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29 July, 1997

All Registered Lift & Escalator Contractors

Dear Sirs,

**Circular No. 10/97**  
**Fire Prevention in Carrying Out**  
**Lifts/Escalators Works**

Further to my Circular No. 9/97, I enclose herewith a copy each of the following practice notes issued by the Building Authority on 18.7.1997 for your attention:

- (i) Practice Note for Authorized Persons and Registered Structural Engineers 209-Maintenance and Replacement Works of Lift Installations
- (ii) Practice Note for Registered Contractors 36 - Maintenance and Replacement Works of Lift Installations.

The practice notes stipulate the fire safety requirements for protecting the integrity of lift shafts in order to inhibit the spread of fire between floor compartments through the lift shafts and openings. As decided in the working group comprising representatives of relevant Government departments and lift & escalator contractors associations, 1 hour FRP hoarding and scaffoldings constructed of non-combustible materials should be used in accordance with the practice notes, for lift maintenance or replacement works tendered on or after 1.8.1997. Other safety requirements in the practice notes are to be followed with immediate effect. You should ensure that all safety requirements are complied with as appropriate.

In this connection, please provide in two weeks time a list of all the projects, involving breach of lift well compartmentation and scaffoldings, which you have tendered for before 1.8.1997 for our record.

The "Notice of commencement of lift works involving major alteration or lift replacement in existing building" has been amended as attached to show the contact person, the period of time for conducting hot work, and the Fireman's lift involved. To facilitate the arrangement of site inspection by relevant Government departments, the attached new form "Notice of conducting major hot work in lift well for lift major alteration or lift replacement in existing building" has been designed for you to notify the various Government departments of the date & time for conducting major hot work (i.e. hot work lasting for 1 day or more) with at least 1 working day's notice. Please use the two forms for notifying the relevant departments as appropriate in future.

Furthermore, a seminar would be held to introduce to the concerned organisations the new requirements for fire prevention in carrying out lift works. You are cordially invited to nominate representatives (max. 2 nos.) of your company to attend the seminar:-

Date: 14 August 1997  
Time: 2:30 - 4:30 p.m.  
Venue: Room 410, 4/F, Apprentice Training Centre, Low Block  
Electrical & Mechanical Services Department Headquarters  
98, Caroline Hill Road  
Causeway Bay  
Hong Kong  
Speakers: Officers of relevant Government departments  
Subject: (1) Safety and health associated with welding and cutting  
(2) Practice Note on Maintenance and Replacement Works of Lift Installations  
(3) Fire protection at construction site  
Language: Cantonese

Please complete the attached reply slip and return it to us by fax on/before 9.8.1997.

Yours faithfully,

(G.M.W. CHUI)  
for Director of Electrical & Mechanical Services

c.c. AD/BS  
D of Housing (Attn.: TS/1)  
S for W (Attn.: Mr. C.W. LAU)  
C of Labour (Attn.: Mr. CHAN Wing-cheung)  
D of Fire Services (Attn.: Mr. CHU Man-chun)  
D of Buildings (Attn.: Mr. CHOW Kim-ping Alex)

WLC/GMWC/tlp

## 7.7 Welding and cutting

Whenever electric arc/gas welding or cutting work is carried out, general safety precautions should in particular include the followings :

### 7.7.1 General fire safety precautions for welding and cutting

Gas or arc welding/cutting would generate sparks and particles at high temperature. Such particles can travel quite long distances whilst retaining sufficient heat to cause combustion. Even if fires do not commence immediately, smouldering leading to fire at a later time may result. It is important that additional precautionary measures should be taken to prevent any chance of ignition.

- a) A thorough inspection by a supervisor should be carried out prior to the welding/cutting job to find out whether there are flammable and combustible materials within the range of sparks or weld splatter as well as in the immediate vicinity of cutting or welding. No welding or cutting should be commenced unless such person considers that it is safe to do so. For better co-ordination, warning notices shall be posted in workplaces where welding/cutting job are in progress.
- b) It should avoid to let sparks fall where they may start a fire. Materials and inflammable liquid likely to be ignited by falling sparks from welding/cutting should be removed. Precautions should be taken to ensure that hot metal particles or sparks cannot lodge in fissures, crevices or any combustible material. Such precautions should include the covering up of the area which is within the range of sparks or weld splatter below the welding/cutting operation with fire retardant or non-combustible sheets.
- c) Before starting the welding/cutting operation, all the affected floors, lift lobbies, lift landings, lift pits and tops of lift cars should be swept clean and clear the oily surface.

The wooden flooring if any should be covered with sheet metal or its equivalent. Wetting down of the wooden flooring can be done for the gas welding/cutting operation and extra measures against electric shock for the use of electrical welding/cutting should be taken.

- d) As far as practicable, all the combustible materials within the range of falling sparks or weld splatter should preferably be removed from the welding immediate vicinity or to a safe place, or at least be covered with fire retardant material approved by the Fire Services Department of Hong Kong. Smoking and naked flame are prohibited in areas where flammable substances or combustible materials are stored.
- e) A fire watch during the course of welding/cutting work should be provided and posted at appropriate location. At the same time, suitable and adequate numbers of fire extinguishers, buckets of sand or fire blankets should be made readily available at the immediate vicinity of the welding/cutting work. The fire watch should be trained to use the fire extinguishers, etc. and be familiar with the procedures to be taken in the event of fire. He should check and extinguish possible smoulder after the completion of each welding/cutting operation.
- f) Electric arc or gas cutting/welding work should not be carried out in hazardous locations, e.g. environments containing flammable gases or combustible dusts, unless adequate safety precautions being taken. Such precautions include, but not limited to: the testing of the atmosphere before welding/cutting work and monitoring of the atmosphere during the whole operation to ensure that dangerous level of flammable vapours or combustible dusts do not exist. Permit to work system should be introduced and applied in such operation.
- g) Welding/cutting work should not be carried out near

flammable materials. Welding/cutting on closed tanks which have held flammable liquids or other combustibles should be prohibited unless proper precautions taken.

- h) Workers should never wear oil-stained clothing when they are carrying out the welding/cutting work.
- i) Lighted oxy-acetylene torches should always be handled with care. A safe method should be selected for resting a live electrode holder to avoid inadvertent arcing. As far as practicable the electrode should be detached from the holder or the main power should be turned off if it is anticipated that welding will be paused for some time.
- j) Unless proper precautions have been taken, welding/cutting in places such as lift wells in existing buildings where equipment are covered with oil or lint should be avoided.
- k) Good housekeeping in respect of tidiness of the immediate workplace, placement of equipment and cables or gas hose, removal of off-cuts, electrode stubs, filler rods and wire ends, etc., should always be practiced.

#### 7.7.2 Specific safety precautions for gas welding/cutting

Whenever gas welding or cutting work is carried out, specific safety precautions should in particular include the followings :

- a) Properly designed and well maintained equipment for its purpose from a reputable supplier for gas welding/cutting should only be used. Secure connections of all gas pressure equipment should be of a satisfactory type.
- b) Written instruction in both English and Chinese characters should be provided for the proper use of the gas welding/cutting equipment.

- c) Markings or colour coding of cylinders should not be tampered with. Cylinders without labels/colour code should not be used. Refilling of cylinders with the correct gas should only be arranged by the competent suppliers and refilling with any other gas is strictly prohibited.
- d) Hose lines for oxygen and fuel-gas, e.g. acetylene, should be of different colour and preferably of different outside diameter.
- e) Cylinder storage areas should be well ventilated and external storage is preferred. Oxygen and fuel-gas cylinders should be stored separately. Such storage area should be fenced off and clear away from the storage of other flammable substances. A proper notice of 'no smoking and no naked flame' should be provided at a prominent position of the storage.
- f) Special care should be taken when transporting gas cylinders. When a cylinder is to be transported to other floors, suitable mechanical aid should be used, such as a cradle for lifting purpose and a trolley for manual handling purpose. Cylinders should not be transported with the cylinder valves open.
- g) When in use, cylinders should be held in an upright position.
- h) Cylinders should not be stacked too high or under heavy loads. Exempted quantity of cylinders should only be stored on site and spare cylinders should be stored in a licensed dangerous goods store.
- i) Cylinders should never be stored in places where grease or oil is likely to make contact with the valves or gas connections. Also grease or oil should never be used on valve fittings and threads. A written warning to that



effect should be posted at a prominent location.

- j) All gas connections should be securely fastened and checked for leaks. Naked flame for identifying gas leakage should never be used. Soapy water for example should be used for such test instead. If gas cylinders are found to have leaky valves or fittings which cannot be stopped by closing of the valves, the cylinders should be taken to open space immediately away from any sources of ignition and such place should be fenced off. Besides, the supplier of the gas cylinders should be called immediately to carry out the remedial work.
- k) Hose locations should be carefully chosen so that the chances of accidental damage are minimized. Ready access for checking of hoses and any connections in the workplace should always be available.
- l) Care should be taken that hose does not become kinked or tangled, stepped on, run over or otherwise damaged. The hose should be repaired or replaced when showing such problems.
- m) Valve handles or valve wrenches should be retained in place while the cylinders are in use. A hammer or a spanner or other tool not designed for this purpose should never be applied to open/close cylinder valve.
- n) Cylinders should not be subjected to rough usage, excessive shock or high temperature.
- o) Gas regulator and flash back arrestors for the gas cylinder should be used.
- p) Gauges, gas regulators, flash back arrestors and torches should be protected for damage.
- q) Oxygen should never be used to blow out or clean

equipment.

- r) Cylinder caps should be in place whenever cylinders are not in use, or while they are in storage.
- s) Torches should be lit with friction lighters, stationary pilot flames or other safe source but not with matches or an arc strike.
- t) The key-operated cylinder valve should be closed and the pressure from the hoses should be relieved when not in use.
- u) Gas cylinders should never be placed on the lift car top, inside the lift well/pit, inside the lift car or other places inside the truss or the pit of the escalator.

### 7.7.3 Specific safety precautions for electric arc welding/cutting

Whenever electric arc welding or cutting work is carried out, specific safety precautions should in particular include the followings :

- a) All main and ancillary equipment necessary for the welding operations should be properly selected and used on the basis that it has the required capacity or rating and safety features. The equipment should comply with the requirements of relevant electrical rules, codes of practice and regulations.
- b) The welding cable and the welding return cables should be of sufficient capacity for the rated welding current and the insulation should be sound. Damaged cable and frayed connection should be either repaired or replaced immediately.
- c) Only proper welding return cable should be used as the return flow path for the welding current. The steel



structures, pipework or other metalwork or the alike should not be used as the return path.

- d) The welding return cable should be properly and tightly connected to the workpiece using clamps, bolts or other suitable device.
- e) The welding cable and the welding return cable should not be coiled up in the course of welding/cutting work to prevent the hazard of building up high temperature in the cables and causing them overheated.
- f) Cables and cable connectors used in arc-welding circuits should be effectively insulated.
- g) Electrode holders should have adequate current carrying capacity and be adequately insulated to prevent electric shock, short circuiting or flashovers.
- h) Spent electrodes should be put in a container to prevent fire, getting underfoot or falling on people below.
- i) The casing/iron core of the welding transformer and the workpiece should be properly and effectively earthed.
- j) The design and construction of the welding transformer should comply with the requirements of relevant electrical safety standards and rules/regulations. The use of local made open-type welding transformer should be avoided. As far as practicable, welding transformer incorporating with shock-preventing device should be used.
- k) Welding transformers in use should never be placed on the lift car top, inside the lift well/pit or inside the lift car or the truss/pit of an escalator as far as practicable. Additional safety precautions should be adopted when the situation is unavoidable.

- l) Electric power to the welding transformers and circuits should be switched off when they are not in immediate use. They should be stored up properly and securely after use.
- m) The welding electrode/electrode holder should be handled with care to avoid striking of arcs inadvertently.
- n) Welders should take adequate precautions to prevent any part of their body from completing an electric circuit, and to prevent contact between any part of the body and the exposed part of the electrode or electrode holder when they are in contact with metal, and to prevent wet or damaged clothing, gloves and boots from touching any live part.

#### 7.7.4 Other safety precautions for welding and cutting

Other safety precautions for welding and cutting process should in particular include the followings :

- a) Approved eye protectors or shield must be provided and worn/used by all personnel involved in the welding/cutting operation.
- b) Approved fixed shield must be provided around the welding area to protect the indirect employees and persons in the vicinity whom would be exposed to the direct rays of the process.
- c) Suitable gloves, overalls, etc. should be worn to cover the skin of the workers involved in the welding and cutting process.
- d) Eye protection should be provided and used when doing chipping work to remove weld scale arising from the welding and cutting process.
- e) Adequate ventilation should be provided in the workplace, such as the lift shaft, for welding/cutting operation in

order to avoid the accumulation of heat, smoke and harmful fumes during the welding/cutting.



**THE LIFT AND ESCALATOR  
CONTRACTORS ASSOCIATION**  
MOUNT PARKER HOUSE, 12TH FLOOR, CITY PLAZA,  
TAIKOO SHING, HONG KONG.  
FAX: 8861709

"Hot Work" Check List

Before Commencing Work

- |   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| 1. Check that no one is smoking in working area.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Personal protective equipment is in good condition.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Check that workers are not wearing oil-soaked clothing.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Ventilation is sufficient*   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. All flammable and combustible materials are removed or covered with fire retardant material, particularly in the lift pit.                           | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Fire extinguishers or other fire fighting equipment are readily available.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. A fire watch is assigned there.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Hot work equipment is in proper working condition.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Check that no gas cylinder or transformer of welding equipment is placed inside lift well, on car top or anywhere inside the truss of the escalator. | <input type="checkbox"/> | <input type="checkbox"/> |

On Completion of Work

- |  |                          |                          |
|--|--------------------------|--------------------------|
| 10. All gear and waste have been properly removed.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Working area is thoroughly inspected, particularly where sparks or hot particles possibly lodge. | <input type="checkbox"/> | <input type="checkbox"/> |

**HOT WORK**

Work that involves arc welding, gas welding, flame cutting, grinding, naked flame, generation of sparks or high temperature sufficient for ignition.

\* Note : General ventilation is sufficient for non-continuous hot work without generating very toxic fumes.

**Notice of commencement of lift works  
involving major alteration or lift replacement  
in existing building**

Date \_\_\_\_\_

To Director of Electrical & Mechanical Services  
Commissioner for Labour  
Director of Fire Services \*<sup>1</sup>  
Director of Buildings \*<sup>1</sup>

We hereby give you notice that we have been appointed to carry out the lift works as follows:-

Location: \_\_\_\_\_  
\_\_\_\_\_

EMSD location no.: \_\_\_\_\_

Lift no(s): \_\_\_\_\_

Date of commencement of the works: \_\_\_\_\_

Planned date of completion of the works: \_\_\_\_\_

The works will involve:-

- (a)  lift(s) replacement in existing building
- (b)  breach of lift well compartmentation
- (c)  conducting hot work in lift well
- (d)  erecting metal/bamboo\* scaffold in lift well<sup>2</sup>

The details of the major alteration are (if applicable): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
(Name)  
Signature of Registered Lift Contractor

- Note:
1. Also submit this notice to Director of Fire Services and Director of Buildings if the works involve item (a), (b) or (d).
  2. Upon the implementation of the Practice Note for Maintenance and Replacement Works for Lift Installations, bamboo scaffold shall not be used for lift works tendered on or after a date to be advised by Building Authority.
  3. This notice should be received by relevant Government departments at least 14 days before commencement of the works if the works involve item (a),(b), (c) or (d).
  4. A location plan indicating the position(s) of the lifts(s) should be provided together with this notice.

Tick if applicable  
\* Delete if inapplicable