Learning from Incidents
Safety Alert from Safety Engineers Association (SEA)

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Title: Mobile Elevated Working Platform (MEWP) Incident

What Happened

An operator sustained fatal injuries while operating a mobile elevated working platform for erection of steel work in a confined structure. Operator was moving the MEWP (Vertical Type - 3a) within the internal structure to position the basket for securing a section of steel. While positioning, the operator extended the boom into a vertical section of steel situated behind him which resulted in operator getting trapped between the MEWP basket control/cage & the section of steel.

What went wrong

Immediate Causes:

⇒ **Wrong selection of MEWP type,** articulated booms are more suitable in confined areas due to more range of ability to maneuver. As per IPAF (International Powered Access Federation) classification, **Used 3a** type instead 3b.

⇒ **Intrinsic risk of the task:** Not followed **face direction of travel** on potential contact and entrapment hazards, prior to maneuvering the basket towards the structure.

⇒ **Familiarization Training:** Operator **did not operate** a type of trained MEWP's category; Training was **not provided** by **IPAF**

⇒ **Rescue Personnel**: **Ground control responder** was not present during MEWP's operation. **The rear head** of the operator was **struck by the structure**; Resulted his body **lean towards to the upward switch**; Suffered a fatal injury due to struck between structure and MEWP.

⇒ **Secondary Guarding Devices:** Apart from manufacturer's safety devices such as Deadman's pedals / switches, need to consider additional safety devices such as anti-entrapment cages and collision shut down systems through a risk assessment process.

Root Causes:

⇒ No one has review and plan sequencing of steel erection activities during development of Safe Systems of Work (SSoW) to reduce potential entrapment points and confined areas wherever possible.

⇒ Project team hired a wrong type of MEWP without assessing the entrapment hazards associated with the activity.

⇒ Since the task is repetitive and conducted by trained personnel, failure to communicate the prescriptive work methodology with the required safe control measures.

Lessons Learnt

⇒ **Adhere to Manufacturer's Manual**: Before selection of MEWP's, one shall read the instruction manual and choose in terms of assuring that the right equipment for the right job for safe use. As incident investigation revealed that each MEWP's category has designed for different work atmosphere.

⇒ **Root Causes**: The constructability and safety in design shall be assessed during design stages and associated risk adequately mitigated for safe constructability. Though in this case no one anticipated such incident could happen, eventually - **LOSS** of human life, time, damaged equipment, project delayed etc.

⇒ At last, if ground responder would have been at that spot, he could have been stopped the maneuvering of MEWP towards to the structure and save the life of operator! So, this incident is a high potential severity case.

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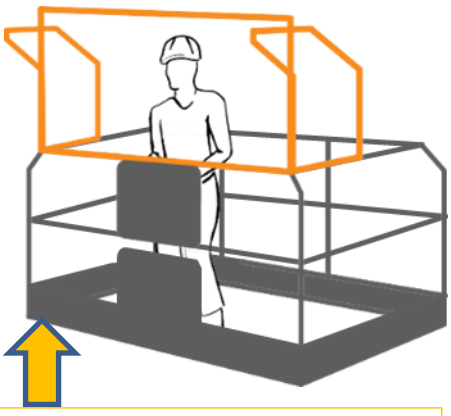
Lessons Learnt

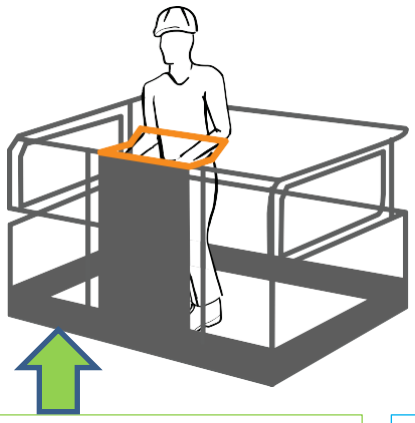
⇒ Each project is required to review all current and planned MEWP activities to ensure that the associated risk of MEWP operations and working at height activities has been adequately assessed and suitable preventative mitigation measures implemented. Required risk mitigation controls should be adequately planned, managed, and controlled through direct supervision assigned for the task and in addition emergency response plan is made. Stop and re-assess the task where there is potential for any change in method or any required deviation. **Engage competent consultation to determine sufficient risk mitigation.**

⇒ **Secondary Guarding Devices, Reducing the risk of crushing and trapping** - There are currently two primary types of secondary guarding device; a frame fitted to the MEWP basket that provides a "safe zone" within the platform, and sensor bars/pads that stop the movement of the MEWP should the operator be pushed onto them. Following sample of protection systems currently available on the market that help to minimize the risk of trapping or crushing when using MEWPs, such as but not limited to;



Sanctuary Zone by AFI

This device comprises steel frames that project above the machine platform. This prevents any operator injuries from happening through crushing, rather than reacting to the crushing once it has occurred.



JLG SkyGuard

The Sky Guard sensor is activated by approximately 23 kg of force. This stops all functions in use at the time and sounds an alarm.

Genie Operator Protective Structure (OPS)

The tubular steel structure does not obstruct the visibility and transfers the effects of any impact to the platform structure while maintaining a protected area for the operator. It can be attached to booms with 1.8-to-2.4-meter platforms.

⇒ **IPAF Training -** Training companies with proven ability to provide necessary level of training, such as IPAF shall wherever possible be engaged. The effectiveness of the provided training shall be reviewed and assessed for the effectiveness of the provided training body, assess results in the level of competency of operators post training.

⇒ **For more details** w.r.t MEWP selection, refer the below mentioned link
https://www.ipaf.org/en/resource-library/ipaf-categories

⇒ **Refer the you tube link for Sanctuary Zone awareness,** https://youtu.be/RYuw5ez03Qw