



21 May 2021, Ref 2122014

Accident Advisory: Worker caught in-between lift car and hoist way structure

Ref: [2021096](#) WSH Alert Accident Notification dated 3 March 2021

On 27 February 2021, a worker and his co-worker were tasked to carry out lift maintenance works. The worker was situated at the top of the lift car when it ascended and trapped him against a structure within the lift hoist way. The worker was subsequently extricated and pronounced dead at the scene by attending paramedics.



Figure 1: Scene of the accident.

Recommendations

Stakeholders such as occupiers, employers and principals in control of similar workplaces and work activities are advised to consider and implement the following risk control measures to prevent similar accidents:

Lift entry and work authorisation

- Establish and implement an entry authorisation system to ensure safe entry of competent maintenance persons or other entrants to the lift maintenance environment.
- Establish and implement a work authorisation system for routine lift maintenance works to ensure that the competent maintenance persons have been given the necessary instructions and support to carry out the lift maintenance operation.
- Establish and implement a separate work authorisation system for non-routine maintenance work (NRMO). Examples of NRMO involve hot-work and working at car-top beyond the safety railings.

Find out more on authorisation systems from Section 6.1 of the WSH Guidelines on Working Safely During Maintenance of Electric Passenger and Goods Lifts.

Safe Work Procedures

- Ensure that Safe Work Procedures (SWPs) for lift maintenance and repair works are established and adhered to by relevant stakeholders (including contractors).
- The SWPs should cover the following (non-exhaustive) considerations: Position of the lift car for safe access and work, control of the lift car during work e.g. placing the lift in maintenance or inspection mode, and roles and responsibilities of persons involved.
- Stop work if any of the controls or safety devices are found to be faulty, or established work procedures are not implementable. Faulty controls and safety devices should be fixed by a Competent Maintenance Person (CMP), and risks reassessed for suitable work procedures to be established, before allowing works to proceed.
- Prior to work commencement, all workers involved must be instructed on the safe work positions to adopt when on the lift car top, the need to look out for overhead hazards in the hoist way, and the use of the emergency stop button.

Good practices for working safely on lift car top

- The CMP should adopt the following (non-exhaustive) practices before starting work on a lift car top:
 - Position the lift car top inspection box within reach of the landing threshold and check for proper operation (such as verifying the emergency stop button on the inspection box).
 - Confirm that adequate lighting is available on the access platform.
 - Ensure that there is a way to interrupt the normal control circuit for preventing unwanted car movement.
 - Determine and limit the number of persons allowed on the lift car top by taking into consideration space constraint and the safe working load of the lift including all materials, tools and equipment.
 - Activate the stop switch and switch the lift to inspection mode before accessing the lift car top.
- The CMP should adopt the following (non-exhaustive) practices once stationed on the lift car top:
 - Inspect the lift car top control and check its operational effectiveness.
 - Keep one's body (including hands, elbows, feet and head) within the perimeter of the lift car top.
 - Stay clear of moving wire rope, sheaves or other moving objects.
 - Avoid contact with the counterweights of any adjacent lift in the same hoist way.
 - Carry out housekeeping at lift car top immediately upon completion of lift maintenance work.

Worker communication

- Ensure one CMP is appointed to take control of the car movement if more than one person is working on the lift car top. All workers involved in the lift maintenance endeavour must understand the established procedures for activating lift car movement.
- For proper work coordination, an appropriate mode of communication (e.g. via radio communication devices) must be established between workers.

Emergency response plan

- Establish and implement an Emergency Response Plan (ERP) to deal with possible emergency situations. The ERP should contain the following (non-exhaustive):
 - Types of emergency (e.g. fire, worker entrapment, worker injured);
 - Communication modes and protocol (e.g. emergency contact numbers and notification to relevant parties concerned);
 - Appropriate types or methods to address the emergency situation (e.g. self-rescue,

- Singapore Civil Defence Force rescue, specialist rescue);
 - Effective means to assemble the emergency response team and the required technical/engineering personnel on site in a timely manner; and
 - Logistics support for emergency response such as tools and equipment, communications equipment, and personal protective equipment including fall prevention equipment.
- All workers must be familiar with the ERP, so that the emergency can be dealt with promptly and safely.

Risk Assessment

Conduct a thorough Risk Assessment (RA) for all work activities to manage any foreseeable risk that may arise before and during lift maintenance works. The RA should cover, but not be limited to, the following areas:

- Work authorisation system;
- Faulty controls on lift car top;
- Possibility of worker being caught in-between the lift car top and a fixed structure in the lift hoist way;
- Measures to prevent miscommunication between workers; and
- Emergency response and rescue plan.

Note that a similar accident occurred on 13 Dec 2017 [where a worker was pinned against the top of a lift shaft](#).

This advisory is jointly developed by the Ministry of Manpower, Singapore Lift & Escalator Contractors & Manufacturers Association and the Workplace Safety and Health Council.

Further Information

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulations
3. Workplace Safety and Health (General Provisions) Regulations
4. Code of Practice on Workplace Safety and Health Risk Management
5. Building Maintenance and Strata Management (Lift, Escalator and Building Maintenance) Regulations 2016
6. SS 531-1: 2006 (2019) Code of Practice for Lighting of Work Places – Indoor
7. SS 550: 2020 Code of Practice for Installation, Operation and Maintenance of Electric Passenger and Goods Lifts
8. WSH Guidelines on Working Safely During Maintenance of Electric Passenger and Goods Lifts
9. WSH Guidelines on Working Safely during Modernisation, Installation or Dismantling of Electric Passenger and Goods Lift
10. WSH Guidelines on Contractor Management

Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 23 March 2021. This may be subject to change as investigations are still on-going. Please note that the recommendations provided here are not exhaustive and they are meant to enhance workplace safety and health so that a recurrence may be prevented. The information and recommendations provided are not to be construed as implying any liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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