








Safe Management, Selection and Operation of MEWPs

Tony Small
17th December 2024



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IPAF Estimated MEWP Fleet In Hong Kong

- 2023 – 18,000
- 2024 – over 20,000

Characteristics of a
**Safe
Operating
Culture**



Mindful: A state of constant unease about what could go wrong. The organisation is always on the look-out for hazards and risks.



Informed: A free flow of information and knowledge. Everyone knows what really goes on. Managers take active steps to find out how work is done. Bad news is not filtered.



Learning: Turning incidents and near misses into opportunities to reinforce layers of protection across the organization.



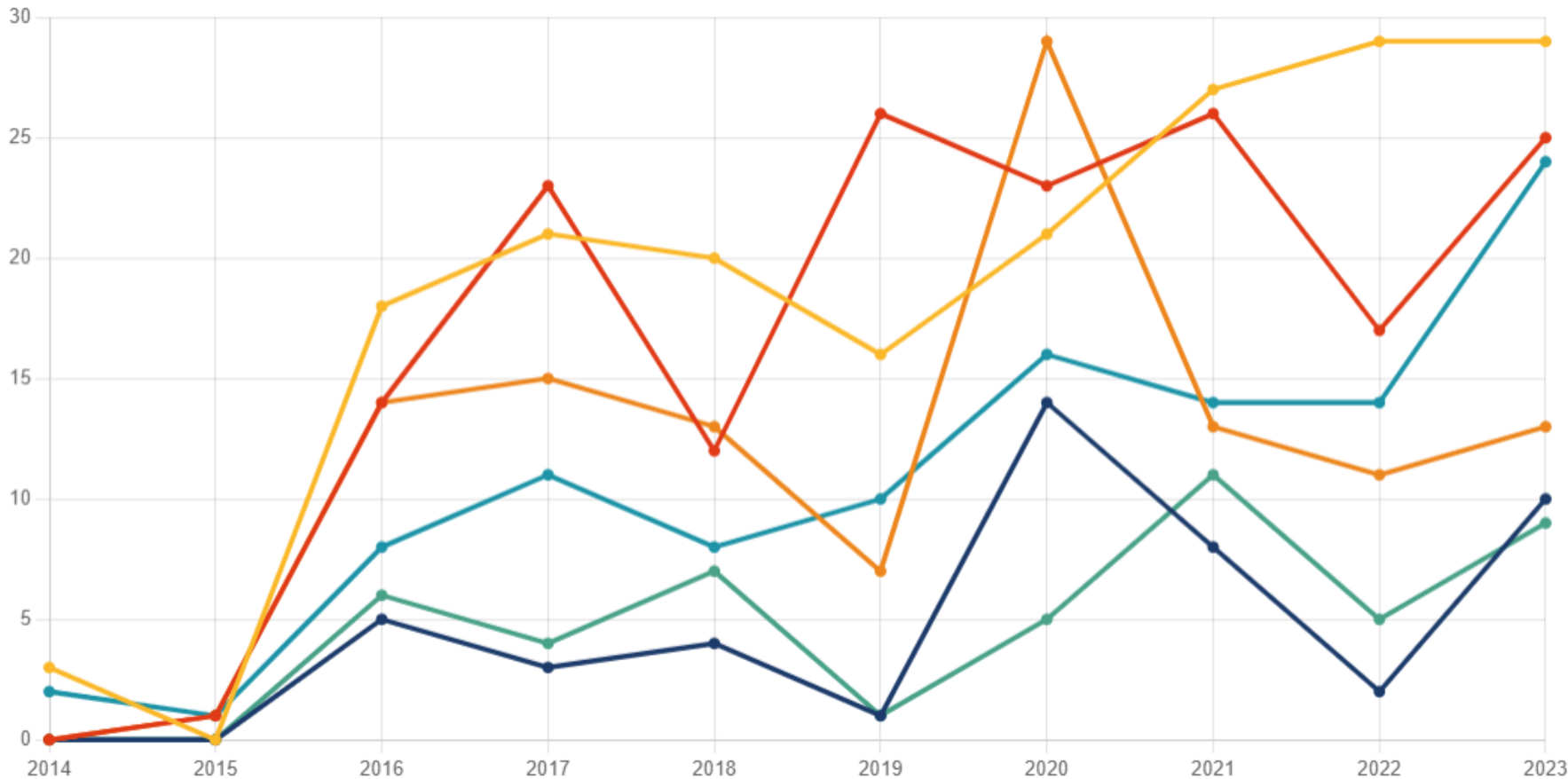
Fairness: Not blaming people for honest mistakes or for practices condoned by management. Holding people accountable.



Respect: Listening to other people's ideas, showing respect for their knowledge, encouraging them to speak up.

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Top Six Fatal Incident Trends



29 Falls From The Platform

25 Electrocution & Electric Shocks

24 Overturns

13 Entrapment

11 Mechanical Failure

9 Hit By Vehicle Or Machine

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Analysis of the accident

- **Taking shortcuts** and not following the agreed safe system of work
- Failing to wear or correctly attach **Personal Fall Protection Equipment**
- **Overreaching the platform guardrail** which can be caused by:
 - Machine positioning
 - Incorrect MEWP selection
- Static Boom- MEWPs were the most common type of equipment for falls from the platform in both 2023 and 2022.



1b Static Boom

Self propelled booms (outriggers), trailers, push-arounds, vehicle-mounted platforms

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**KEEP CLEAR OF
OVERHEAD CABLES**



YOU DO NOT NEED TO TOUCH THE POWER CABLES

Analysis of the accident

- **Roads and highways** remained the most common locations for incident
- Beneath or adjacent to the MEWP platform or **hidden by trees** or other objects
- Contact, arcing or flashover with a power line.
- In 2023, **Mobile Boom and Static Boom** were the most common type of equipment involved in incidents of electrocution.



3b Mobile Boom

Self-propelled booms



1b Static Boom

Self propelled booms (outriggers), trailers, push-arounds, vehicle-mounted platforms



A WORKER FELL TO HIS DEATH AT A CONSTRUCTION SITE IN THE AIRPORT

On 7 November 2024, a worker was suspected of having fallen from height at a construction site in the airport. The worker was certified dead later in hospital. The Construction Industry Council (CIC) would like to deliver this safety message for your attention. It would be appreciated if you could distribute the message below to your fellow members, relevant personnel or other industry stakeholders where appropriate. Thank you very much.

Common Accidents

1. Failure to use proper working platform.
2. Fall from unprotected edge.
3. Fall from the opening reserved for the works.
4. PPE is not properly used and safety harness is not connected to the anchorage point.
5. Failure to conduct dynamic risk assessments and take appropriate safety measures in response to changes in the environment and procedures.



Critical Control Measures

1. Prior to the commencement of works, construction team should conduct risk assessments to identify the risks of falling from height, and formulate the safe working procedures.
2. Suitable working platforms should be provided and used for working at height.
3. For working environment where it is impracticable to provide suitable working platforms, it is a must to provide relevant workers with suitable full body safety harnesses and suitable anchor points, independent lifelines or fall arresting systems for continuous attachment of the safety harnesses.
4. Ensure guard-rails and toe-boards are provided at the floor edges.
5. Ensure the holes are securely covered and fenced off to prevent workers fall from height.
6. Use appropriate Smart Site Safety System (4S), for example, adopt Digitised Permit-to-work System for High-Risk Activities. Only after confirming that all necessary safety measures have been taken, the person in-charge of the work authorise workers to carry out the related high-risk activities.
7. Provide workers with the necessary safety information, instructions and training, and ensure that they are familiar with the safe working procedures and safety measures.
8. The work team should have developed an effective monitoring and supervision system to ensure compliance with the above measures.

Industry Fatality

Date: 7th November 2024

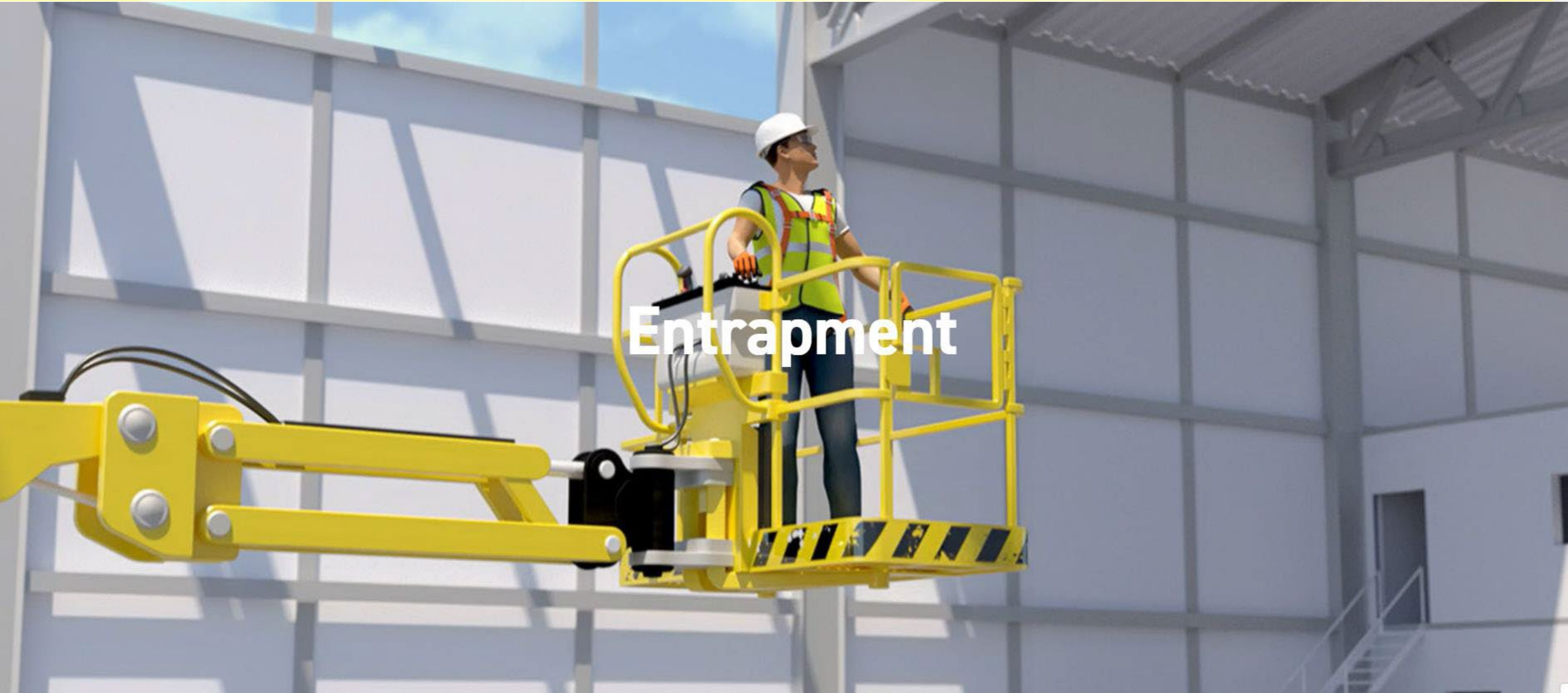
Possibly Causes: Fall from height after exiting basket

Location: T2C

Description:

A male worker whilst assisting with a suspended walkway at the roof level of the concourse under construction, fell from height to the ground.

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Entrapment

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Analysis of the accident

- In 2023, there were **15 incidents**, **13 of which resulted in fatalities**.
- Entrapment incidents may **occur not only when the MEWP is elevated but also in the lowered position**.
- The most common type of MEWP for incidents of entrapment in 2023 **Mobile Vertical** .



3a Mobile Vertical

Scissor lifts, vertical personnel platforms (mobile)

Industry Fatality

Date: 22nd November 2024

Possibly Causes: Trapped between power operated elevating working platform and beam

Location: Development of Public Housing Project in Tung Chung (Ying Tung Estate)

Description:

A male worker (painter) whilst operating a power-operated elevating working platform for ceiling painting work, he was trapped between the platform and a beam. He was certified dead later in hospital.

東涌地盤男工
被夾升降台
與天花之間
昏迷送院不治

死者為油漆工 今日第一日開工



A WORKER WAS TRAPPED BETWEEN A MOBILE ELEVATING WORK PLATFORM AND A STEEL STRUCTURE AT A CONSTRUCTION SITE IN THE AIRPORT

An accident happened on 17 November 2024 in which a worker while working on a mobile elevating work platform (MEWP) at a construction site in the airport, was trapped between the platform and a steel structure. The worker was sent to hospital for treatment. The Construction Industry Council (CIC) would like to deliver this safety message for your attention. It would be appreciated if you could distribute the message below to your fellow members, relevant personnel or other industry stakeholders where appropriate. Thank you very much.

Common Accidents

1. Operator being trapped between the MEWP and other fixed objects while the MEWP is moving.
2. The operator accidentally contacts or improperly operates the control devices on the MEWP.
3. Failure to operate the MEWP in accordance with the manufacturer's manual.
4. Untrained worker operates the MEWP.
5. Failure to conduct dynamic risk assessments and not taking appropriate safety measures in response to changes in the surrounding environment and procedures.



Critical Control Measures

1. Prior to the commencement of works, construction team should conduct dynamic risk assessments to identify all potential hazards associated with the work by taking into account the nature of works, the working environment, the ground condition and the limitations of the type of MEWP.
2. Formulate detailed safe working procedures with due regard to the result of the risk assessment, and in conformity with the instructions given in the machine manufacturer's manual.
3. A MEWP should only be operated by persons who have received suitable training and are competent to operate the machine.
4. The function of each control device of the MEWP should be clearly indicated and marked on or beside the devices.
5. Before and while moving the MEWP, make sure there are no surrounding obstacles and no one is nearby.
6. Consider installing appropriate secondary protection devices on the MEWP; for example, Tripping Device for stoppage. When a worker accidentally contacts the activation cable on the control panel, the ascending and driving functions on the platform will be immediately suspended, thereby reducing the risk of the worker being trapped by the platform.
7. Adopt safety technologies to enhance safety management and reduce risks; for example, install the Smart Sensor on the MEWP. When the MEWP is ascending and the worker's head is approaching an overhead obstacle, the siren from the system will be activated instantly, and the elevating operation will be suspended to safeguard the worker.
8. Provide workers with all necessary safety information, instructions and training, and ensure that they are familiar with safe working procedures, safety measures and are using MEWP properly.
9. Establish and implement an effective monitoring and management system to ensure that all safety measures are strictly followed.

Industry Incident

Date: 17th November 2024

Location: T2 Concourse

Description:

On 17 Nov (SUN), a male worker trapped between the MEWP basket and steel member, suffered chest injuries

Fatal Accident (Entrapment) 08 May 2024



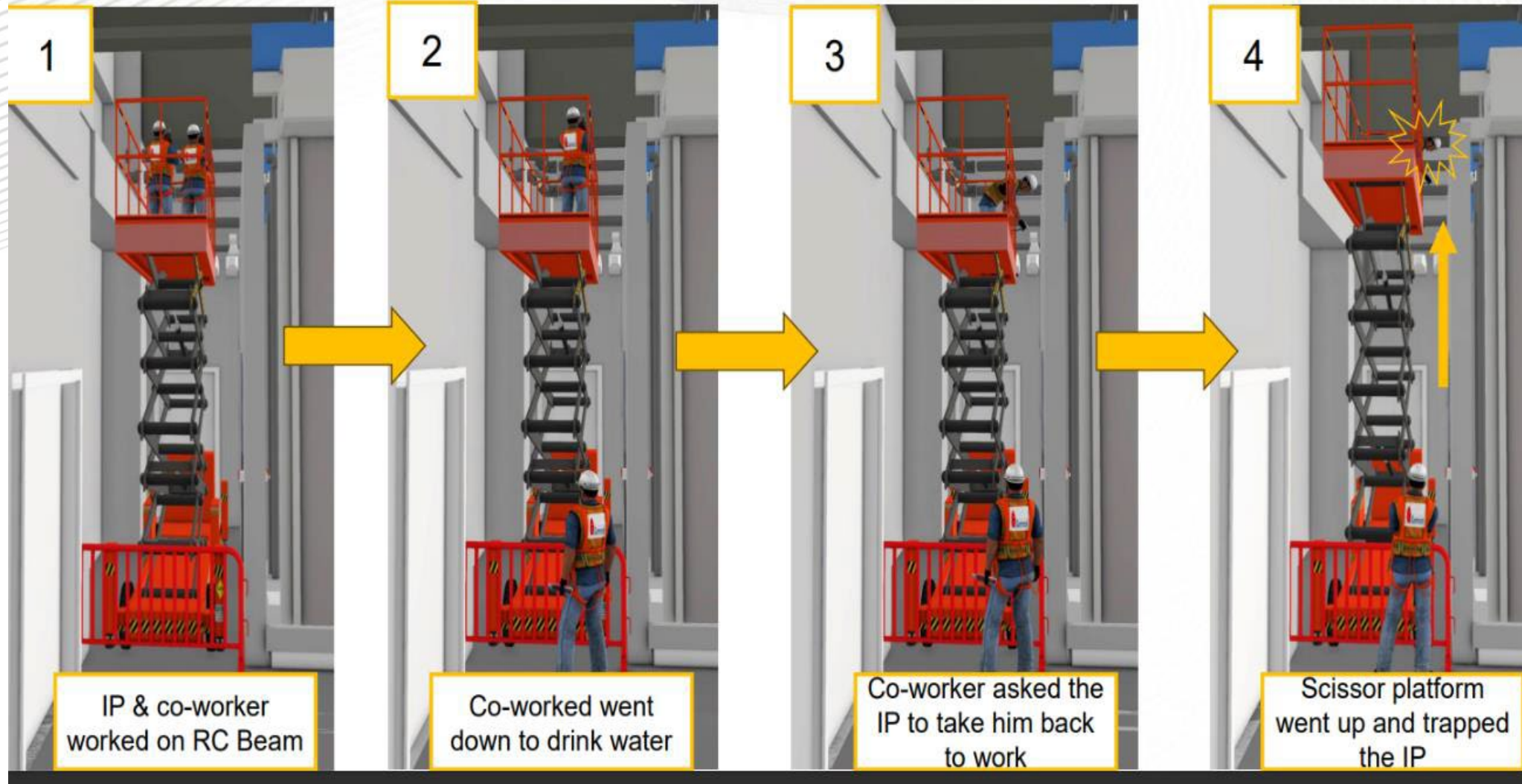
A 52-year-old worker was crushed between an elevated work platform and a metal structure in a fatal accident.



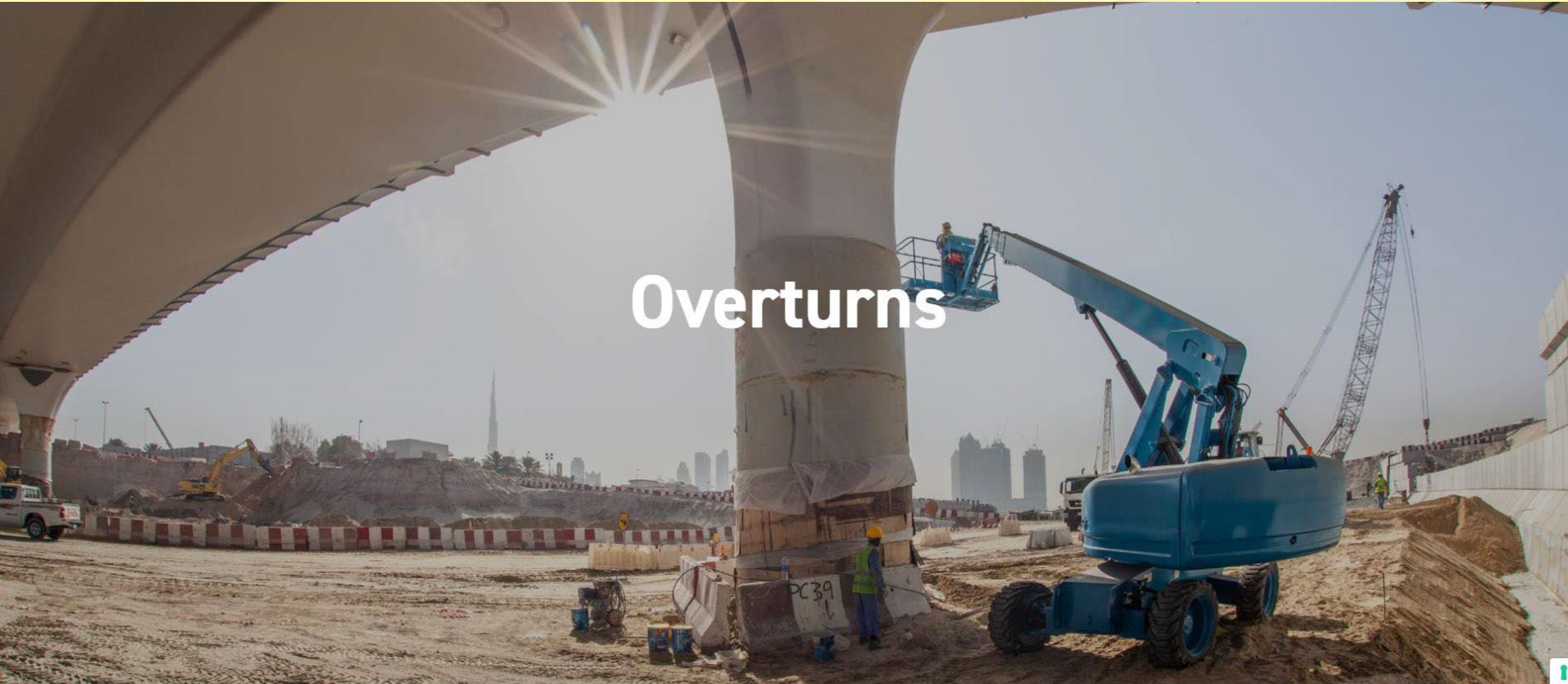
South China Morning Post

SCMP Series

Entrapment Scissor Platform – January



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Overturns

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Analysis of MEWP Overturn Incidents

- Struck by falling objects or other equipment in elevated position (Multiple operations +Overlapping of works)
- Overloaded MEWP platform
- Ground condition & Wind Speed
- **3a MEWPs were the most common type to overturn, with 11 incidents in 2023.**



3a Mobile Vertical

Scissor lifts, vertical personnel platforms (mobile)



Industry Fatality

Date: 7 August 2023

Possibly Causes: Fall of person from height

Location: Tang Siu Kin Sports Hall
North Kwai Chung

Description:

A power-operated elevating work platform toppled, and a male worker fell with to the ground.



Industry Fatality



| | |
|------------------------|--|
| Date: | 07 October 2021 |
| Type of Work | RMAA |
| Possibly Causes | Struck by a toppled over power-operated elevating working platform |
| Location | Choi Wan |

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Hit by Vehicle/Machine

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Analysis of the accident

- In the **Construction industry**, there were **6 fatalities** and 3 major injuries related to Hit by Vehicles or Machines in 2023
- Incorrect positioning of an exclusion zone can lead to impact from passing vehicles, especially if parts of the MEWP protrude or **extend outside the designated safe exclusion zone**.

Mobile Vertical and Mobile Boom MEWPs were the most commonly



3a Mobile Vertical

Scissor lifts, vertical personnel platforms (mobile)



3b Mobile Boom

Self-propelled booms

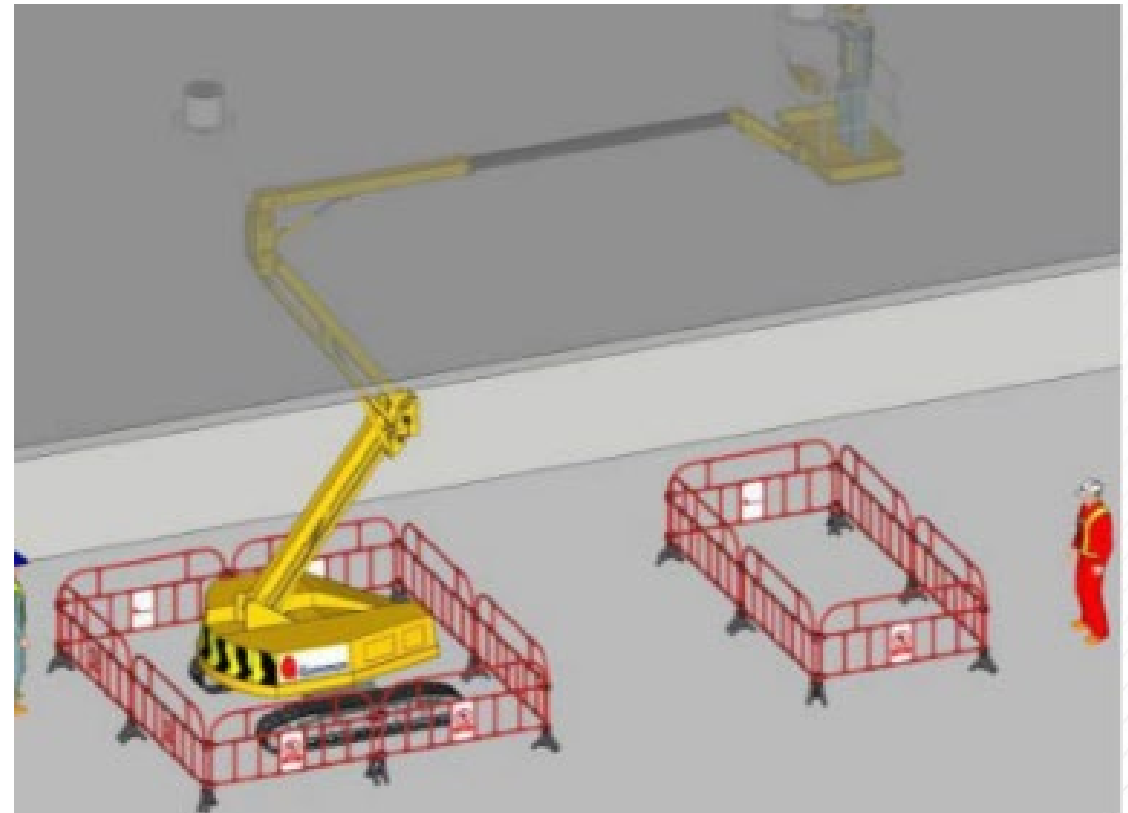
Fatal Zone Management



Photo 10:
Slewing motion of cherry
picker NOT considered.

Min. number of Red Barriers

- Workplace close to Base: 10
- Workplace far from Base: 14
- GCL site agent or above ensure adequacy of red barriers





Industrial accident (April 2021)

A fatal work accident happened on 3 April 2021, in which a worker handling a malfunctioning elevated working platform (EWP) on a ramp in a carpark was struck and dragged by the EWP which suddenly moved downwards along the ramp. He was eventually trapped between the EWP and a concrete column in the carpark. He sustained serious injuries on his legs and passed away two days later in the hospital.

The Construction Industry Council (CIC) would like to deliver this safety message for your attention. It would be much appreciated if you could distribute the message below to your fellow members, relevant personnel or other industry stakeholders where appropriate. Thank you very much!

Recommendations

► As a Contractor / Subcontractor / Employer:

1. Appoint a competent person to conduct task-specific risk assessments to identify all potential hazards associated with machine checking or maintenance, and taking into account the nature of work and the working environment;
2. Formulate safe work methods and procedures for the work with due regard to the results of risk assessments, the requirements of relevant safety legislation and safety guidelines;
3. Provide and ensure the proper use of machinery and protection equipment for the workers as far as reasonably practicable; and
4. Provide workers with adequate information, instruction and training to ensure that they are familiar with the safe working procedures and safety measures.



Do not park EWP on the slope

► As a Frontline Supervisor / Worker:

1. Ensure the works are carried out in strict accordance with the method statement, safety procedures and safety measures;
2. Implement an effective monitoring and control system to ensure all safety measures are strictly followed by workers;
3. Pay particular attention to possible presence of staff or other personnel in the vicinity before starting the machine; and
4. Ensure all relevant staff maintain effective communication during work.



EWP must be parked on a flat ground and the work area must be fenced off for inspection or maintenance work

► As a Safety Practitioner:

1. Assist employer to ensure that safety measures are strictly followed, and to report any non-compliances.

The above only listed out key points of safety, for more information please make reference to the **Construction Site (Safety) Regulations and Guidance Notes on Safe Use of Power-operated Elevating Work Platforms**.

Industry Fatality

| | |
|------------------------|---|
| Date: | 04 April 2021 |
| Type of Work | RMAA |
| Possibly Causes | Struck by an Elevating Working Platform |
| Location | An Industrial Building in Kwun Tong |

Description:

A worker whilst handling a malfunctioning Mobile Elevated Working Platform (MEWP) on a ramp in a carpark was struck by the MEWP

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Analysis of the accident

Mechanical breakdowns on powered access equipment do occur.

- Manufacturer's instructions on **inspections and maintenance** are not followed
- Routine and **periodical inspections** required by legislation are not carried out
- Pre-inspections** are not carried out correctly by the **machine operators**.

•The most common type of MEWP for mechanical or technical failures in 2023 was **Static Boom**



1b Static Boom

Self propelled booms (outriggers), trailers, push-arounds, vehicle-mounted platforms



Industry Fatality

| | |
|------------------------|----------------------|
| Date: | 18 August 2021 |
| Type of Work | Tree Trimming |
| Possibly Causes | Mechanical failure |
| Location | Sai Yun Pun |

PSP/5.01b
Production Standard Procedure

Critical Parts Inspections

Revision 0

10 May 2015

Critical Parts Inspection

- CPI shall be carried out every 4 months
- Random Ad Hoc Check of CPI / SPI is carried out across all Gammon job sites.
- Hold Point – It is mandatory verification.
- When a hold point failure is suspected or observed, operation of the plant must be stopped at once until appropriate remedial work is carried out.

Critical Parts Inspection - MEWPS

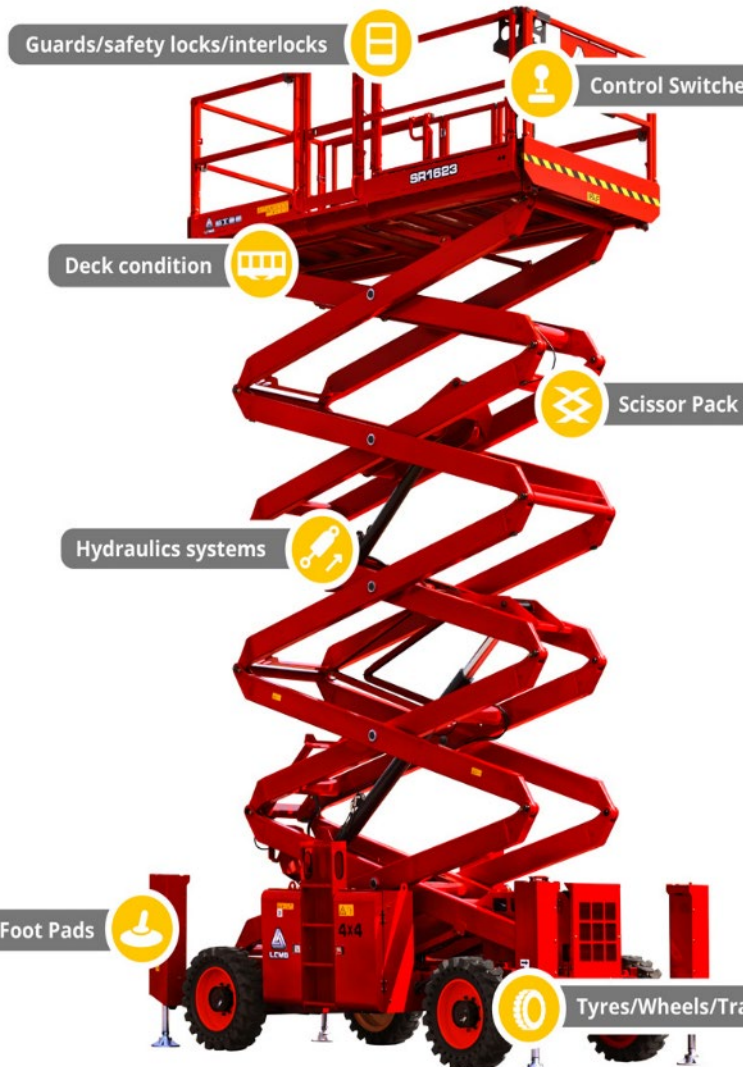
| Job No | Inspection Location | Pre-delivery | On Site | CPI / SPI for Scissor Lift | Report Log # |
|---------------------|---------------------|------------------------|--------------------|----------------------------|--------------|
| 13060 | 何文田 | 合格 | 已施工 | 剪刀式升降台 | 1 |
| Date of Inspection: | 20-Oct-23 | Equipment Description: | AIIRMAN ENCL0455-3 | Inspectors: | LOK LAI, POK |
| 到期日期: | 17-Feb-24 | 設備名稱 / 說明: | | 檢閱人員: | |
| | | Equipment S/N: | CS453A5001 | Signature: | |
| | | 設備出廠編號: | | 姓名: | |
| | | Equipment Owner's No.: | ESC454 | Equipment Owner: | 黃榮 |
| | | 設備編號: | | 設備擁有人: | |
| | | 設備使用人: | | 設備使用人: | |

| Inspection Item: 檢查項目 | Checked | | Condition | | | | Conformity | | | Hazard Potential | | | Remarks / Remedial Action Required |
|--|---------|----|-----------|---|---|----|------------|----|---|------------------|---|--|------------------------------------|
| | Yes | No | A | B | C | AA | BB | CC | 1 | 2 | 3 | | |
| Tyres/Wheels 輪胎 | ✓ | ✓ | | | | | | | | | | | Crawler |
| Drive Motors 動力馬達 | ✓ | ✓ | | | | | | | | | | | |
| Operation test 所有動作操作 | ✓ | ✓ | | | | | | | | | | | |
| Outriggers and Floats 外支撐腳及其浮圈 | N/A | | | | | | | | | | | | |
| Outrigger Cylinders 外支撐腳油缸 | N/A | | | | | | | | | | | | |
| Pot hole guard 防坑洞護欄 | N/A | | | | | | | | | | | | |
| Scissor Mechanism 剪刀式機械裝置 | ✓ | ✓ | | | | | | | | | | | |
| Pins Bolts and Locking 大螺絲及鎖座 | ✓ | ✓ | | | | | | | | | | | |
| Cylinders 油缸 | ✓ | ✓ | | | | | | | | | | | |
| Cylinder counterbalance check value 油缸平衡 | ✓ | ✓ | | | | | | | | | | | |
| Engine 引擎 | ✓ | ✓ | | | | | | | | | | | |
| Hydraulics 油壓 | ✓ | ✓ | | | | | | | | | | | |
| Hoses and Pipes 油喉及喉管 | ✓ | ✓ | | | | | | | | | | | |
| Chassis 底架 | ✓ | ✓ | | | | | | | | | | | |
| Working platform 工作平台 | ✓ | ✓ | | | | | | | | | | | |
| Upper Controls 工作平台控制 | ✓ | ✓ | | | | | | | | | | | |
| Lower Controls 機械控制 | ✓ | ✓ | | | | | | | | | | | |
| Upper/Lower Controls Interlock 工作平台/機械控制 | ✓ | ✓ | | | | | | | | | | | |
| Electrics 電力裝置 | ✓ | ✓ | | | | | | | | | | | |
| Deadman Switch / Pedal 動力安全制動 | ✓ | ✓ | | | | | | | | | | | |
| Level gauge 水平尺 | ✓ | ✓ | | | | | | | | | | | |
| Leveling device 水平調整裝置 | ✓ | ✓ | | | | | | | | | | | |
| Emergency Stops 急停 | ✓ | ✓ | | | | | | | | | | | |
| Horn 喇叭 | ✓ | ✓ | | | | | | | | | | | |
| Raising / Lowering Audio Alarm 升降警報 | ✓ | ✓ | | | | | | | | | | | |
| Batteries 電池 | ✓ | ✓ | | | | | | | | | | | |
| Emergency Operation 緊急控制系統 | ✓ | ✓ | | | | | | | | | | | |
| Fire Extinguisher 滅火筒 | ✓ | ✓ | | | | | | | | | | | |
| Guards and Protectors 安全及保護裝置 | ✓ | ✓ | | | | | | | | | | | |
| SWL Signage 安全重量顯示牌 | ✓ | ✓ | | | | | | | | | | | |
| NRMM 證書 | N/A | | | | | | | | | | | | |
| Statutory Certificate 法定證書 | ✓ | ✓ | | | | | | | | | | | |

| General Upkeep: | Good 滿意 | Fair 一般 | Poor 劣 | Acceptable 可接受 | Un-acceptable 不可接受 |
|-----------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 一般保養 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| Remedial Action Required | Yes | No | CPI / SPI Coordinator Responsible | David Ho (何文田) |
|--------------------------|--------------------------|-------------------------------------|-----------------------------------|----------------|
| 是否要求改善 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 負責採取改善行動 | David Ho (何文田) |
| By CPI / SPI Inspector: | Name 姓名: | Signature 簽名: | Date 日期: | |

| Key: | A: Condition unacceptable / maintenance recommended | AA: Sub-standard & breaks the law | 1: Extremely Hazardous with potential to cause fatality / major property damage |
|------------------|---|--|---|
| A: 狀況不可接受 / 必須維修 | AA: 次標準及違反法律 | 1: 極度危險有導致致命傷 / 重大財產損失之可能 | |
| Key: | B: Remedial and repair actions recommended | BB: Sub-standard & not conform to site specific rules | 2: Hazardous with potential to cause serious injury / property damage |
| B: 建議維修及修理行動 | BB: 次標準及不符合現場特定規則 | 2: 危險有導致嚴重傷 / 財產損失之可能 | |
| Key: | C: Poor condition and needs immediate improvement | CC: Poor practice but not break any laws or site rules | 3: Hazardous with potential to cause harm, minor injury / minor property damage |
| C: 狀況不佳 / 必須立即改善 | CC: 不良做法但並未違反任何法律或現場規則 | 3: 危險有導致傷害 / 財產損失之可能 | |



Gammon
TaiKoo Place Phase 2A Development

ZEROHARM

Daily Checklist for Mobile Elevated Working Platform (升降台檢查表格 - 每日檢查表)

| | | | | | | |
|--|---------|-------------------------|---------|---------|---------|---------|
| Plant Model No. (機身型號) | | Plant Serial No. (機身編號) | | | | |
| Plant Owner (機身擁有人) | | Owner No. (機身編號) | | | | |
| Date of inspection (檢查日期) | | | | | | |
| Inspection carried out by (檢查人員姓名) | | | | | | |
| <input checked="" type="checkbox"/> 滿意 <input type="checkbox"/> 不滿意 N/A 不適用 *當發現有任何不妥當，應立即停止操作並通知機身主管完成維修行動 | Mon 星期一 | Tue 星期二 | Wed 星期三 | Thu 星期四 | Fri 星期五 | Sat 星期六 |
| 1. 附有有效表格一、四、五 | | | | | | |
| 2. 控制器 | | | | | | |
| 3. 圍欄、門 | | | | | | |
| 4. 伸縮工作平台 | | | | | | |
| 5. 警告閃燈 | | | | | | |
| 6. 傾斜停止升降裝置 | | | | | | |
| 7. 油喉、喉管 | | | | | | |
| 8. 警告響號 | | | | | | |
| 9. 上落梯架 | | | | | | |
| 10. 電池 | | | | | | |
| 11. 升降台必須完全降下才可移動 | | | | | | |
| 12. 輪胎或履帶狀況 | | | | | | |
| Others (其他) | | | | | | |
| Name of Inspector (檢查人員姓名) | | | | | | |
| Signature of Inspector (檢查人員簽署) | | | | | | |
| Date (日期) | | | | | | |

Critical Parts Inspection - MEWPS

| | | | | | |
|-----------------|--------------------------------|---|--|--|--------------------|
| Job No 13960 | Inspection Location 檢查地點 志昂 | Pre-delivery 送機前 <input type="checkbox"/> | On Site 已到工地 <input checked="" type="checkbox"/> | Special Plant Inspection for Cherry Picker 伸臂式升降台 | Report Log No 1 |
|-----------------|--------------------------------|---|--|--|--------------------|

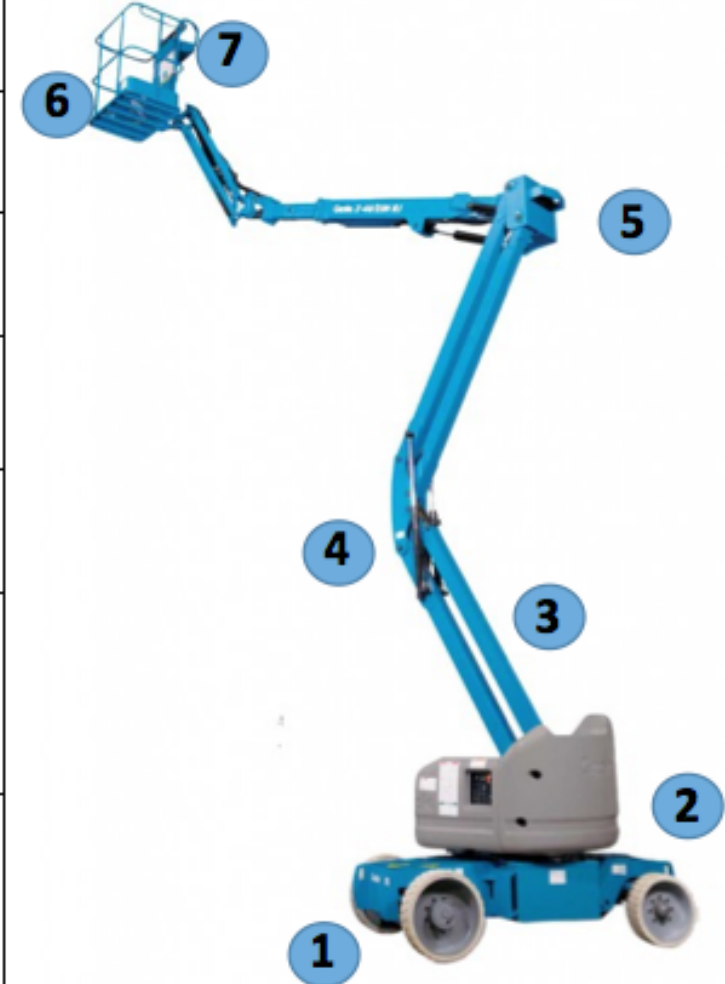
| | | | | | |
|-----------------------------|-----------|-------------------------------------|----------------|---------------------------|------------|
| Date of Inspection: 檢查日期 | 18-Jul-24 | Equipment Description: 設備型號 / 說明 | GENIE Z45/25 | Inspectors: 檢查人員 | 誠, 斌 |
| Expiry Date: 到期日期 | 15-Nov-24 | Equipment S/N: 設備出廠編號 | Z452514A-50631 | Signature: 簽名 | <i>shw</i> |
| | | Equipment Owner's No.: 設備編號 | E45-72 | Equipment Owner: 設備擁有人 | CHICARDO |
| | | | | Equipment User: 設備使用人 | |

| Inspection Item: 檢查項目 | Checked 檢查 | | Condition 狀態 | | | Conformity 合例 | | | Hazard Potential 潛在危險 | | | Remarks / Remedial Action Required 備註 / 須改善項目 |
|--|---------------|----|-----------------|---|---|------------------|----|----|--------------------------|---|---|---|
| | Yes | No | A | B | C | AA | BB | CC | 1 | 2 | 3 | |
| Tyres/Wheels 輪胎 | ✓ | | ✓ | | | | | | | | | |
| Chassis 底架 | ✓ | | ✓ | | | | | | | | | |
| Operation test 所有動作操控 | ✓ | | ✓ | | | | | | | | | |
| Drive Motors 動力馬達 | ✓ | | ✓ | | | | | | | | | |
| Boom / Telescope 主臂伸縮 | ✓ | | ✓ | | | | | | | | | |
| Pins, Bolts and Locking 大螺絲及鎖尾 | ✓ | | ✓ | | | | | | | | | |
| Cylinders 積筒 | ✓ | | ✓ | | | | | | | | | |
| Engine 引擎 | | | N/A | | | | | | | | | |
| Man Basket 載人籃 | ✓ | | ✓ | | | | | | | | | |
| Upper Controls 企人籃控制 | ✓ | | ✓ | | | | | | | | | |
| Lower Controls 機底控制 | ✓ | | ✓ | | | | | | | | | |
| Upper/Lower Controls Interlock 企人籃/機底控制 | ✓ | | ✓ | | | | | | | | | |
| Hydraulics 油壓系統 | ✓ | | ✓ | | | | | | | | | |
| Cylinder counterbalance check value 積筒平衡 | ✓ | | ✓ | | | | | | | | | |
| Hoses and Pipes 油喉及喉管 | ✓ | | ✓ | | | | | | | | | |
| Deadman Switch / Pedal 動力安全總制 | ✓ | | ✓ | | | | | | | | | |
| Level gauge 平水呎 | ✓ | | ✓ | | | | | | | | | |
| Leveling device 平水警報裝置 | ✓ | | ✓ | | | | | | | | | |
| Emergency Stops 急停 | ✓ | | ✓ | | | | | | | | | |
| Electrics 電力裝置 | ✓ | | ✓ | | | | | | | | | |
| Batteries 電池 | ✓ | | ✓ | | | | | | | | | |
| Emergency Operation 緊急時期控制系統 | ✓ | | ✓ | | | | | | | | | |
| Horn 喇叭 | ✓ | | ✓ | | | | | | | | | |
| Raising / Lowering Audio Alarm 升降警號 | ✓ | | ✓ | | | | | | | | | |
| Fire Extinguisher 滅火筒 | ✓ | | ✓ | | | | | | | | | 無 |
| SWL Signage 安全載重顯示牌 | ✓ | | ✓ | | | | | | | | | |
| NRMM 證書 | ✗ | | N/A | | | | | | | | | 綠卡/黃卡 證書號碼: RPE證書號碼: A-CI-2402127 簽發日: 23-Feb-24 公證行: PARTNERS 簽發人: NG HING MAN 註冊編號: RP0592100 製造年份: 2014 |
| Statutory Certificate 法定證書 | ✗ | | ✓ | | | | | | | | | |

| | | | | | |
|-------------------------|-------------------------------------|--|------------------------------------|--|---|
| General Upkeep: 一般保養 | Good 滿意 <input type="checkbox"/> | Fair 一般 <input checked="" type="checkbox"/> | Poor 劣 <input type="checkbox"/> | Acceptable 可接受 <input checked="" type="checkbox"/> | Un-acceptable 不可接受 <input type="checkbox"/> |
|-------------------------|-------------------------------------|--|------------------------------------|--|---|

| | | | | |
|--|----------|---------|---|-------------|
| Remedial Action Required 必須改善: | Yes ✓ | No ✗ | CPI / SPI Coordinator Responsible for Taking Remedial Action CPI / SPI 負責人姓名: | DAVID CHUNG |
| by CPI / SPI Inspector: 改善完畢後負責人姓名: | Name 姓名: | | Signature 簽名: | Date 日期: |

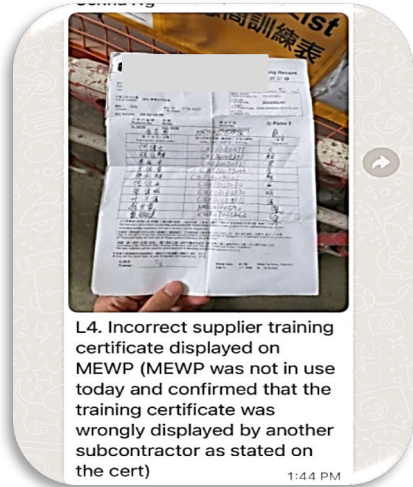
1. Inspect tyres for damage / excessive wear
2. Inspect slew bolts for security.
3. Inspect all boom arms for damage and cracks
4. Inspect all rams for leaks, damage and security.
5. Inspect all boom pins for security.
6. Inspect the basket for cracks and corrosion. Inspect mounts for damage / cracks and security.
7. Equipment Operation – Ensure all audible alarms are working, check all safety switches, and ensure no controls have been modified.





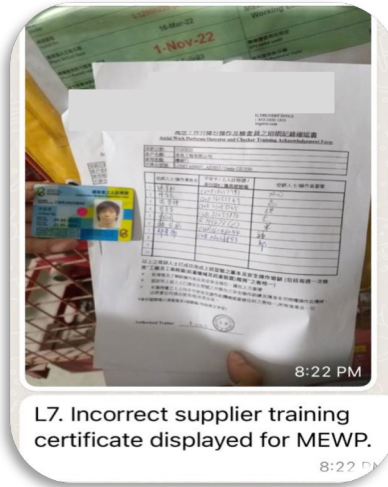
Industry Issues

Trade Practice in the Industry



L4. Incorrect supplier training certificate displayed on MEWP (MEWP was not in use today and confirmed that the training certificate was wrongly displayed by another subcontractor as stated on the cert)

Incorrect Training Cert.



L7. Incorrect supplier training certificate displayed for MEWP.

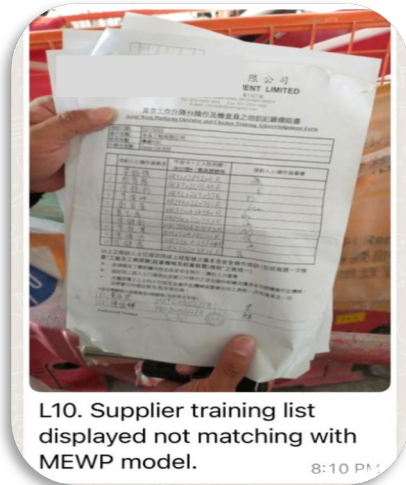
Operator NOT on List



Crowded Training
> 30 workers



MEWP Training Conduct at Workplace



L10. Supplier training list displayed not matching with MEWP model.

Wrong Model No.



Lack of MEWP Management Training to Managerial Staff

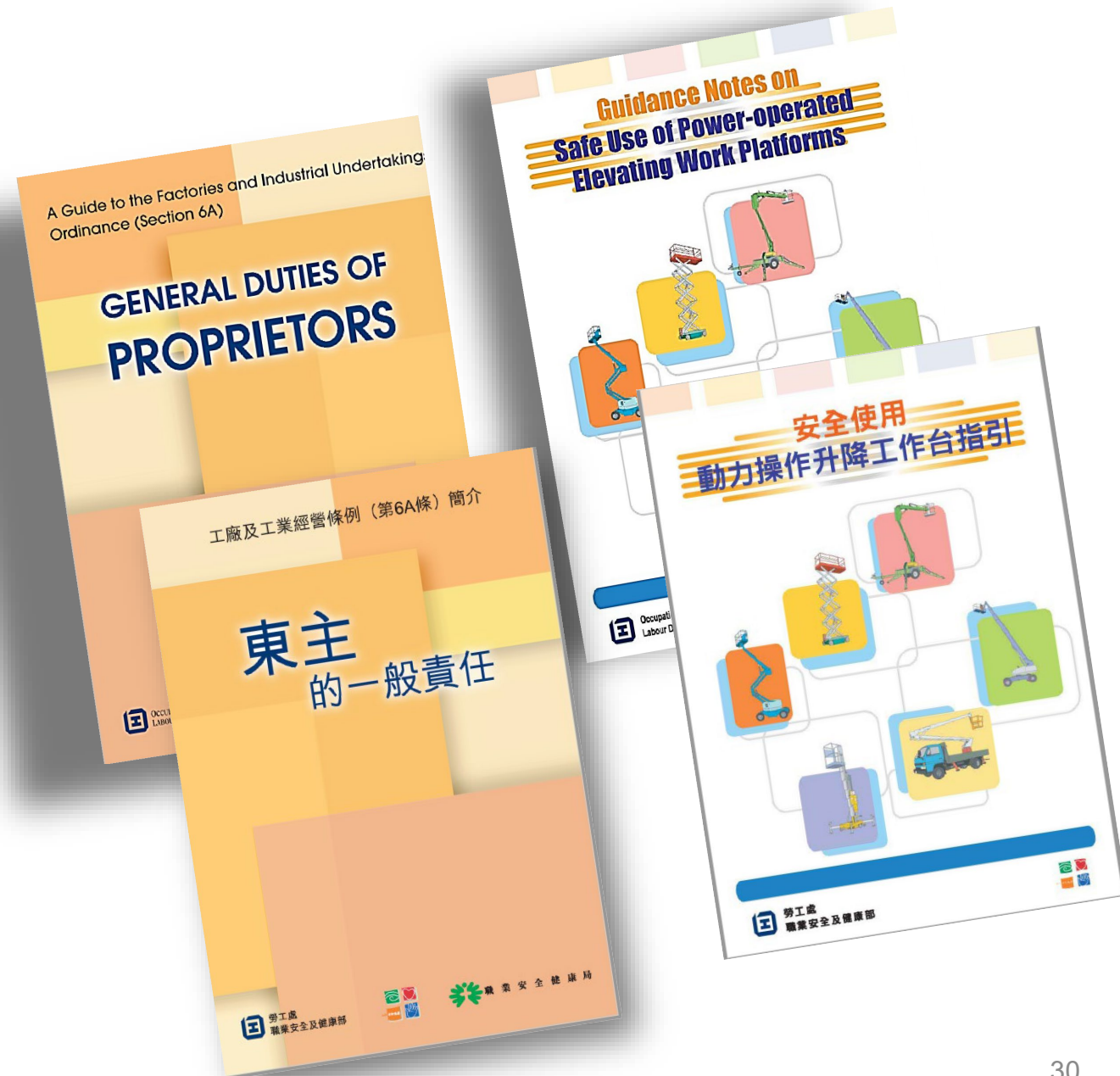


No Practical Training nor Practical Testing

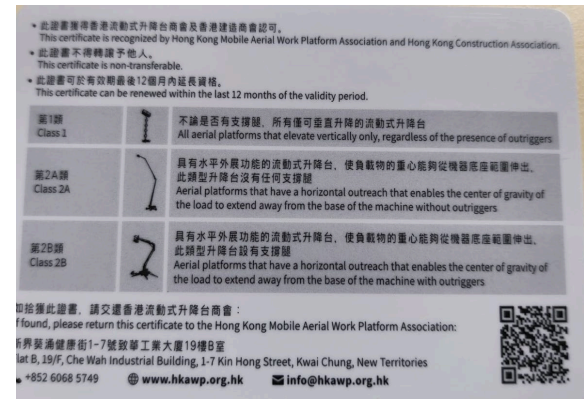
After the completion of the training referred to in paragraph 11.2 (c),

the operator should be able to understand and appreciate the following:

- (a) detailed construction, performance, **maintenance and operation of the type of MEWPs**;
- (b) Potential **hazards** associated with the operation of MEWPs;
- (c) **Possible causes of and prevention strategies for common accidents** associated with the operation of MEWPs;
- (d) basic **operating skills** for the particular type of MEWP including:
 - conduct routine **checks**;
 - plan work;
 - check controls and equipment;
 - shut down machine; and
 - ensure that the site is secure.
- (e) the basic **operating skills** of the particular type of MEWP **with reference to the manufacturer's specifications** and operation/maintenance manuals; and
- (f) Safety attitude **to safeguard themselves as operators of MEQPs and other workers while operating the machine**



8 training centres in HK, 1 in Gammon T2.



Validity : 5 years



- ✓ Background Hong Kong
- ✓ Categorizing
- ✓ Standards and legislation
- ✓ Structures and applications
- ✓ Assessment of work environment
- ✓ Safety features
- ✓ Safety operation
- ✓ Pre-operation inspections and regular maintenance

- ✓ Pre-operation inspections
- ✓ Functional test
- ✓ Safety operation



| Division | No of worker trained of MEWP operator in 2023/2024 |
|-------------------|---|
| Building | 1681 |
| Civil | 3379 |
| CSD | 64 |
| E&M | 3875 |
| Entasis | 127 |
| Foundation | 141 |
| Total | 9267 |

Swiss Cheese Model 瑞士奶酪理論

People make mistakes – we need **several lines of defence** 人會犯錯 – 我們需要多道防綫

Design and Engineering 設計與工程

Remove the Fatal and Disabling Risks
Make it Easy to Build Safety
消除致命和致殘風險
輕鬆實現安全建造

Materials, Plant and Equipment 材料、工廠和設備

The Safest System of Work
最安全的工作系統

Process 流程

Prove its Safe
證明它是安全的

People 員工

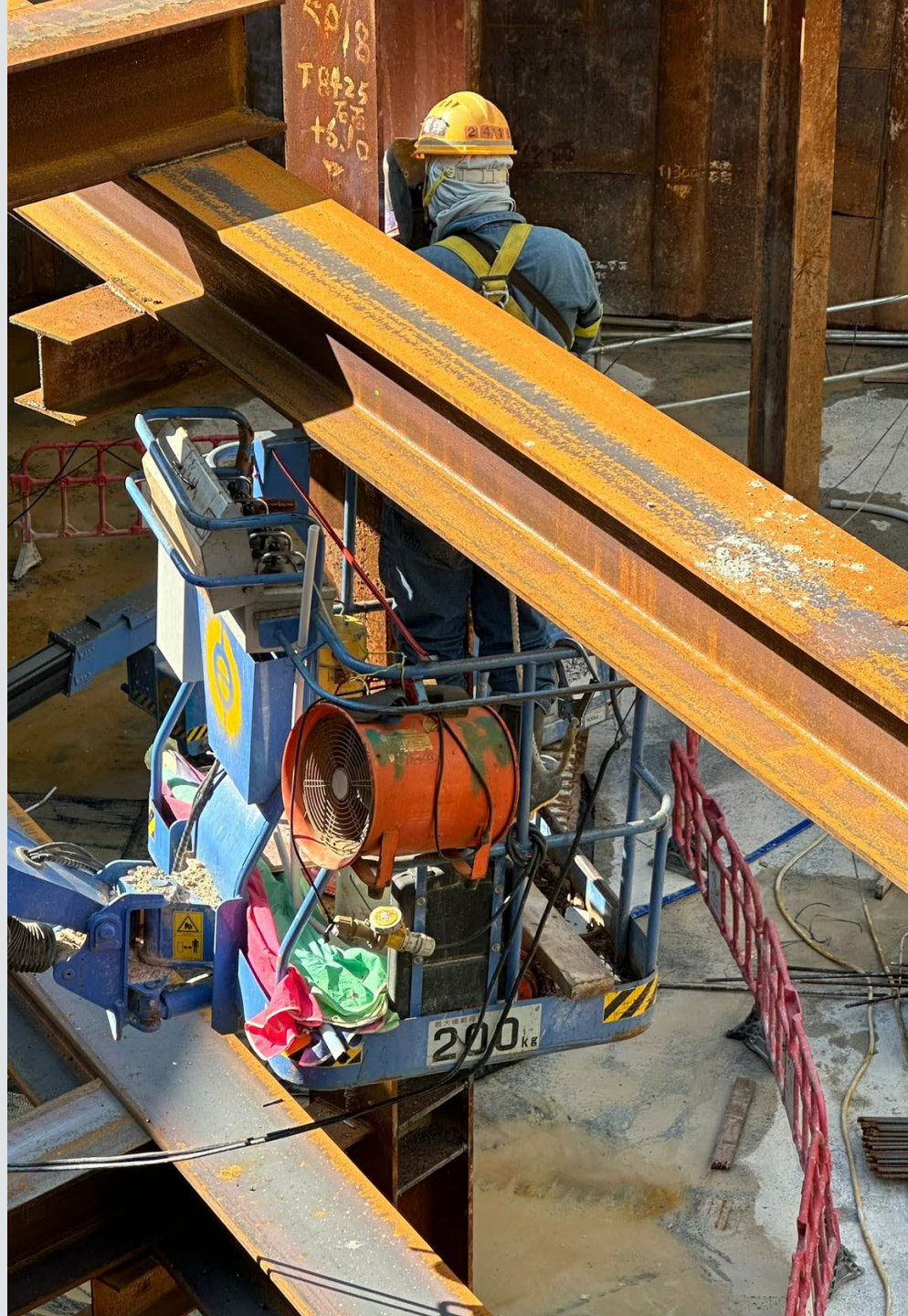
Make safety personal
讓安全成為個人的事



Directors, Senior Project Managers
董事、高層和項目經理

Site Staff and Frontline Supervisors
現場工作人員和
前綫管理人員

Responsibility and Ability
to Influence
責任感和影響力





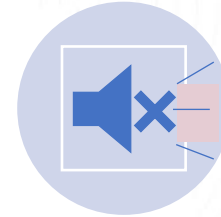
Secondary Guarding



DEVB Latest Requirement on MEWP (Secondary Guarding Device –SGD)



**Install SGD- Existing project-
Deadline 23 Dec 2024**



**SGD- Physical or Smart
Device**
(Visual +Audible Signal <
500mm overheard distance)



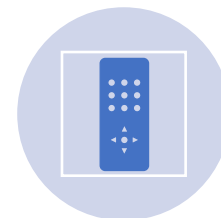
MEWPs Risk Assessments
Overall Operation including
Entrapment, and use of SGD+
Training of SGD



**Register of MEWPs + Permit
to Work System** before using



Safety Warning notices of
using MEWPs (Not limited to
Entrapment)



Two Set Controls of MEWP,
1-on Platform, 2-on Ground or
Chassis level,
(Ground level can override the set on
platform in case of Emergency)

Annexe 1

Types of secondary guarding



Physical barrier fixed full cage structure

Features a steel structure designed to transfer the kinetic energy into surrounding structures while maintaining a protected area for the operator



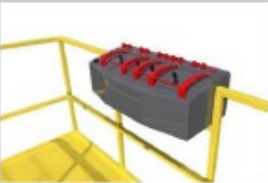
Operator protective structure

Features a steel structure designed to transfer the kinetic energy into surrounding structures while maintaining a protected area for the operator.



Side protection barriers

Structure is fitted to the guardrails and projects above the platform to protect the operator. May also be fitted with an overhead cross bar (not shown).



Local control barriers

Features individual raised indents to protect specific controls from being accidentally operated.



Contact device

When activated it stops immediate movement and activates audible and visual warning devices.

Some devices may also limit further movement, and some may reverse the last operated function.

Annexe 1 Continued

Types of secondary guarding



Moveable or breakaway bar or contact alarm

(Detachable cable shown)

Designed to alert when an operator contacts the platform control panel, interrupting boom movement, sounding an alarm, and flashing a warning light.



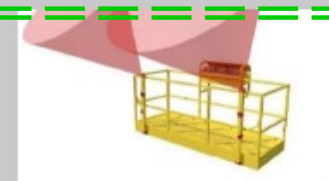
Pressure sensing control panel

When a significant abnormal force is exerted upon the control panel, boom and drive functions are automatically disabled.



Contact poles

Poles with sensors are designed to activate when an obstruction contacts an activation whisker.



Proximity device

Detects proximity of external structure and stops further movement.



Two hand control promoting operator positioning

Requires dual-handed input for movement.



Operator Presence system

The system monitors the position and movement of the operator with respect to the controls and enables MEWP movement.

CHICARDO (志昂)- LGMG-Height Limit Bar Module (Around \$3000)



LGMG-Height Limit Bar

- ▶ Can only be installed at **LGGM MEWP** under **CHICARDO**
- ▶ Instantly Stop
- ▶ Power System integrated with Platform
- ▶ Adjustable Effective Distance

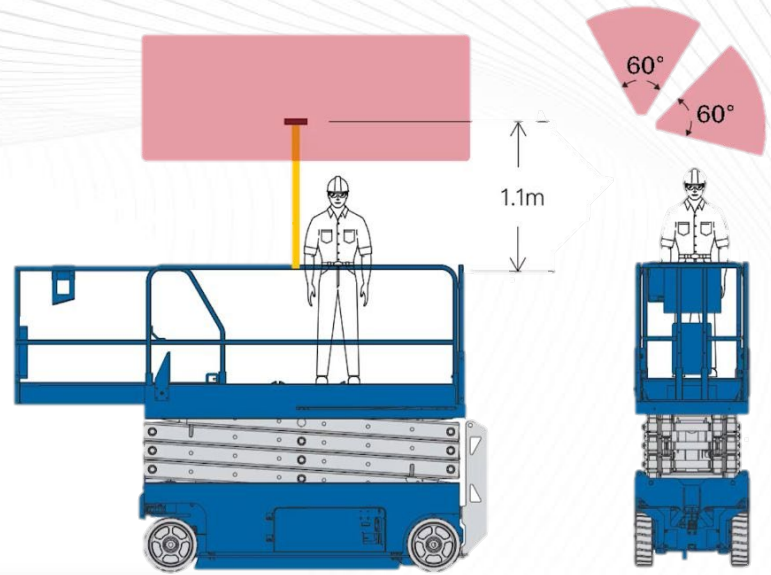
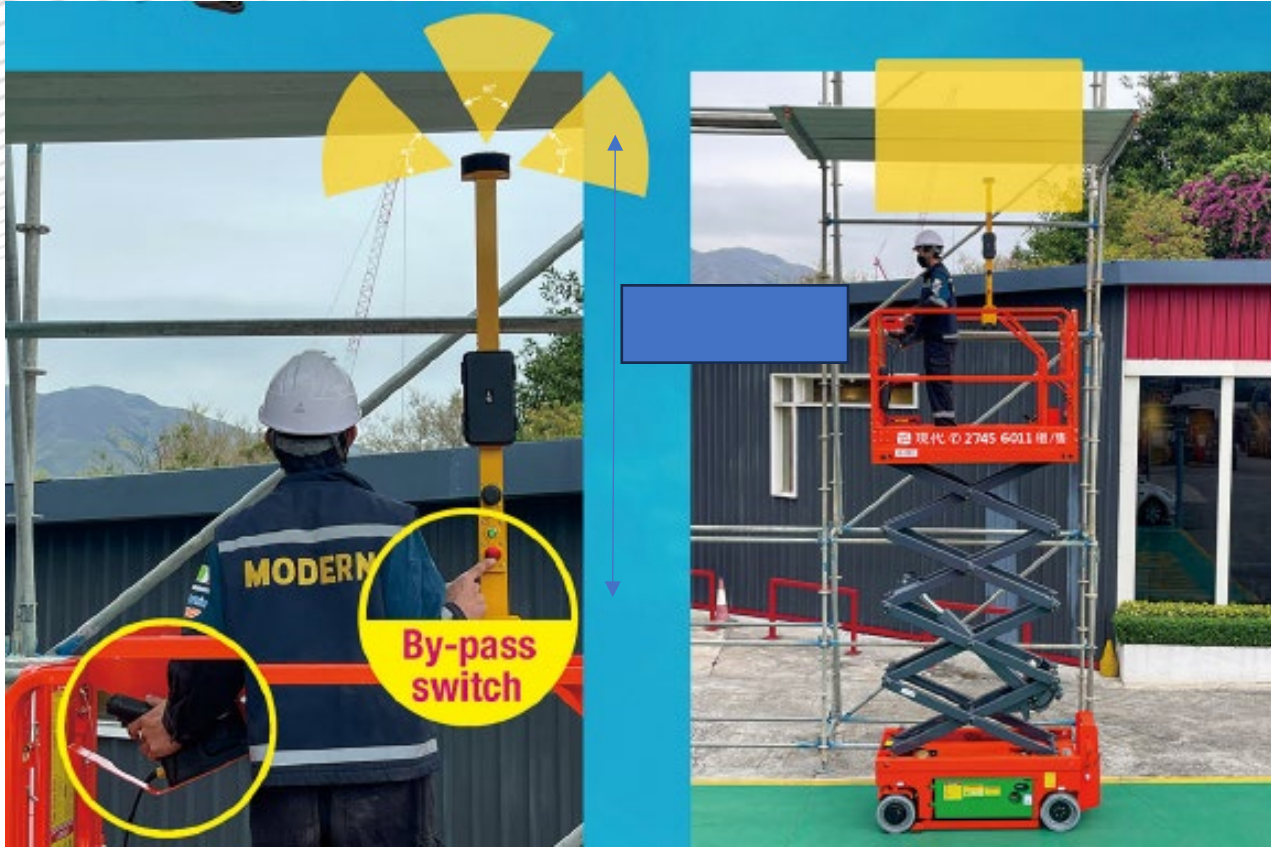
Gammon will have a
Trial on it

Modern sMart Xensor (Around \$9000)



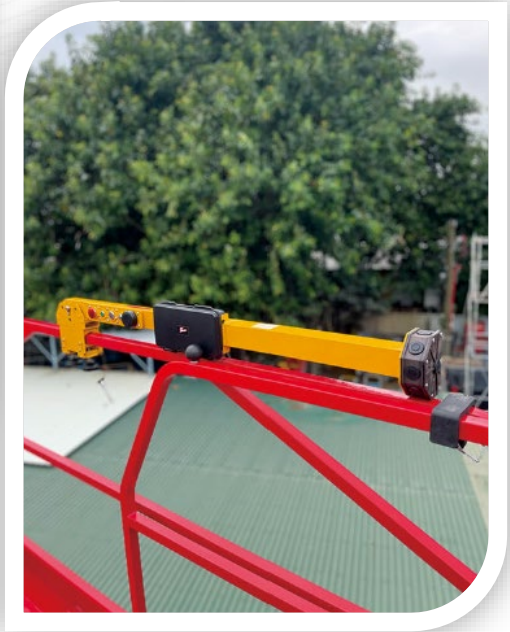
Modern sMart Xensor (Around \$9000)

- ▶ Can only be installed at **All MEWP under Modern**
- ▶ Instantly Stop
- ▶ Power Bank needed
- ▶ Adjustable Effective Distance, with bypass switch
- ▶ Audible and Visual Warning

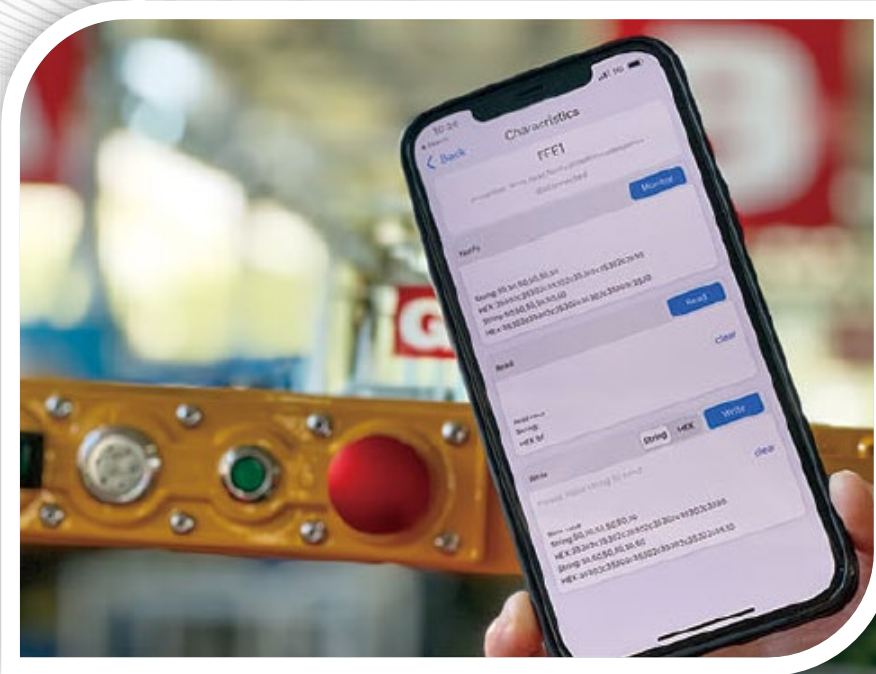


Modern sMart Xensor

Transformable for convenient



Portable PowerBank (7 days)



Mobile Collection



Easy Installation



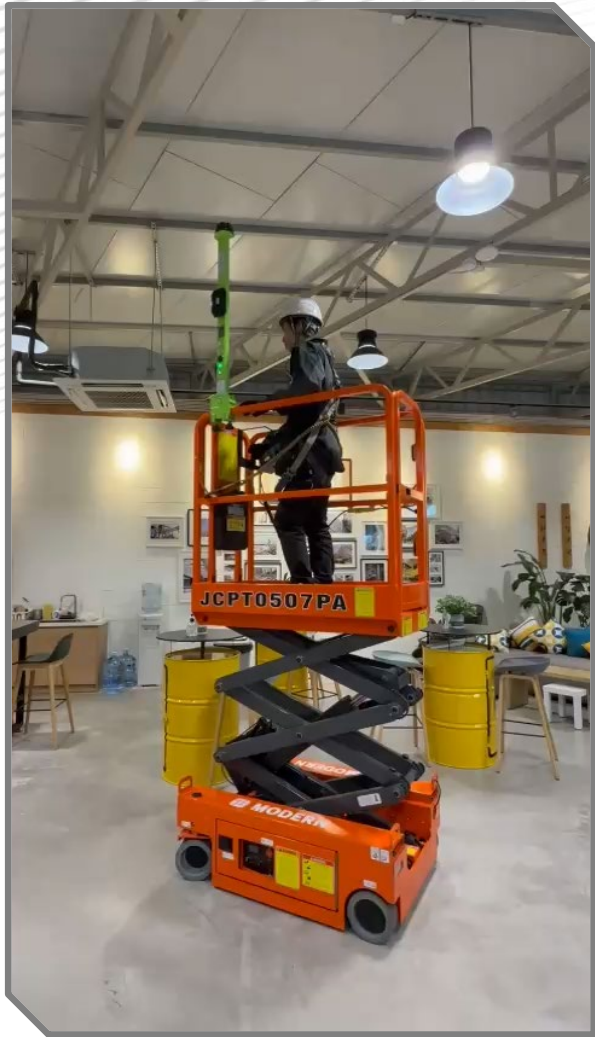
Modern X-Lite



Modern X-Lite

- ▶ Can be installed at **All MEWP**
- ▶ **No STOP function** only Warning Pole
- ▶ Power Bank needed
- ▶ Adjustable Effective Distance, with bypass switch
- ▶ Audible and Visual Warning

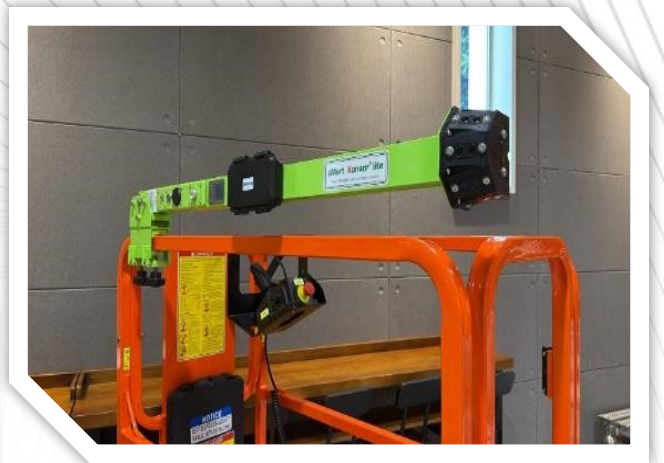




Activate Alarm



Portable Power Bank



Easy to install



Modern sMart Poles

- ▶ Can be installed All MEWPs under Modern
- ▶ Can select the number of Poles
- ▶ Instantly Stop
- ▶ Power System integrated with Platform
- ▶ Adjustable Height

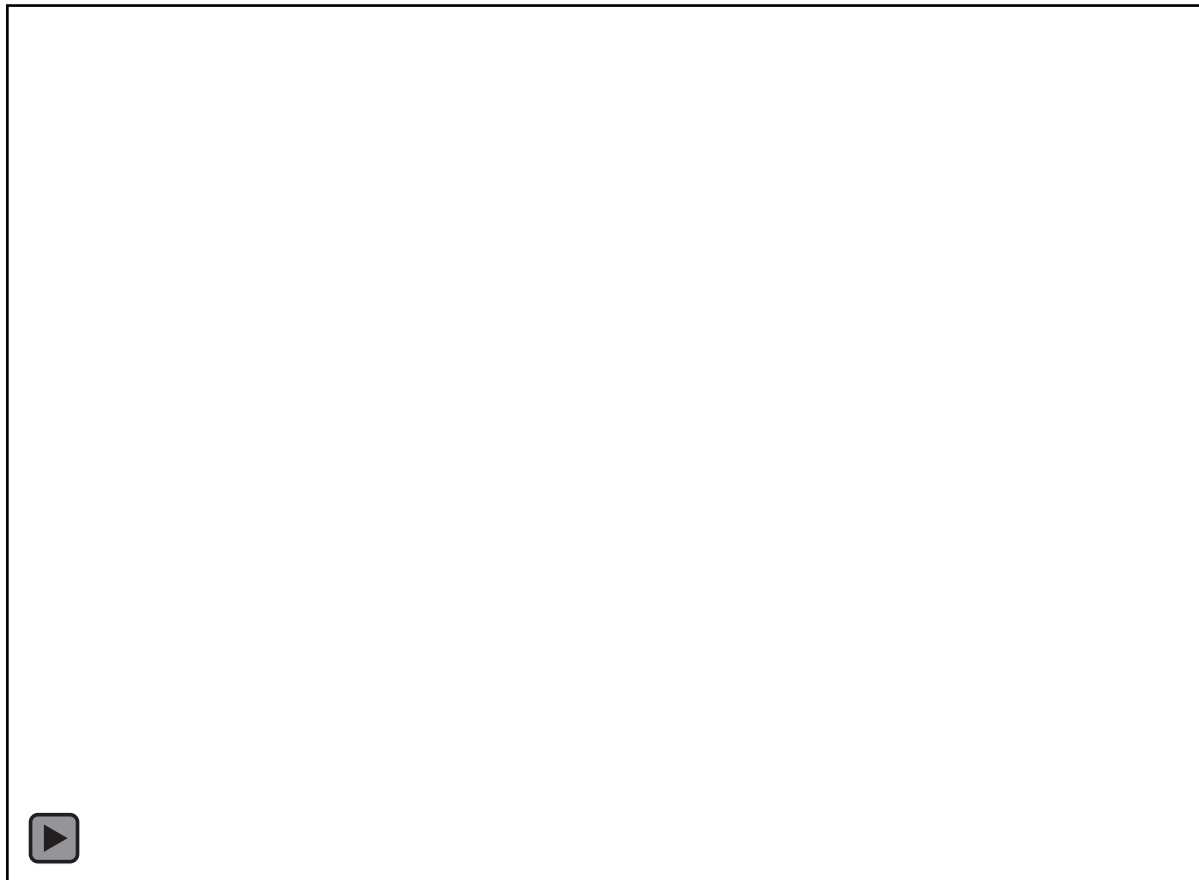




The Lift Guard™ Contact Alarm is designed to alert ground personnel when an operator makes contact with the platform control panel, interrupting boom movement, sounding an alarm and flashing a warning light.

The system is designed to be unobtrusive, featuring an activation cable fitted above the boom lift's control panel. **When the activation cable is tripped, the lift and drive functions are disabled on the platform.**

Then **audio and visual warnings** will activate



Video

Trip Guard Features:

- ▶ Wire Type
- ▶ Audible Alarm
- ▶ Flash Light Alarm
- ▶ Instantly Stop
- ▶ Resume Manually

Others Anti-Entrapment Equipment in Market

Alert Pole (Japan-Around \$3600)



Japan Alert Poles

- ▶ Can be installed All MEWPs
- ▶ **No STOP function** only Warning Pole
- ▶ Adjustable Height
- ▶ Power System integrated with Platform



Others Anti-Entrapment Equipment in Market Alert Pole (Japan-Around \$3600)

NISHIO 高所作業のはさまれ事故防止に
取付簡単!! はさまれん棒
危険を未然に防ぐ!! 機種を選ばず取付可能!

NETIS番号 CB-180021-VE

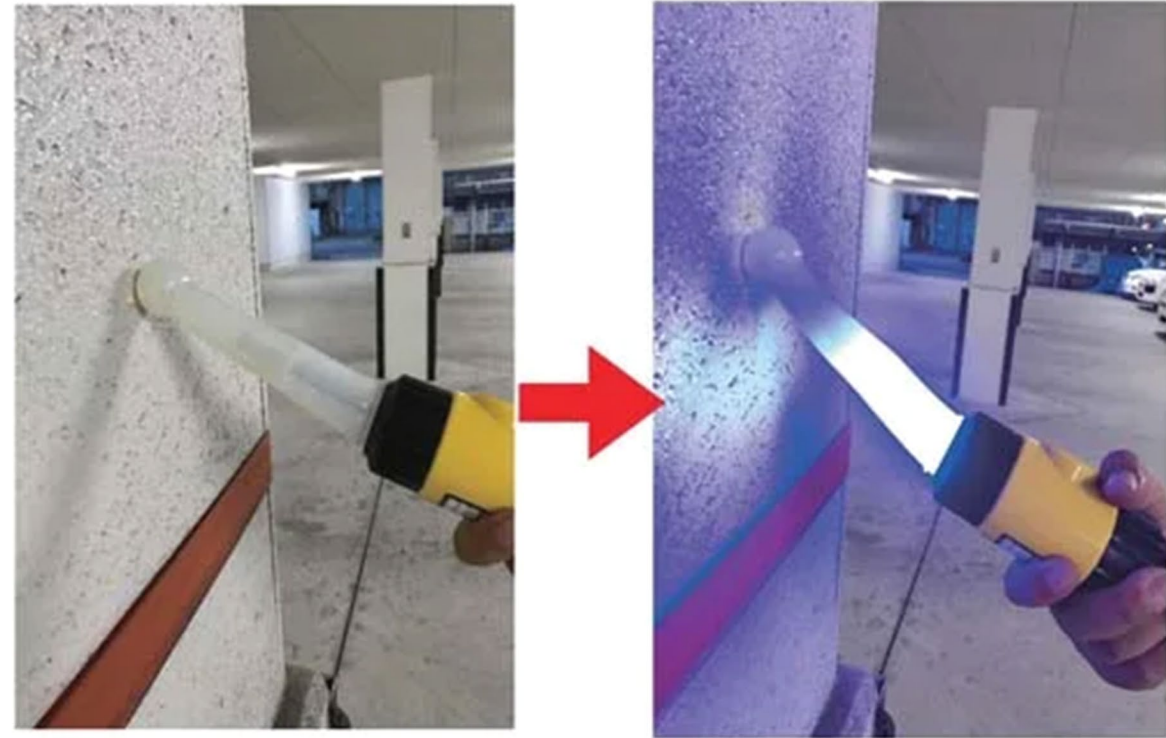
単管パイプに差し込み
取付け完了

ブザー音と光で警告
上・横(360°)検知可能

| | |
|---------|--------------------|
| ■仕様 | |
| 外形寸法 | 全長=395×φ53(本体部) |
| 質量 | 約400g |
| 材質 | 本体:ABS 検知パージンコン |
| 検知範囲 | 検知高さ: 検知方向:360° |
| 発光色/明るさ | 発光色:23.5lm |
| ブザー音量 | 90dB |
| 電源 | DC 3V(アルカリ単三電池x2本) |

〈使用例〉
上
横
ブザー音
トンネル内でも
検える90dB

お問い合わせ
西尾レントオール株式会社
TEL:011-233-3333



Pinching Stick ->
With Audible and Visual Warning

Others Anti-Entrapment Equipment in Market

AIRMAN

AIRMAN

Makes Future

北越工業株式会社

Full Range of Safety Features

Safety support device Factory options

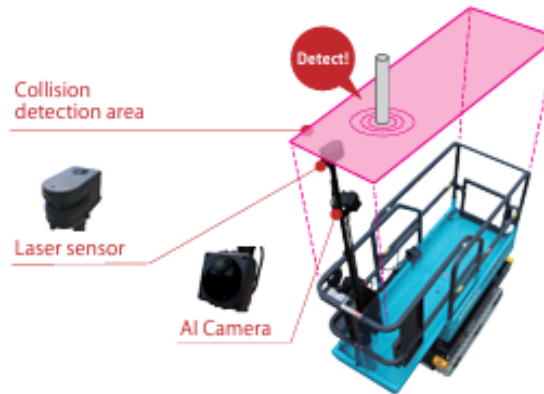
Prevent ceiling entrapment accidents

+Higher functionality +More safety

Entrapment Prevention Feature

When the laser sensor detects an obstruction when raising the platform, a buzzer will sound, and the platform is automatically stopped.

- Detect collisions
- The detection sensor covers directly above the work platform.



※ This equipment is an option for manufacturing. ※Image is only an illustration.

AIRMAN

- ▶ Can only be installed at **All MEWP** under AIRMAN
- ▶ Instantly Stop
- ▶ Power System integrated with Platform
- ▶ Adjustable Effective Distance,
- ▶ Audible Warning



Anti Entrapment Device – Installation at Safety Helmet



- Cost around \$4300
- Attaches to safety helmet
- Rather than a device fitted to the MEWP



[H4LO - The ONLY Non-Invasive Smart Detection Warning Device You Need To Prevent MEWP Entrapment! \(youtube.com\)](https://www.youtube.com)



Secondary Guarding Devices(SGD) in Market

Annexe 1

Types of secondary guarding



Physical barrier fixed full cage structure

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Operator protective structure

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Side protection barriers

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Contact device

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Annexe 1 Continued

Types of secondary guarding



Moveable or breakaway bar or contact alarm

(Detachable cable shown)

Designed to alert when an operator contacts the platform control panel, interrupting boom movement, sounding an alarm, and flashing a warning light.



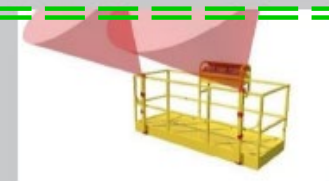
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Contact poles

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Proximity device

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Two hand control promoting operator positioning

Requires dual-handed input for movement.



Operator Presence system

The system monitors the position and movement of the operator with respect to the controls and enables MEWP movement.

The Gammon Culture Model



Mindful



Informed



Learning



Fairness



Respect

KEY STEPS OF MEWP MANAGEMENT

- 1)**
Assess the work activities and the environment
- Consider the location and access for the MEWP including the routing to the work location.
 - Review ground conditions and point loading. Cross fall and working on ramps.
 - Identify overhead hazards and assess the risk this pose.
 - Hazards from traffic such as forklifts, mobile plant and other MEWPs that may collide.
-

KEY STEPS OF MEWP

2)

Select an appropriate
MEWP

Height and reach, maneuverability.

Tools and materials for the task.

Location of MEWP V basket.

3)

Hazard identification

How might the operator be trapped.

Sudden and or accidental movements.

KEY STEPS OF MEWP MANAGEMENT

-
- 4)
Risk Review
- How experienced is the operator for the environment and MEWP.
 - How experienced is the supervisor?
 - Visibility and lighting.
 - Secondary guarding on the equipment.
 - Rescue planning and rehearsal.
-

KEY STEPS OF MEWP

5) Briefing and Review

Briefing and discussion of potential entrapment hazards and risks.

Supervisor to ensure all in order before starting and do the iDRA, People, Equipment, Materials, Environment.

Debriefing with supervisor and operators.



*Thank
You*

