Learning from Past Construction Accidents

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Accident Case Studies

Roof Works

Laying of Brick Wall

Installation of Glass Canopy

Working in Confined Space
The Employer was engaged to removed the polycarbonate panels of a roof structure and replace them with glass panels as part of the renovation works to a private apartment.
The Deceased was untying the ropes securing some glass panels to an A-frame rack that had been hoisted onto the roof structure.
The glass panels toppled onto the Deceased, causing him to fall 2.9m off the roof structure.
Findings

- Part of the A-frame rack was resting on the roof’s flashing, causing the A-frame rack to tilt.

- When the nylon string securing the glass panels to the A-frame rack was loosened, the glass panels toppled forward onto the Deceased.
Lapses

- Employer:
  - Workers involved were not trained to carry out lifting operations or such roofing works.
  - Failed to conduct RA and establish SWP for the roof work.
  - Failed to ensure that adequate safety measures were taken and that workers had adequate instruction and training.
Lapses

- Employer’s Supervisor:
  - Not trained to carry out lifting operations.
  - No risk assessment and safe work procedure for the work.
  - Directed the team of workers, who were not trained, to carry out the lifting operation and installation work.

- Recklessly committed an act which endangered the safety of himself and others.
Case 2 – Laying of Brick Wall
Employer engaged to carry out tiling, plastering and brick-laying as part of building’s A&A works.
The Deceased was laying a brick wall to enclose an auxiliary shaft that ran from the 5th to the 11th floor.
The Deceased was standing on an air-con ducting within the shaft, between the 10th and 11th floor, laying the brick wall at that location when ducting broke.

The Deceased fell 5 floors to the bottom of the shaft.
Findings

- Work method relied heavily on use of PPE.
- The Deceased was found with his safety belt on.
- No anchorage point or lifeline for the attachment of a full-body harness or a restraint belt was found at where the Deceased was working.
Lapses

Employer:

RA conducted for brick laying works, but was generic.

Lack of instruction and supervision resulted in a work method that relied heavily on administrative controls and PPE to mitigate the risks.

Failed to ensure that persons at work have adequate instruction and supervision as was necessary for them to perform their work.
Case 3 –
Installation of Glass Canopy
Employer was engaged to install the glass panels for a car porch canopy.

Only 11 out of the required 12 glass panels were installed as the 12th panel was chipped.
The Deceased was on the canopy, applying silicon to the joints of the glass panels, when he stepped backwards into the opening meant for the 12th glass panel and fell 3.4m.
Findings

- RA and SWP for glass installation work on the car porch canopy were available.
  - Install proper access:
    Two A-frame ladders of heights 2.5m and 2.95m served as access to the car porch canopy.
  - Provide PPE:
    Deceased was not equipped with any restraint belt at the time of accident.
  - Suitable anchorage points:
    No fall restraint or fall protection system was established on the roof of the car porch.
Lapses

Employer:

- Foreseen risks, established control measures but did not provide for their implementation.

- Failed to take reasonably practicable measures to ensure the safety and health of his employees.
Lapses

☐ Occupier:

☐ Established a PTW system for work at heights but not implemented for the installation works.

☐ Safe means of access not provided.

☐ Secured anchorage for the attachment of safety harness not provided.

☐ Failed to take reasonably practicable measures to ensure that the workplace was safe.
Case 4 – Working in Confined Space
Synopsis of Accident

- Employer engaged to pull cables through a manhole.

- The manhole cover was opened and a worker proceeded to enter the manhole, when he collapsed within the manhole.

- The Deceased entered the manhole, attempting to rescue the collapsed worker, and passed out as well.

- Both of them were eventually brought out of the manhole by SCDF officers.
Findings

- The workers entered the manhole immediately after the manhole covers were removed. A simulation revealed that the oxygen level was about 13.5% by volume under such condition.
- The Deceased died due to a lack of oxygen.
- A ventilation tube was found within the manhole but was not connected to a blower or exhaust fan.
- A gas-meter was available but was not used on the day of the accident.
- No emergency retrieval system.
Lapses

- Employer:
  - RA conducted and SWP established but were not communicated to the workers.
  - Proposed measures not implemented: No gas check, ventilation not provided, retrieval system to be used in an emergency not available.
  - Appointed supervisor not trained.

- Failed to take reasonably practicable measures to ensure the safety and health of his employees.
Lapses

- Director of the Employer:
  - Did not know what RA and SWP were, despite the company having a set of documented RA and SWP for the conduct of confined space works.
  - Was aware that employees were not briefed on the hazards of working in confined space.
  - Failed to exercise all due diligence in his capacity as a director.
Lapses

- Occupier:
  - Did not ensure that a confined space entry permit had been issued in respect of the work in the confined space.
  - Did not ensure that a notice is clearly posted at the entrance to the confined space to warn persons of the hazards of the confined space.
  - Failed to ensure that the workplace was safe.
Risk Assessment

Roof Works - No RA
Laying of Brick Wall - Generic RA
Installation of Glass Canopy - Implementable
Working in Confined Space - Implementation
Duties of WSHO

(a) to assist the occupier of the workplace or other person in charge of the workplace to identify and assess any foreseeable risk arising from the workplace or work processes therein

(b) to recommend to the occupier of the workplace or other person in charge of the workplace reasonably practicable measures to eliminate any foreseeable risk to any person who is at work in that workplace or may be affected by the occupier’s undertaking in the workplace

(c) where it is not reasonably practicable to eliminate the risk, to recommend —
   (i) such reasonably practicable measures to minimise the risk; and
   (ii) such safe work procedures to control the risk.

(d) to assist the occupier of the workplace or other person in charge of the workplace to implement the measure or safe work procedure.
Thank You