPE prior to putting into use<br>  <br>• Inspect lifting system by a competent person before use on each occasion<br>• Display statutory certificates in the vicinity of the lifting system<br>• Supervise lifting operation by a Lift Work Supervisor | Engineer<br>+<br>Lift Work Supervisor<br>+<br>Competent Lift Worker<br>+<br>RPE | | Tool-box briefing conducted by lift work supervisor prior to commencement of work<br>  <br>+<br>Silver Card training<br>+<br>Green Card training |

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| 3 | **Positioning the supporting I-beams for hoisting machine room up to a new position**<br>  | Fall of person<br><br>- Lack of edge protection<br>- Lack of anchorage point to attach safety harness<br>- Failure to properly wear safety harness | • Provide edge protection at lift shaft landing<br>• Provide anchorage points/independent lifelines for fixing of safety harness<br>• Supervise worker to wear safety harness and attach/fix lanyard on the provided anchorage point or an independent lifeline<br>  | Lift Work Supervisor<br>+<br>Competent Lift Worker<br>+<br>Safety Supervisor | Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Tool-box briefing conducted by lift work supervisor prior to commencement of work<br>  <br>+<br>Silver Card training<br>+<br>Green Card training |
| | | Failure of hoisting system<br><br>- Failure to properly fix lifting gear<br>- Underestimating the loading of the supporting I-beam (overloading)<br>- Failure to follow the approved method statement to fix lifting appliances and lifting gear<br>- Defective lifting appliance and lifting gear | • Prepare a lifting plan to define the rigging method for hoisting of supporting I-beam<br>• Properly consider and estimate the loads to be raised, suspended and lowered<br>• Properly fix the hoisting system according to the lifting plan<br>• Thoroughly examine and test the hoisting system by a RPE<br>• Display valid statutory certificates in the vicinity of the hoisting system<br>• Inspect lifting system by a competent person before use on each occasion<br>• Supervise lifting operation by a Lifting Supervisor<br>  | Safety Officer<br>+<br>Lift Work Supervisor<br>+<br>Competent Lift Worker<br>+<br>Safety Supervisor<br>+<br>RPE<br>+<br>Lifting Supervisor | Safety helmet with chin strap | Tool-box briefing conducted by lift work supervisor prior to commencement of work<br>  <br>+<br>Silver Card training<br>+<br>Green Card training |

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| 4 | **Hoisting up and placing machine room and lift car at the designated landing position** | Failure of supporting I-beam<br><br>- Displacement off from original position while applying loading on supporting I-beam<br>- Failure to tighten fixing screws to prevent supporting I-beam from movement<br><br>  | • Supervise supporting I-beam hoisting and positioning by a Competent Lift Worker<br><br>  <br><br>• Counter-check the position of supporting I-beam by a Lift Work Supervisor<br>• Verify the I-beam and fixing screws are up to the requirements<br>• Properly tighten fixing screws to hold up supporting I-beam in position prior to applying loading<br><br>  | Lift Work Supervisor<br>+<br>Competent Lift Worker<br>+<br>Safety Supervisor<br>+<br>Lifting Supervisor | Safety helmet with chin strap<br>+<br>Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Tool-box briefing conducted by lift work supervisor prior to commencement of work<br><br>  <br><br>+<br>Silver Card training<br>+<br>Green Card training |

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| 5 | **Install suspension ropes/ compensation ropes/chains**<br><br>• Fix suspension ropes on car top and counter weight frame | Fall of person<br><br>- Lack of proper access/working platform<br>- Inadequate strength/ insecure or absent from fencing<br>- Slippery floor | • Provide and use a proper access/ working platform<br>• Provide suitable fencing (top and intermediate railings) with adequate strength alongside edges of car top<br>• Attach/fix lanyard on a suitable anchorage point or an independent lifeline<br>• Keep good housekeeping<br>• Supervise the works by a Competent Lift Worker | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative | Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Silver Card training<br>+<br>Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
| | | Falling object<br><br>- Improperly store or stack material<br>- Poor housekeeping<br>- Improperly handle material/tools<br>- Lack of toe-board/lift shaft protection cage<br>- Lack of protective measures, e.g. safety net (if applicable) | • Properly store and stack material and tools<br>• Keep good housekeeping<br>• Equip hand-held tool with hand strap<br>• Erect a toe-board/lift shaft protection cage/safety net at each lift shaft landing<br>• Control and prevent multi-level work with different tasks performed at the same time<br>• If multi-level work is unavoidable, apply permit-to-work system to control task carried out at multi-level | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative | Safety helmet with chin strap | Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
| | | Electrocution | • Isolate electric power supply properly and lock up electrical distribution board<br>• Apply LOTO procedure<br>• Check and inspect electrical installations by a registered electrical worker<br>• Check and inspect electrical tools and equipment to ensure that they are maintained in good working order | Licensed electrical worker<br>+<br>Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative | Electrical insulating gloves<br>+<br>Electrical insulating blankets/mats | Tool-box training on electric safety |

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| | | | • Use water-proof type sockets, plugs and couplers<br>• Provide temporary electrical distribution board with a protection class of IP54 or above<br>• Adopt reduced voltage systems (110V) supplied from centre-tapped transformer for portable and hand-held tools<br>• Provide and check the effectiveness of earthing system | | | |
| 6 | **Re-connect electric power supply for testing and commissioning** | Falling object<br><br>- Improperly store or stack material<br>- Poor housekeeping<br>- Improperly handle material/tools<br>- Lack of protective measures, e.g. safety net (if applicable)<br>- Carry out task at multi-level | • Properly store and stack material and tools<br>• Keep good housekeeping<br>• Equip hand-held tool with hand strap<br>• Erect a toe-board/lift shaft protection cage/safety net at each lift shaft landing<br>• Control and prevent multi-level work with different tasks performed at the same time<br>• If multi-level work is unavoidable, apply permit-to-work system to control task carried out at multi-level | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative | Safety helmet with chin strap | Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
| | | Electrocution | • Isolate power supply properly and lock up electrical distribution board<br>• Apply LOTO procedure<br>• Check and inspect electrical installations by a Registered Electrical Worker | Registered Electrical Worker<br>+<br>Foreman<br>+ | Electrical insulating gloves<br>+<br>Electrical insulating blankets/mats | Tool-box training on electric safety |

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| | | | • Check and inspect electrical tools and equipment to ensure that they are maintained in good working order<br>• Use water-proof type sockets, plugs and couplers<br>• Provide temporary electric distribution board with a protection class of IP54 or above<br>• Adopt reduced voltage systems (110V) for portable and hand-held tools<br>• Provide and check the effectiveness of earthing system | Safety Supervisor + Safety Representative | | |
| **Conversion of Builders' Lift to Permanent Lift** | | | | | | |
| 7 | **Replacement of landing doors and frames** | Fall of person<br><br>- Lack of proper access/ working platform<br>- Inadequate strength/ insecure or absent from fencing<br>- Lack of fall protection<br>- Lack of anchorage point<br>- Sudden movement of Builders' Lift car<br>- Slippery/uneven floor<br>- Inadequate lighting<br>- Improper posture | • Provide and use a proper access/ working platform<br>• Provide suitable fencing (top and intermediate railings) with adequate strength at openings where a person may fall more than 2 meters<br>• Provide and use suitable fall protection device<br>• Attach/fix lanyard on a suitable anchorage point or an independent lifeline<br>• Check and verify the control/safety switches before work<br>• Lock up the "INS" switch after it has been turned to inspection mode<br>• Keep good housekeeping<br>• Provide and maintain adequate lighting<br>• Avoid improper posture at work<br>• Supervise the works by a competent supervisor | Foreman + Safety Supervisor + Safety Representative + Lift Worker | Safety harness + Fall arresting device + Anchorage point (independent lifeline) | Silver Card training + Green Card training + Induction safety training + Trade specific safety training |

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| | | Falling object<br><br>- Improperly store or stack material<br>- Poor housekeeping<br>- Improperly handle material/tools<br>- Lack of toe-board/lift shaft protection cage<br>- Lack of protective measures, e.g. safety net (if applicable)<br>- Carry out task at multi-level | • Properly store and stack material and tools<br>• Keep good housekeeping<br>• Equip hand-held tool with hand strap<br>• Erect a toe-board/lift shaft protection cage/safety net at each lift shaft landing<br>• Control and prevent multi-level work with different tasks to be performed at the same time<br>• If multi-level work is unavoidable, apply permit-to-work system to control task carried out at multi-level | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | Safety helmet with chin strap | Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
| | | Striking against object<br><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 | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<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 |
| | | Failure of lifting appliances or lifting gear<br><br>- Overloading<br>- Improper rigging method<br>- Not conform to the method statement<br>- Normal or abnormal wear and tear<br>- Slipping/displacement of load | • Properly consider and estimate the weight of loads to be raised, suspended and lowered<br>• Select a suitable lifting gear to hoist material<br>• Prepare written documentation by a qualified and experienced engineer to define the rigging methods to be applied to each material and equipment to be hoisted and the step-by-step procedures for the entire lifting operation | Engineer<br>+<br>Foreman<br>+<br>Lifting Supervisor<br>+<br>Safety Supervisor<br>+ | | Silver Card training<br>+<br>Training on lifting operation<br>+<br>Trade specific safety training |

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| | | | • Communicate the method statement to the parties concerned<br>• Select, provide and use suitable lifting appliances and lifting gear<br>• Strictly follow the method statement to install the lifting appliances and lifting gear<br>• Thoroughly examine and test the installed lifting appliances and lifting gear<br>• Regularly check and inspect the lifting appliances and lifting gear<br>• Verify statutory certificates are valid<br>• Display valid statutory certificates of lifting appliances and lifting gear in the vicinity of the working area<br>• Safely secure the load<br>• Supervise the lifting operation by a Lifting Supervisor | Safety Representative<br>+<br>Lift Worker | | |
| | | Fire hazard<br><br>- Flame cutting<br>- Smoking<br>- Use of flammable substances | • Properly store and stack material and tools<br>• Keep good housekeeping<br>• Develop and implement hot-work-permit system<br>• Provide and maintain adequate fire fighting facilities on the site<br>• Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out<br>• Provide training to enhance fire safety awareness of workers<br>• Place suitable protective screens of fire retardant nature at the work spot when electric arc welding or flame cutting is in place | Project Manager<br>+<br>Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | | Green Card training<br>+<br>Induction safety training<br>+<br>Tool-box training on fire prevention and fire fighting as well as fire safety measures |

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| | | | • Check to ensure fire doors should be kept close<br>• Develop and implement “No Smoking” policy<br>• Display “No Smoking” sign<br>• Properly store flammable substances | | | |
| 8 | **Replacement of Builder’s Lift and counterweight** | Fall of person<br><br>- Lack of proper access/ working platform<br>- Inadequate strength/ insecure or absent from fencing<br>- Lack of fall protection<br>- Lack of anchorage point<br>- Sudden movement of Builders’ Lift car<br>- Slippery/uneven floor<br>- Inadequate lighting<br>- Improper posture | • Provide and use a proper access/ working platform<br>• Provide suitable fencing (top and intermediate railings) with adequate strength at falling edges<br>• Provide and use retractable safety device<br>• Attach/fix lanyard on a suitable anchorage point or an independent lifeline<br>• Check and verify the control/safety switches before work<br>• Lock up the “INS” switch after it has been turned to inspection mode<br>• Keep good housekeeping<br>• Provide and maintain adequate lighting<br>• Avoid improper posture at work<br>• Implement a permit-to-work system when carry out works at multi-level<br>• Supervise the works by a competent supervisor | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Silver Card training<br>+<br>Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |
| | | Falling object<br><br>- Improperly store or stack material<br>- Poor housekeeping<br>- Improperly handle material/tools | • Properly store and stack material and tools<br>• Keep good housekeeping<br>• Equip hand-held tool with hand strap<br>• Erect a suitable toe-board/lift shaft protection cage/safety net at each lift shaft landing | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative | Safety helmet with chin strap | Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |

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| | | - Lack of toe-board/lift shaft protection cage<br>- Lack of protective measures, e.g. safety net (if applicable)<br>- Carry out task at multi-level | • Control and prevent multi-level work with different tasks performed at the same time<br>• If multi-level work is unavoidable, apply permit-to-work system to control task carried out at multi-level | +<br>Lift Worker | | |
| | | Striking against object<br><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 | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<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 |
| | | Failure of lifting appliances or lifting gear<br><br>- Overloading<br>- Improper rigging method<br>- Not conform to the method statement<br>- Normal or abnormal wear and tear<br>- Slipping/displacement of load | • Properly consider and estimate the loads to be raised, suspended and lowered<br>• Select a suitable lifting gear to hoist material<br>• 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<br>• Communicate the method statement to the parties concerned<br>• Select, provide and use suitable lifting appliances and lifting gear | Engineer<br>+<br>Foreman<br>+<br>Lifting Supervisor<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | | Silver Card training<br>+<br>Training on lifting operation<br>+<br>Trade specific safety training |

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| | | | • Strictly follow the method statement to install the lifting appliances and lifting gear<br>• Thoroughly examine and test the installed lifting appliances and lifting gear<br>• Regularly check and inspect the lifting appliances and lifting gear<br>• Verify statutory certificates are valid<br>• Display valid statutory certificates of lifting appliances and lifting gear in the vicinity of the working area<br>• Safely secure the load<br>• Supervise the lifting operation by a Lifting Supervisor | | | |
| | | Fire hazard<br><br>- Flame cutting<br>- Smoking<br>- Use of flammable substances | • Develop and implement hot-work-permit system<br>• Provide and maintain adequate fire fighting facilities on the site<br>• Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out<br>• Provide training to enhance fire safety awareness of workers<br>• Place suitable protective screens of fire retardant nature at the work spot<br>• Check to ensure fire doors should be kept close<br>• Develop and implement “No Smoking” policy<br>• Display “No Smoking” sign<br>• Properly store flammable substances | Project Manager<br>+<br>Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | | Green Card training<br>+<br>Induction safety training<br>+<br>Tool-box training on fire prevention and fire fighting as well as fire safety measures |

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| 9 | **Replacement of controller, machinery, hoisting ropes and removal of cathead and hoisting beams** | Falling object<br><br>- Improperly store or stack material<br>- Poor housekeeping<br>- Improperly handle material/tools<br>- Lack of protective measures, e.g. safety net (if applicable)<br>- Carry out task at multi-level | • Properly store and stack material and tools<br>• Keep good housekeeping<br>• Equip hand-held tool with hand strap<br>• Erect a suitable toe-board/lift shaft protection cage/safety net at each lift shaft landing<br>• Control and prevent multi-level work with different tasks to be performed at the same time<br>• If multi-level work is unavoidable, apply permit-to-work system to control task carried out at multi-level | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | Safety helmet with chin strap | |
| | | Electrocution<br><br>- Substandard/ defective electric distribution board<br>- Use damaged electrical tools/ equipment<br>- Damaged electric wire/cable<br>- Contact with live parts inside control panel | • Isolate electric power supply properly and lock up electric distribution board<br>• Apply LOTO procedure<br>• Check and inspect electrical tools/ equipment before use<br>• Properly place electric wire/cable<br>• Use water-proof type sockets, plugs and couplers<br>• Use insulated hand-held tools/ equipment with double insulation | Registered Electrical Worker<br>+<br>Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | Electrical insulating gloves<br>+<br>Electrical insulating blankets/mats | Tool-box talk on LOTO mechanism<br>+<br>Tool-box training on electric safety |
| | | Striking against object<br><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 | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<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 |

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| | | Failure of lifting appliances or lifting gear<br><br>- Overloading<br>- Improper rigging method<br>- Not conforming to the method statement<br>- Normal or abnormal wear and tear<br>- Slipping/displacement of load | • Properly consider and estimate the loads to be raised, suspended and lowered<br>• Select a suitable lifting gear to hoist material<br>• 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<br>• Communicate the method statement to the parties concerned<br>• Select, provide and use suitable lifting appliances and lifting gear<br>• Strictly follow the method statement to install the lifting appliances and lifting gear<br>• Thoroughly examine and test the installed lifting appliances and lifting gear<br>• Regularly check and inspect the lifting appliances and lifting gear<br>• Verify statutory certificates are valid<br>• Display valid statutory certificates of lifting appliances and lifting gear in the vicinity of the working area<br>• Safely secure the load<br>• Supervise the lifting operation by a Lifting Supervisor | Engineer<br>+<br>Foreman Lifting Supervisor<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | | Silver Card training<br>+<br>Training on lifting operation<br>+<br>Trade specific safety training |
| | | Fire hazard<br><br>- Flame cutting<br>- Smoking<br>- Use of flammable substances | • Develop and implement hot-work-permit system<br>• Provide and maintain adequate fire fighting facilities on the site<br>• Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out | Project Manager<br>+<br>Foreman<br>+<br>Safety Supervisor<br>+ | | Green Card training<br>+<br>Induction safety training<br>+<br>Tool-box training on fire prevention and fire fighting as well as fire safety measures |

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| | | | • Provide training to enhance fire safety awareness of workers<br>• Place suitable protective screens of fire retardant nature at the work spot<br>• Check to ensure fire doors should be kept close<br>• Develop and implement “No Smoking” policy<br>• Display “No Smoking” sign<br>• Properly store flammable substances | Safety Representative<br>+<br>Lift Worker | | |
| 10 | **Remove dismantled material, machinery and equipment** | Fall of person<br><br>- Lack of proper access/ working platform<br>- Inadequate strength/ insecure or absent from fencing<br>- Lack of fall protection<br>- Lack of anchorage point<br>- Sudden movement of Builders’ Lift car<br>- Slippery/uneven floor<br>- Inadequate lighting<br>- Improper posture | • Provide and use a proper access/ working platform<br>• Provide suitable fencing (top and intermediate railings) with adequate strength at falling edges<br>• Provide and use retractable safety device<br>• Attach/fix lanyard on a suitable anchorage point or an independent lifeline<br>• Check and verify the control/safety switches before work<br>• Lock up the “INS” switch after it has been turned to inspection mode<br>• Keep good housekeeping<br>• Provide and maintain adequate lighting | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | Safety harness<br>+<br>Fall arresting device<br>+<br>Anchorage point (independent lifeline) | Silver Card training<br>+<br>Green Card training<br>+<br>Induction safety training<br>+<br>Trade specific safety training |

| | | | | | | |
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| | | | • Avoid improper posture at work<br>• Implement a permit-to-work system when carry out works at multi-level<br>• Supervise the works by a competent supervisor | | | |
| | | Striking against object<br><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 | Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<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 |
| | | Fire hazard<br><br>- Flame cutting<br>- Smoking<br>- Use of flammable substances | • Develop and implement hot-work-permit system<br>• Provide and maintain adequate fire fighting facilities on the site<br>• Keep at least one powder type fire extinguisher available on spot when arc welding or flame cutting activity is carried out<br>• Provide training to enhance fire safety awareness of workers<br>• Place suitable protective screens of fire retardant nature at the work spot<br>• Check to ensure fire doors should be kept close<br>• Develop and implement “No Smoking” policy<br>• Display “No Smoking” sign<br>• Properly store flammable substances | Project Manager<br>+<br>Foreman<br>+<br>Safety Supervisor<br>+<br>Safety Representative<br>+<br>Lift Worker | | Green Card training<br>+<br>Induction safety training<br>+<br>Tool-box training on fire prevention and fire fighting as well as fire safety measures |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Common hazard in all activities** | | | | | | |
| 11 | **Miscellaneous works carried out in the course of Builders' Lift works and lift conversion works** | Fire hazard | • Develop and implement a hot-work-permit system<br>• Provide and maintain adequate fire fighting facilities on the site<br>• Keep at least one powder type fire extinguisher available on the spot when arc welding or flame cutting activity carried out<br>• Provide training on fire fighting and fire prevention to enhance fire safety awareness of workers<br>• Place suitable protective screens of fire retardant nature at the work spot | Foreman<br>+<br>Safety Supervisor<br>+<br>Worker | | Tool-box training on fire prevention and fire fighting |
| | | Contact with moving parts of machinery/nip points<br><br>- Lack of machine guarding<br>- Guarding removed | • Provide a suitable guarding for dangerous parts of machinery<br>• Isolate power supply before work<br>• Apply a padlock system<br>• Provide "Emergency Stop" device<br>• Activate "INS" mode | Competent Personnel<br>+<br>Lift Worker | | Tool-box training on machine guarding |
| | | Back injury<br><br>- Improper posture<br>- Insufficient mechanical aid<br>- Lack of training | • Carry out manual handling assessment<br>• Provide mechanical aid/trolley to assist in moving material and equipment<br>• Adopt correct posture to handle material and equipment<br>• Supervise manual handling activity by a competent person<br>• Provide training on manual handling | Lift Worker | Protective gloves | Tool-box training on manual handling |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Eye injury | • Provide suitable goggle<br>• Supervise worker to wear goggle<br>• Remind worker to wear suitable PPE in morning briefing | Foreman<br>+<br>Safety Supervisor<br>+<br>Lift Worker | Goggles | Tool-box training on the use and maintenance of goggle |
| | | Inhalation of dust | • Properly cover dusty material<br>• Regularly remove construction waste and debris<br>• Keep good housekeeping<br>• Supervise worker to wear respirator | Foreman<br>+<br>Safety Supervisor<br>+<br>Lift Worker | Respirator or dust mask | Tool-box training on the use of respirator and dust mask |
| | | Excessive noise | • Conduct noise assessment<br>• Demarcate noise control zone<br>• Display noise control zone label<br>• Supervise worker to wear hearing protector | Safety Supervisor<br>+<br>Lift Worker | Hearing protector | Tool-box training on the use of hearing protector |

**REFERENCE ONLY**
**只供參考**

## Annex E - Re-use of Builders' Lift Equipment /Components
## 重用建築工地升降機之設備 / 組件

The Builders' Lift equipment/components that are likely to be re-used/replaced for the permanent lift are listed in Table 1 below for reference only as it varies from job to job. The equipment/components that are likely to be re-used / replaced shall be suitable for both Builders' Lift and the permanent lift, otherwise they should be replaced during the conversion.

因應個別工程的狀況，以下表1所列出之用於永久性升降機的可能重用 / 更換的建築工地升降機設備 / 組件，只供參考。可能重用 / 更換之設備 / 組件必須適合建築工地升降機及永久性升降機，否則應在改建建築工地升降機至永久性升降機過程中更換。

| Item 項目 | Builders' Lift Equipment / Component 建築工地升降機的設備 / 組件 | Likely to be Re-Used / Replaced 可能重用 / 更換 | MUST be Replaced 必須更換 | Re-conditioning Method of Re-used Equipment / Component 重用設備/組件之復修方法 | Remark 備註 |
|---|---|---|---|---|---|
| ***Cathead Equipment* 臨時機房設備** | | | | | |
| 1 | Hoisting machine (including traction sheave and pulley) 吊重機械（包括曳引輪及滑輪） | X | | – | |
| 2 | Controller 控制櫃 | X | | – | |
| 3 | Overspeed governor 限速器 | X | | Functional test after change 改變後測試功能 | Must be replaced if change of function or speed 如在功能上/速度上改變，便必須更換 |
| 4 | Overspeed governor rope 限速器纜索 | X | | | |
| 5 | Suspension ropes 主纜索 | | X | – | |

| | | | | | |
|---|---|---|---|---|---|
| ***Lift Car* 升降機廂** | | | | | |
| **6** | Car sling/car frame/ floor<br>機廂吊架 / 機廂籠門架 / 地台 | X | | Touch up painting<br>修葺油漆 | |
| **7** | Car cage (including car wall panels, ceiling, car operation panel and buttons)<br>升降機機身（包括機廂牆板、天花、機廂操作板及按鈕） | | X | – | |
| **8** | Car door panels<br>機廂門（內門）板 | | X | – | |
| **9** | Car door operator<br>機廂門控制器 | X | | – | |
| **10** | Car door safety edge<br>機廂門安全刀 | X | | – | |
| **11** | Car lighting and fan<br>機廂照明及風扇 | | X | – | |
| **12** | Safety gear<br>安全鉗 | X | | – | |
| ***Landing Equipment* 層站設備** | | | | | |
| **13** | Architraves<br>門框 | X | | – | |
| **14** | Landing door panels<br>層站外門板 | X | | – | |
| **15** | Landing door headers (excluding moving parts)<br>層站外門門頭（不包括移動部分） | X | | – | |
| **16** | Landing sills<br>層站門檻 | X | | – | |
| **17** | Car position indicators<br>升降機位置指示器 | X | | – | |
| **18** | Push buttons<br>按鈕 | X | | – | |

| *Shaft and Pit Equipment* 升降機槽及槽底設備 | | | | | |
|---|---|---|---|---|---|
| **19** | Guide rails and brackets<br>導軌及支架 | X | | | Vertical alignment checking and touch up painting. For guide rail sections upon which safety gear has been applied, detailed checking and re-conditioning may be required.<br>檢查垂直對線及修葺油漆。若安全鉗曾啟動夾過某段導軌，則應詳細檢查該段導軌，該段導軌亦可能需要復修。 |
| **20** | Counterweight (excluding guide rollers/shoes)<br>對重〔不包括滾動導靴（飛機轆）/滑動導靴（雞蘇）〕 | X | | Touch up painting<br>修葺油漆 | |
| **21** | Buffers<br>緩衝器 | X | | Functional testing after replacement<br>更換後測試功能 | Depending on change of speed<br>取決於升降機速度的改變 |
| **22** | Compensation chain<br>補償鏈 | X | | | |
| **23** | Travelling cable<br>隨行電纜 | X | | | |
| **24** | Shaft vanes and limit switches<br>平層定位板及限位開關 | X | | | |
| **25** | Shaft trunking and conduits<br>升降機槽電線槽及燈喉 | X | | | |
| **26** | Shaft wiring<br>升降機槽電線 | X | | – | |
| **27** | Shaft lighting<br>升降機槽照明 | X | | | |

**Annex F**

# SAMPLE FORM
# 範本

## 工作許可證(建築工地升降機槽內工作)
## Permit-to-Work (Builders' Lift Work inside Lift Shaft)

Permit No. 許可證號碼: _____

Project 地盤名稱: _____
Builders' Lift Machine No. 建築工地升降機編號: BN XXXX
Location 工作地點: (Lift shaft no.升降機槽) _____ (Floor 樓層) _____
Description of work 工作性質:

_____

_____

Company 公司: _____ Date 日期: _____
Permit valid from 許可工作由： _____ hrs. to 至: _____hrs.

**Foreseeable hazards associated with the work 可預見危害:**

- □ Falling objects 物料從高處下墜
- □ Fall of person 人體從高處墮下
- □ Collapse or failure of lifting appliances or lifting gear 起重機械或起重裝置倒塌或失靈
- □ Insufficient lighting 燈光不足
- □ Electric shock 觸電
- □ Simultaneous working by different parties (e.g. workers, contractors) at two separate levels within the lift shaft 不同人士（例如工人、承建商）在升降機槽內兩個不同層面同時工作
- □ Other, please specify 其他，請註明_____

**Safety precautions taken 安全措施:**

- □ Suitable working platform w/valid CSSR-Form5 檢驗合格的工作台及表格五
- □ Independent lifeline fixed to suitable anchorage point 繫扣於合適穩固點上的獨立救生繩
- □ Full body harness w/fall arrestor 全身式安全帶連防墮器
- □ Guard-rail/Toe-board/Wire net 井口圍欄 / 底護板 / 防墮鐵網
- □ Inspection, test and thorough examination of lifting appliances or lifting gear with valid LALR-Forms (as appropriate) 起重機械或起重裝置檢查、測試及徹底檢驗(如適用)
- □ Safety helmet with chin strap/gloves/eye-protector/ear-protector 連下頷帶的安全帽/手套/眼罩/耳塞
- □ Warning signs 警告牌
- □ Portable lighting device 燈光設備
- □ Proper isolation of electricity and grounding 良好絕緣及接地
- □ Prominent display of work permit 於工作地點張掛工作許可證
- □ Catch fence 防墮物屏障
- □ Other, please specify 其他，請列明_____

*Ensure that all lift shaft openings above the working level are properly fenced off and completed with wire net and toe-board*
*確保工作地點上方之升降機槽口，已經圍封及裝有防墮鐵網及底護板*

# SAMPLE FORM
# 範本

## 工作許可證
## Permit-to-Work

Permit No. 許可證號碼: _____

Certification證明

I certify that the above precautions have already been taken. I had briefed the safety procedures to all workers involved in the work and they will be strictly followed in the whole work duration.
本人證明前述安全措施已全部妥善執行。本人已清楚向下列工作人員講解有關安全工作步驟，並保證遵守。

Signature簽名： _____ _____
Permit Holder (持有許可證人士) Builder's Responsible Person( * 工程負責人)
(to be signed before commencement of works開工前簽發)

**Acceptance of the Permit**接受有關許可證

I have read and understood this Permit and should undertake to work in accordance with all the conditions laid down in it.
本人已細閱及明白有關許可證，並承諾於工作中謹遵有關條款。

Signature簽署:

_____ _____
Supervisor(監督人員) Permit Holder (持有許可證人士)

**Details of the work team** 工作人員資料：
Supervisor監督人員姓名: 1._____, 2._____
Workman工作人員姓名: 1._____, 2._____, 3._____
4._____, 5._____, 6._____
7._____, 8._____, 9._____

**Permit cancellation撤銷許可證**

I certify that the work under this permit is completed. All workers, tools and equipment are cleared from the job area.
本人證明此許可證內所述之工作經已完成。全部工人、工具及物料已搬離工作地點。

Signature簽署:

_____ _____
Supervisor(監督人員) Permit Holder (持有許可證人士)

(to be signed upon completion of works完工後簽發)

Remarks: *Builder's Responsible Person for the certification of the permit-to-work should be at the foreman level or above.
備註：*工程負責人必須為管工級別或以上之人士，方可簽發。

CONSTRUCTION INDUSTRY COUNCIL
建造業議會

## Feedback Form

## [GUIDELINES on Safety of Lift Shaft Works (Volume 4) – Builders' Lift within Lift Shaft]

Thank you for reading this publication. To improve our future editions, we would be grateful to have your comments.

**(Please put a " ✓" in the appropriate box.)**

| **1. As a whole, I feel that the publication is:** | Stongly Agree | Agree | Neutral | Disagree | Stongly Disagree |
|---|---|---|---|---|---|
| **Informative** | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Comprehensive** | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Useful** | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Practical** | ☐ | ☐ | ☐ | ☐ | ☐ |

| **2. Does the publication enable you to understand more about Safety of Lift Shaft Works - Builders' Lift within Lift Shaft?** | Yes ☐ | No ☐ | No Comment ☐ |
|---|---|---|---|
| **3. Have you made reference to the publication in your work?** | Quite Often ☐ | Sometimes ☐ | Never ☐ |
| **4. To what extent have you incorporated the recommendations of the publication in your work?** | Most ☐ | Some ☐ | None ☐ |

| **5. Overall, how would you rate our publication?** | Excellent | Very Good | Satisfacory | Fair | Poor |
|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ |

**6. Other comments and suggestions, please specify (use separate sheets if necessary).**

**Personal Particulars (optional):***

Name: Mr./Mrs./Ms./Dr./Prof./Ir /Sr^

Company: _____

Tel: _____

Address: _____

E-mail: _____

* The personal data in this form will be used only for this survey. Your data will be kept confidential and dealt with only by the Construction Industry Council.

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