Guidelines for Safe Use of Mobile Elevating Work Platform (MEWP)









1st Print - 2017

All Rights Reserved

While every effort is made to ensure the accuracy of the contents contained and published herein, Master Builders Association Malaysia (MBAM) does not accept responsibility for any error, omission, loss or detriment caused hereby on any person who makes reference to or use these guidelines.

Any request or enquiries concerning reproduction of the Guidelines can be forwarded to:

MASTER BUILDERS ASSOCIATION MALAYSIA (MBAM) PERSATUAN KONTRAKTOR BINAAN MALAYSIA

No.2 Jalan 2/109E, Desa Business Park, 58100 Kuala Lumpur.

Tel: +603-7984 8636 Fax: +603-7982 6811 Email: ed@mbam.org.my Website: http://www.mbam.org.my

Conten	ts
--------	----

		Page
For	eword and Acknowledgement	1 - 2
MBAM Safety and Health Policy 3		3
1.0	Scope	4
2.0	References	4
3.0	Terms and Definitions	5 - 6
4.0	General Requirements 4.1 Basic Principles 4.2 Statutory Inspection 4.3 System of Work 4.4 Manuals (Handbooks) 4.5 Record Retention 4.6 Modifications	6 - 9 6 - 7 7 7 - 8 8 - 9 8 - 9 9
5.0	Maintenance 5.1 Preventive Maintenance 5.2 Maintenance Inspections 5.3 Maintenance Personnel Training 5.4 Maintenance and Repair Safety Precautions 5.5 Replacement Parts 5.6 Manufacturer's Safety Bulletins	9 - 12 9 9 - 11 11 11-12 12 12
6.0	Operation 6.1 Planning 6.2 Operator Training 6.3 Familiarization 6.4 Assistance to Operators 6.5 Before Operation 6.6 Work Place Inspection 6.7 Understanding of Hazardous Locations 6.8 Specific Requirements of Operation	12-24 12-14 14 15 15 15 16 16 16-24
Ann	ex A: Pictograms of MEWP Misuse	25-29
Ann	ex B: Table on Stakeholders' Duties and Responsibilities – Rescue from Height	30

Foreword

These Guidelines prepared by **Master Builders Association Malaysia** provide useful guidance and general knowledge on Mobile Elevating Work Platform (MEWP).

The Guidelines will help manufacturers, suppliers, owners, employers and employees to understand the rationale and importance of managing hazards and risks arising from the use, maintenance, inspection and operation of MEWP.

These guidelines aim to ensure the safety of MEWP for employees and other persons who may be affected by hazard and risk arising from the work involving use and operation of MEWP. These guidelines will be reviewed periodically to ensure that the contents contained herein are current and relevant.

The provisions made in these guidelines should be interpreted in the context of conditions currently prevailing in the country. The authors make no representation, expressed or implied with regard to the accuracy of the information contained in these guidelines and cannot accept any legal responsibility or liability for any error and omissions that may have been made.

Acknowledgements

These Guidelines were compiled and reviewed by the Safety and Health Committee of Master Builders Association Malaysia (MBAM) and the Technical Committee on Mobile Elevating Work Platform (MEWP).

Sincere appreciation is extended to the Safety and Health Committee Members and the Technical Committee on Mobile Elevating Work Platform (MEWP) for their efforts and contribution in compiling this guideline.

- 1. Mr Foo Chek Lee, President of Master Builders Association Malaysia (MBAM)
- 2. Tuan Hj. Razuki Bin Ibrahim, General Manager of Construction Industry Development Board (CIDB) Malaysia
- 3. Mr Michael Yap Kok Wai, MBAM Council Member cum Chairman of Safety & Health Committee
- 4. Mr Wilson Ang, MBAM Council Member cum Deputy Chairman of Safety & Health Committee
- 5. Major (Rtd) Leong Yee Keong, MBAM Safety & Health Committee Member
- 6. Tuan Hj Noryani Md Nor, MBAM Safety & Health Committee Member
- 7. Mr Khairunnizam Bin Sulaiman, CIDB Malaysia
- 8. Mr Tsai Chang Yee, Department of Occupational Safety & Health (DOSH) Malaysia
- 9. Puan Faizatul Shima bt Jalaluddin, DOSH Malaysia
- 10. Mr Raymond Wat, International Powered Access Federation (IPAF)
- 11. Mr Johnson Lai Eng Soon, Keng Guan Skylift Sdn Bhd
- 12. Mr Alex Tan, Aerial Global Sdn. Bhd.
- 13. Mr Dion Calder, Aver Asia Rental Sdn Bhd
- 14. Mr Albert Lai Eng Yeow, Malaysia Mobile Crane Owners Association (MMCOA)
- 15. Ir. C.C. Chow, Equipinc AWP Sdn. Bhd
- 16. Mr Chris Chin Fook Shun, Terex Singapore PTE LTD
- 17. Mr Christopher Foh Yee Kiong, Manitou Malaysia MH Sdn Bhd
- 18. Mr Billy Ching Hwee Jun, Nationwide Skylift (M) Sdn Bhd
- 19. Mr Chan Jia Yuan, TH Tong Heng Machinery Sdn Bhd
- 20. Mr Kuniayaki Hoshiyama, Nishio Rent All (M) Sdn Bhd
- 21. Ms Loh Mei Ling, MBAM Secretariat
- 22. Ms Chai Min Fung, MBAM Secretariat
- 23. Mr Mohd Farhan Bin Mohammad Din, MBAM Secretariat
- 24. Ms Amanda Tan, IPAF Secretariat
- 25. Mr Morgan Chang, IPAF Secretariat

MBAM would also like to thank Ir. Ke Geok Chuan for contributing his experience and knowledge on MEWP.

We are grateful to the Construction Industry Development Board (CIDB) Malaysia for sponsoring this publication for the benefit of the Construction Industry.



MASTER BUILDERS ASSOCIATION MALAYSIA SAFETY AND HEALTH POLICY

Master Builders Association Malaysia as 'THE PRIME MOVER AND RECOGNIZED VOICE OF THE MALAYSIAN CONSTRUCTION INDUSTRY' has a significant role in promoting the highest standard of Safety & Health practices at workplace to its members, their employees and interested parties. This obligation is achieved by undertaking the following:

- Promote and encourage in providing and maintaining a safe and healthy working environment for all in the construction industry
- Promote safety & health through continuous awareness, training and education
- Promote, encourage and keep abreast on the compliance of the applicable Safety & Health legislations and regulations
- Promote and encourage a safe and healthy workplace at all construction sites
- Develop competent and trained personnel to maintain and improve the Safety & Health of workplace
- Promote and establish effective communication and joint consultation on Safety & Health matters with relevant authorities, industry players and members

Master Builders Association Malaysia believes that all incidents and accidents are preventable and that striving to continually improving the Safety & Health is the collective effort of all members of the association and is fundamental to the improvement and success of the construction industry.



Foo Chek Lee President

Date: 25th October 2017

1.0 Scope

These guidelines cover all Mobile Elevating Work Platform (MEWP) that are intended to position persons, tools and materials and which, as a minimum, consists of a work platform with controls, an extending structure and a chassis. The technical safety requirements of this guidance are outlined in ISO 16368.

This guideline on MEWP aim to achieve the following objectives:

a) Prevention of personal injuries, property damage, and accidents;

b) Establishment of criteria for use, maintenance, inspection, and operation.

2.0 References

The following documents, in whole or in part, are normatively referenced in this document

- Factories and Machinery Act (FMA)1967
- Occupational Safety and Health Act (OSHA)1994
- DOSH Guidelines for the Prevention of Falls at Workplaces 2007
- DOSH Guidelines for Public Safety and Health at Construction Sites (1st Revision) 2007
- MBAM Manual on Occupational Safety and Health 2015
- MBAM Handbook on Hazard Identification, Risk Assessment, and Risk Control (HIRARC) 2015
- ISO 16368:2010, Mobile elevating work platform Design, calculations, safety requirements and test methods
- ISO 18878, Mobile elevating work platform Operator (driver) Training
- IEC/TS 61813, Live working Care, maintenance and in-service testing of aerial devices with insulating booms
- SS 616: 2016 Code of practice for safe use of mobile elevating work platform
- ANSI/SIA A 92 Elevating and vehicle lift devices
- ANSI/SAIA A 92.2 Vehicle-mounted elevating and rotating aerial devices
- ANSI/SAIA A 92.3 Manually propelled elevating aerial platform
- ANSI/SAIA A 92.5 Boom-supported elevating work platform
- ANSI/SAIA A 92.6 Self-propelled elevating work platform
- ANSI/SIA A 92.8 Vehicle-mounted bridge inspection and maintenance devices
- AS 2550.10 Cranes, hoists and winches. Safe use. Mobile elevating work platform
- AS/NZS 1418.10 Cranes, hoists and winches. Mobile elevating work platform
- BS EN 280 Mobile elevating work platform. Design calculations. Stability criteria.
- · Construction. Safety. Examinations and tests
- ISO 18893 Mobile elevating work platform Safety principles, inspection, maintenance and operation

3.0 Terms and Definitions

For the purposes of these guidelines, the terms and definitions given in ISO 16368 and ISO 18878 and the following apply.

3.1 Certificate of Fitness (Perakuan Mesin Angkat, PMA)

A certificate granted under Factories and Machinery Act 1967 (FMA 1967) certifying that the machinery described therein had been inspected by DOSH, and at the same time of the inspection has satisfied the requirements of this Act and that it may be worked or operated.

3.2 Competent Person

A person who has successfully demonstrated his/her ability to perform the work related to the subject matter, work or project, by possession of a recognised degree, certificate or professional standing, or by having extensive knowledge, training and experience.

3.3 Configuration

All positions in which, chassis, extending structure, or work platform of a MEWP can be placed within intended operating limits, including creating variable rated loads.

3.4 Delivery

Transfer of custody, care, and control of a MEWP from a person or entity to another person or entity.

3.5 Designated Person

A person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the jobsite.

3.6 Familiarisation

Provision of machine-specific information, given by a competent person to a potential operator, identifying the manufacturer's instructions and warnings, control functions and operating characteristics, safety devices and emergency recovery procedures.

3.7 Maintenance

Act of upkeep such as inspection, lubrication, refueling, cleaning, adjustment, and scheduled parts replacement.

3.8 Manufacturer

A person or business concern that manufactures MEWP.

3.9 Modification

Change(s) or addition(s) to a MEWP as originally manufactured which affects the operation, stability, safety factors, rated load, or safety of the MEWP.

3.10 Operation

Performance of functions of a MEWP within the scope of its specifications and in accordance with the manufacturer's instructions, work rules, and applicable governmental regulations.

3.11 Operator

Person who controls the operation of a MEWP.

3.12 Owner

A person or entity that has possession of a MEWP by virtue of proof of purchase or legal possession of the MEWP.

3.13 Repair

Act of restoring to good condition the MEWP which has been broken, damaged, or worn due to use, abuse, or other reasons.

3.14 Safety-related Bulletin

Publication and notifications from the manufacturer of a MEWP that requires attention to ensure safe operation of the MEWP.

3.15 Spreader Plates

Spreader plate that may be constructed of a suitable material used to increase the area under a stabilizer, outrigger, wheel or track of a MEWP in order to reduce the ground bearing pressure to an acceptable value.

3.16 Supplier

A person or organization that provides something needed such as a product or service.

3.17 Working Envelope

Space in which a work platform is designed to work within the specified loads and forces, under normal operation conditions.

4.0 General Requirements

4.1 Basic Principles

The information in this guidance shall be supplemented by good job management, safety control, and the application of sound principles of safety, training, inspection, maintenance, repair, application, and operation. All data available regarding the parameters of intended use and expected environment shall be considered. Those with direct control over the application and operation of MEWP shall be responsible for the conformance with good safety practices. Decisions on the use and operation of the MEWP shall always be made with due consideration for the fact that the machine will be carrying persons whose safety is dependent on those decisions as well as others in the operating vicinity.

The safe operation of any MEWP is subject to potential hazards that can be protected against by the manager/supervisor for the job as well as, good judgement by the operator. It is essential to have qualified, careful persons who are trained and familiarised on the intended use, safe operation, maintenance, and service of this type of equipment.

It is an essential requirement that :

- a) The selection, positioning, operation, maintenance, and frequent and annual inspections of a MEWP are properly planned, appropriately supervised, and carried out in a safe manner;
- b) Having identified the hazards associated with the use of a MEWP, the competent person evaluates the risks associated with these hazards and puts appropriate control measures in place as identified during the risk assessment;
- c) All MEWP operators be adequately trained and familiarized by a competent personnel.
- d) All MEWP maintenance work shall be performed by maintenance personnel who are trained and under supervision by a competent person; and
- e) All MEWP repair work shall be performed by maintenance personnel who are trained and under supervision by a competent person.

4.2 Statutory Inspection

4.2.1 Initial Inspection

An inspection carried out by a DOSH officer on the MEWP is required and certified safe to be used. Certificate of Fitness (PMA) applies accordingly to FMA 1967, in compliance with any provisions of the Act or any regulation are being observed.

4.2.2 Regular Inspection

An inspection carried out at regular intervals (15 months) by a DOSH officer after an initial inspection so long as such machinery remains in use. Renewal of Certificate of Fitness (PMA) applies accordingly to FMA 1967, in compliance with any provisions of the Act or any regulation are being observed.

4.2.3 Special Inspection

An inspection carried out by a DOSH Inspector at the request of a prospective purchaser or occupier of any premises.

4.2.4 Further Inspection

An inspection which may be carried out by a DOSH Inspector at any time as he may deem necessary to ensure compliance with any provisions of the Act or any regulation are being observed.

4.3 System of Work

The system of work shall be created by the employer or user and shall include the following:

a) Planning of the operation, including procedures for the recovery of persons and/or the machine in the event of an emergency (see 6.1.2.8);

- b) Selection, provision, and use of a suitable MEWP and work equipment associated with it;
- c) Preparation and maintenance of the site, as required, for use of the MEWP;
- d) MEWP maintenance, including inspection(s) and repairs as recommended by the manufacturer;
- e) Adequately trained and familiarised personnel authorized to operate the MEWP;
- f) Prior to the start of work, familiarization of the MEWP operator with the specific machine to be used, including any local site requirements, warning of the hazards in the areas where the MEWP will be operated;
- g) Monitoring of the performance and supervision of the work of the operator to ensure compliance with provisions of this Guidance;
- h) Prevention of unauthorized use of the MEWP;
- i) Safety of persons not involved in the operation of the MEWP; and
- j) Documentation of activities required by this guidance.

4.4 Manuals (Handbooks)

The manufacturer's information which is intended to be readily available and which is necessary for the familiarisation, operation and daily inspection/ maintenance of the MEWP shall be provided with each rental, lease, or sale delivery. The manufacturer's maintenance information shall be made available for use by trained personnel of the entity responsible for maintaining the MEWP. The user/employer shall make sure that the operator is capable of reading and understanding the manuals (handbooks) provided by the manufacturer. In case the manufacturer no longer exists, and the manufacturer's manuals (handbooks) shall be provided by a competent person. Manual could be in physical and/or electronic form.

4.5 Record Retention

The following records shall be created and retained by the entity responsible (owner) for each MEWP. All records included under items b) and c) below shall be transferred to the new owner of the MEWP in conjunction with delivery.

- a) Name and address of each owner of a MEWP by serial number and date of delivery shall be retained for a minimum of three years after the sale of the MEWP or until the MEWP is permanently removed from service.
- b) Written records of the pre-delivery, frequent, and annual inspections on the MEWP shall include the date of inspection, deficiencies found, corrective action accomplished, and identification of the person(s) performing the inspection. These records shall be retained for a minimum of three years or until the MEWP is permanently removed from service.

c) Written records of all repairs, manufacturer recalls, upgrades, and approved modifications accomplished on the MEWP shall include the date work is completed, a description of the work accomplished, and identification of the person(s) performing the repair. These records shall be retained for a minimum of three years after the sale of the MEWP or until the MEWP is permanently removed from service.

4.6 Modifications

Modifications, additions, or alterations to a MEWP, or the fabrication or attaching of any framework or mounting of any attachments for holding tools or materials onto the platform or the guardrail system shall be made only with prior written permission of the manufacturer. In case the manufacturer no longer exists, modifications to MEWP shall be made in accordance with written instructions from a competent person.

5.0 Maintenance

5.1 Preventive Maintenance

A preventive maintenance programme shall be established in accordance with the manufacturer's recommendations. The preventive maintenance programme shall be increased based on the environment and severity of use of the MEWP. The manufacturer's recommendations shall be the minimum requirements. The preventive maintenance programme shall include the frequent and annual inspections as defined in this Guidance. All malfunctions identified shall be corrected before the MEWP is placed or returned to service.

5.2 Maintenance Inspections

5.2.1 General

The MEWP shall have regular maintenance inspections as required to ensure proper operation. The frequency of maintenance inspections shall be determined by the manufacturer's recommendations and the operating conditions. The frequency can be increased to be compatible with operating conditions and the severity of the operating environment, but the manufacturer's recommendations shall be the minimum requirements. MEWP that are not in proper operating condition shall be corrected by a competent person and the repairs shall be in conformance with the manufacturer's recommendations.

5.2.2 Pre-delivery Inspection

MEWP shall be inspected, repaired, and adjusted in accordance with the manufacturer's specifications prior to each delivery by sale, lease, rental or loan.

5.2.3 Pre-start Inspection

Before use each day or at the beginning of each shift, the MEWP shall be given a visual inspection and functional test by the operator, including but not limited to the following:

a) A valid Certificate of Fitness (PMA) must be in place;

- b) Safe Working Load (SWL) capacity plate for the MEWP to be displayed appropriately;
- c) Operating and emergency controls;
- d) Safety features;
- e) Personal protective equipment;
- f) Air, hydraulic, and fuel system for leaks;
- g) Cables and wiring harness;
- h) Loose, damaged, worn, or missing guards or parts;
- i) Tyres (where applicable, tyre pressure), wheels, and wheel fasteners;
- j) Instructions, warnings, control markings, and operating manual(s);
- k) Structural items, extending structure, and stabilizers;
- Work platform, including guardrail system, floor, anchorage, and mounting;
- m) Cleanliness and general signs of damage;
- n) Brake operation and performance;
- o) Work Lights (when applicable);
- p) Fluid levels including engine coolant, engine oil, and hydraulic oil;
- q) Pins and pin-securing devices and any visible damage to the prime means of support for the work platform and extending structure;
- r) Operation of stabilizers/outriggers, extendable, and oscillating axles; and
- s) Other items specified by the manufacturer.
- 5.2.4 Periodic Inspection

A periodic inspection shall be performed in accordance with the manufacturer's instruction on the MEWP. Unless it is determined that the periodic inspection is current, it shall be performed upon transfer of custody, for a unit that has been out of service for a period longer than three months, or unless environmental conditions require a shorter period. The periodic inspection shall be made by a competent person. This inspection shall include all items specified by the manufacturer for a frequent inspection and shall include the following:

- a) All functions and their controls, including controls for emergency operation, for speed(s), smoothness, and limits of motion;
- b) Base- or ground-level controls, including the provisions for overriding of work platform controls;
- c) All chain and wire rope mechanisms, for adjustment and worn or damaged parts;
- d) All emergency controls, guards, and safety features are in place and in good working order;
- e) Lubrication of all moving parts, inspection, and replacement of filter element(s) if required, hydraulic oil, engine oil, and coolant;

- f) Visual inspection of structural components and other critical components such as fasteners, pins, shafts, turntable attachment devices, and locking devices;
- g) Instructions, warnings, and control markings are in place and legible;
- h) Hydraulic or pneumatic systems, for proper fluid or pressure levels and observable for proper operation, damage, leaks, or external wear;
- i) Electrical systems, for signs of damage, deterioration, dirt, or moisture accumulation;
- j) Pneumatic tyres, if applicable, for proper inflation and damage;
- k) Wheel nuts and bolts are in place and properly tightened;
- I) Work lights, if applicable, for proper operation and illumination;
- m)Batteries, checked for adequate fluid level and connections free from corrosion, if applicable, before use of the MEWP and before recharging;
- n) Drive systems, brakes, steering, and speed controls for proper operation;
- o) Audible or light alarms, if applicable, for proper operation; and
- p) Communication system, if any, between platform and ground level is working properly.

The MEWP shall not be placed into service until all malfunctions and safety-related problems have been corrected.

5.2.5 Manufacturer Annual Inspection

The MEWP owner shall ensure that manufacturers' annual inspection be performed no later than 13 months from the date of the prior annual inspection. The inspection shall be performed by a competent person for the specific make and model of MEWP. The annual inspection shall include all items specified by the manufacturer as well as any service bulletins / updates for an annual inspection. An annual inspection shall be performed upon transfer of custody of the MEWP, unless it is determined that the annual inspection is current. A MEWP shall not be placed back into service until all malfunctions and problems identified in the inspection have been corrected.

5.3 Maintenance Personnel Training

Maintenance personnel shall be trained, instructed and supervised by acompetent person to inspect and maintain the MEWP in accordance with the manufacturer's recommendations and this Guidance.

5.4 Maintenance and Repair Safety Precautions

Before maintenance or repairs are started on MEWP, the following safety precautions shall be taken, as applicable:

- a) Instructions and precautions provided by the MEWP manufacturer have been read and understood;
- b) Ensure that only trained maintenance personnel are performing maintenance or repair on MEWP;

- c) Power plant has been safely shut off and means of starting rendered inoperative;
- d) All controls in the "off" position and all operating systems secured from inadvertent motion;
- e) Work platform lowered to the full down position, if possible, or otherwise secured to prevent dropping;
- f) Hydraulic oil pressure relieved from all hydraulic circuits before loosening or removing hydraulic components; and
- g) Safety props or latches installed where applicable as prescribed by the manufacturer.

Certain maintenance work might require the MEWP to be in conditions other than those described in items a) to g). In this case, extra safety measures shall be followed as described in the manufacturer's maintenance instructions. Repairs to any part of the MEWP structure shall be carried out in accordance with the requirements of the manufacturer.

5.5 Replacement Parts

When a part or component is replaced, it shall be identical or equivalent to the original MEWP part or component.

5.6 Manufacturer's Safety Bulletins

The owner should ensure that the MEWP is registered with the manufacturer so that safety bulletins are received and whatever recommendations contained herein addressed as specified by the manufacturer. Safety-related bulletins as received from the manufacturer or its authorized representative should be complied and kept safely. Records shall be retained in accordance with 4.5 of this Guidance and/or as instructed by the safety-related bulletin.

6.0 Operation

6.1 Work Method Statement

6.1.1 General

The extent of the planning required depends on the nature of the task to be carried out and the hazards associated with it but the following planning steps shall be taken. Work Method Statement shall be the responsibility of the entity that has care and custody of the MEWP. It is the employer's or user's responsibility to make sure the planning is carried out with the operator.

6.1.2 Stages of Work Method Statement

6.1.2.1 Communicate the Work Method Statement to all persons involved

One of the most important aspects of successful planning is to ensure that the contents of the plan are communicated effectively to the parties involved, taking into account language differences. Review the plan before the job starts. Immediately before a job starts and periodically throughout a long-term job, the plan shall be reviewed to check if any parts of the task or the working environment has changed and the effect that could have on the safety of the operation. If any modifications to the plan are required, these should be communicated to all those involved.

6.1.2.2 Identify the Task to be Undertaken

As the first stage in the planning process, the task to be undertaken should be clearly identified, together with the location and timing.

6.1.2.3 Select an Appropriate MEWP

There are many different types of MEWP with various rated capacities, working heights, and reaches. The correct machine should be selected for the task to be undertaken, taking into account the constraints of the work site, ground conditions, site access, and proximity to the public or other workers. If the area in which the MEWP is to be working is a hazardous environment (see 6.7), a MEWP designed/designated for this environment shall be selected.

6.1.2.4 Assessment of the Risks Associated with the Task

Assessment of the risks associated with the task shall be identified. These might be associated with the location where the work is to be carried out, the nature of the MEWP or the personnel, and materials and equipment to be carried. Reference can be made to the Guidelines for Hazard Identification, Risk Assessment and Risk Control 2008 from DOSH.

6.1.2.5 Identify Control Measures

Once the hazards and the risks involved in the task have been identified, the procedures and measures required to control them shall be identified.

6.1.2.6 Develop the Safe Method to be Used

Having identified the hazards, evaluated the risks, and worked out the control measures required to carry out the task safely, a selection of the method from the control measures shall be developed into a safe method that will be communicated and implemented. The safe method shall include any contingency measures and rescue procedures.

6.1.2.7 Record the Safe Method Statement

Once the plan has been developed, it shall be recorded.

- 6.1.2.8 a Reference Annex A Contains Pictograms of MEWP Misuse.
- 6.1.2.8b Reference Annex B contains a Table on Stakeholders' Duties and Responsibilities Rescue from Height.
- 6.1.2.8 c Rescue from Height

As part of the plan, consideration shall be given to the rescue of MEWP work platform occupants if the machine is unable to be

lowered for any reason, such as machine malfunction or work platform entanglement. Rescue might also be necessary in the event of illness, injury, or risk of exposure. Any rescue procedure shall take into account the reasons why the platform might be stranded at height and any need for urgent action. Wherever possible, rescue should be carried out by an appropriately trained person, if available, using the machine's ground controls or secondary lowering system. Rescue using another MEWP should only be carried out once a site review has been carried out and a plan is created. The plan should take into account the applicable hazards highlighted in Guidelines on Prevention of Falls at Workplace 2007 from DOSH together with the following:

- a) The rescue machine should be positioned to enable the rescue procedure to be carried out without compromising the safety of personnel involved in the rescue;
- b) The work platforms of both machines shall be adjacent to each other possibly within the nearest safe distance apart to prevent personnel falling through the gap; and crushing between the gaps. The power controls on both machines should be switched off during the transfer;
- c) The person being rescued should be fitted with a full body harness with an adjustable lanyard used to provide restraint, and the lanyard should be attached to the anchor points on the rescue machine before the transfer takes place; and
- d) It is essential that proper care is taken not to overload the rescue machine. This could mean making more than one trip to complete the rescue. If there is injury, illness, or risk of exposure, emergency personnel shall be called. Suspension trauma can occur if a person has been suspended at height for a period of time. If communication cannot be established with personnel in the work platform, emergency personnel shall be called immediately.

6.1.3 Site Surveys

A number of the planning steps outlined in 6.1 should be dealt with as part of a site survey. This involves visiting the location where the task is to be carried out, preferably with site personnel or their representatives who can identify hazards associated with the area as well as condition of the ground on which the MEWP is required to operate. For simple tasks the remainder of the planning process may be completed at the same time, while for more complicated jobs the site surveyor has to be involved in such matter.

6.2 Operator Training

The employer shall ensure that the operator has been trained, instructed under the direction of a competent person in accordance with this Guidance before operating the MEWP. To refer FMA 1967, in compliance with any provisions of the Act or any regulation are being observed.

6.3 Familiarisation

It is the employer's or user's responsibility to make sure the operator is familiarized with the location and presence of the machine operations manual, purpose and function of the platform and ground controls, and the safety features and operating characteristics of each model of MEWP they are authorized to operate. Before operating the controls of a MEWP, the operator shall check that they know the position, function, and correct operation of all controls and safety features. Emergency controls shall not be used for purposes other than lowering the work platform in an emergency or function testing during a pre-use inspection.

6.4 Assistance to Operator

If an employer is unable to answer an operator's question relating to rated capacity, intended use, maintenance, repair, inspection, or operation of the MEWP, the employer shall obtain the proper information from the dealer or manufacturer. This information shall be obtained from a competent person if the manufacturer is no longer in business.

6.5 Before Operation

Safe operation of a MEWP requires the following:

- a) Understanding of the task to be performed;
- b) Selection of a MEWP appropriate for the task to be performed by knowing the safe working load (SWL) capacity, configuration and working envelope for the MEWP. SWL capacity shall be appropriately displayed on the MEWP;
- c) Knowledge of the intended purpose and function of each control;
- d) Authorization by the employer;
- e) That stabilizers, such as outriggers, extendible axles, or other stabilityenhancing means, are used as required by the manufacturer;
- f) That guardrails are installed and access gates or openings are closed or in appropriate positions as per manufacturer's instructions;
- g) That loads and their distribution on the work platform and any platform extension are in accordance with the manufacturer's rated load for that specific configuration;
- h) Understanding of the manufacturer's operating instruction(s) and user safety rules, or having them explained by a competent person;
- i) Understanding by reading or by having a competent person explain all decals, warnings, and instructions appropriately displayed on the MEWP;
- j) Use of appropriate personal protective equipment for the working at height conditions, including the environment in which the MEWP will be operated; and
- k) Ensuring that another designated person is on the job site, who is not working on the platform, and knows how to use the emergency controls.

6.6 Work Place Inspection

Before and during the use of the MEWP, the area in which the MEWP is to be used shall be checked by the operator for the following hazards, but not limited to:

a) Drop offs or holes (including those concealed by water, ice, mud, etc.);

- b) Slopes;
- c) Bumps, floor obstructions, and electric cables;
- d) Debris;
- e) Overhead obstructions;
- f) Electrical conductors;
- g) Hazardous locations and environments;
- h) Surfaces inadequate to sustain the ground-bearing pressures imposed by the MEWP in all operating configurations;
- i) Wind and weather conditions;
- j) Presence of other personnel, public vehicles and other mobile equipment; and
- k) In busy public areas and thoroughfares.

6.7 High Risk Zone

Where a MEWP is to be used in a high risk zone, such as extreme temperatures or where there is a risk of fire or explosions, advice from the person in charge of the site should be sought to assist in identifying a suitable MEWP or MEWP modifications for that environment. Approval should also be sought from the MEWP manufacturer/supplier.

6.8 Specific Requirements of Operation

- 6.8.1 Wind and Storm Considerations
 - 6.8.1.1 Effect of Wind Forces on MEWP

All MEWPs, except those designed specifically for indoor use, are designed to operate in maximum wind speed conditions which are marked on the machine. No modifications or additions to the MEWP that affect its wind loading and, consequently, its stability shall be made without the manufacturer's approval, e.g. modifications to or addition of signs, netting, steel plates, panels, or attachments. Where this approval cannot be obtained because the manufacturer has gone out of business, advice shall be obtained from a competent engineer.

6.8.1.2 Effect of Wind on Equipment in the Work Platform

Care shall be taken when handling building materials, sheet materials, panels, and other such materials which can act as sails.

6.8.1.3 Local Wind Effects

The shielding and funneling effects of buildings can cause high wind speeds and turbulence on days when the wind speed in open areas is low. Other sources of local high wind speed which should also be considered in relation to safety at work sites are aircraft slipstreams at airports and high-sided vehicles on road ways.

6.8.1.4 Use in Thunderstorms

MEWP shall not be used in adverse weather condition for example during thunderstorm where a lightning bolt can strike near the operator.

6.8.2 Ground Condition Considerations

6.8.2.1 General

The stability of MEWP, and their safety, are affected by poor ground conditions which can lead to the machine becoming out of level and unstable. If the level indicator indicates that the operating limits are nearing the MEWP specified limits, then the operator shall lower and reset the machine to a safe and level position.

6.8.2.2 Outrigger / Wheel Foundations

Some soil types, moist soils, and soils which have not been compacted, as well as some paved areas, are not capable of supporting the pressures of outrigger pads / Wheels. Some form of foundation or spreader plate is required to reduce the ground pressure to an acceptable level. Spreader plates shall have sufficient size, stiffness, and strength to spread the load over the required area.

Spreader plates should always be used with boom-type MEWP when fully supported on their outriggers.

It is therefore strongly recommended that suitable spreader plates should always be used under the outrigger feet irrespective of the apparent ground conditions.

6.8.2.3 Floors, Cellars, and Basements

The strength of the ground supporting surface, taking into consideration subsurface voids such as cellars, basements, and pipes, shall be taken into consideration when using a MEWP.

6.8.3 Transporting and Travelling on Public Roads

Where MEWP are unloaded from or loaded upon a transporting vehicle on a public road or a MEWP travels on a public road between work sites, measures shall be taken to protect the personnel involved from being exposed to traffic hazards. These measures include but are not limited to:

a) Warning cones;

- b) Road signs and signalling devices; and
- c) A traffic guard, traffic controller or flagman to direct and warn other vehicles of the presence of the MEWP and any associated vehicles. When it is necessary for a MEWP to travel between work sites, an escort vehicle equipped with appropriate signalling devices shall be used, if necessary, due to the distance that must be travelled.
- 6.8.4 Public Safety

When working with a MEWP in an area used by other vehicles or pedestrians, the entire operating area should be controlled to restrict movement and reduce the risk of impact/collision. This can be done for example by using hazard cones, warning notices and/or flashing beacons.

MEWPs carrying out work on the highway should be fitted with an amber flashing warning beacon.

When working on the highway it is essential that no part of a MEWP is allowed to extend or swing into a line of traffic.

Approved Traffic Management plan shall be prepared and a competent Traffic Management Officer (TMO) must be appointed when works are carried out near busy and congested roads, through fares and public amenities.

6.8.5 Slope and Grade

The MEWP shall not be operated on grades, slopes, ramps, or uneven surfaces exceeding those for which the MEWP is rated by the manufacturer.

6.8.6 Deployment of Stability Enhancing Means

Means Stabilizers such as outriggers, extendible axles, oscillating axles, or other stability-enhancing means shall be deployed and locked into place as required by the manufacturer.

6.8.7 Guardrail System

Guardrails shall be in place and access gates or openings shall be closed per the manufacturer's instructions. The guardrails of the MEWP shall not be used to carry materials.

6.8.8 Distribution of Load

Load and its safe distribution on the MEWP and any MEWP extension(s) shall be in accordance with the manufacturer's requirements.

6.8.9 Maintaining Clearance from Obstructions

The operator shall ensure adequate safe clearance is maintained from obstructions.

6.8.9.1 Before Moving the Work Platform or MEWP

The operator shall comply with the manufacturer's requirement for traveling include the following:

- a) Visually inspect the area around the platform for obstructions and check the direction of platform movement with reference to the indicators on the MEWP chassis, if applicable, and the controls before operating; and
- b) Ensure that persons in the work site area are aware of the movement of the MEWP as required to protect against personal injury
- 6.8.9.2 Moving or Traveling

The operator shall:

- a) Maintain a clear view of the area continuously in the direction of movement, including above and below the work platform, maintain an adequate clearance distance from hazards and avoid any distractions;
- b) Travel with the boom/platform positioned at the lowest safe position for the conditions;
- c) Move at speeds that are appropriate for safe operation;
- d) Allow for the platform movements due to the effects when traveling over uneven surfaces, slopes and ramps;
- e) Allow for the distance the work platform may move or MEWP will travel before a complete stop after controls are released or returned to neutral position;
- f) Not lean on or over the guardrails while the MEWP is elevating or traveling close to obstructions;
- g) Not lean his/her body over the work platform control panel at any time;
- h) Not place objects on the work platform control panel.
- i) Provide for the safety of any others in the work platform during any MEWP movement.
- j) Adjust the platform position to ensure adequate clearance with overhead obstructions and other obstacles adjacent and in the direction of travel.
- 6.8.9.3 While Working at Height

The operator shall use available safe features to deactivate the controls on the work platform, whenever possible.

6.8.9.4 Distractions

The operator shall:

- a) Give full attention while moving the MEWP;
- b) Not engage in horseplay;
- c) Not use a mobile phone except in an emergency; and
- d) Ensure materials on the work platform floor are secured and do not pose a hazard.

6.8.10 Electrocution Hazards

Electrical conductors shall be considered energized until determined to be otherwise by tests or other appropriate methods or means, and properly grounded. All electrical conductors, including those which appear to be insulated, shall be considered not insulated until determined to be otherwise by tests or other appropriate methods or means.

Recommended safe distances:

- 1) 50ft (15m) + fully extended boom from electrical pylons
- 2) 30ft (9m) + fully extended boom from cables on wooden poles

Suggested safe distances meet or exceed those specified in ANSI standards and OSHA requirements.



Figure 1.0: Operators must always keep a minimum safe distance between overhead power lines and the closest point of the MEWP when fully extended.

6.8.11 Footing for Personnel Persons

Personnel shall maintain a firm footing on the MEWP floor while working thereon. Climbing by occupants on the toe guards, intermediate guardrails, or top guardrails of the MEWP is prohibited. The use of planks, ladders, or any other devices on the work platform for achieving additional height or reach is prohibited.

6.8.12 Precaution for Other Moving Equipment

When other moving equipment and vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the workplace. Warnings such as, but not limited to, flags, roped-off areas, flashing lights, traffic cones, and

barricades shall be used as appropriate. When a MEWP is to be operated in conjunction with a crane or some other appliance, the work shall be properly planned and a safe system of work developed and explained to all persons who are participating in the operation. Each person should also be instructed on how to deal with any foreseeable emergencies / potential hazards. Arrangements should be made for operators to be able to communicate clearly with each other during the operation.

6.8.13 Reporting Safety-related Problems or Malfunctions

The operator shall isolate, tag the machine and then immediately report to a designated person on any safety-related problem(s) or malfunction(s) that become(s) evident during operation. Consult with a competent person if necessary so that all problem(s) or malfunction(s) that affect the safety of operations are eliminated prior to continued use.

6.8.14 Reporting Potentially Hazardous Locations

The operator shall immediately report to an designated person any potentially hazardous location(s), such as potentially flammable or explosive gases or particles.

6.8.15 Hazardous Location Operation

Operation of a MEWP not approved and marked for operation in a hazardous location, such as potentially flammable or explosive gases or particles, shall be prohibited.

6.8.16 Entanglement Cables or Hoses

Cables or hoses coming from the work platform shall be supported or stowed properly to prevent entanglement. Particular care shall be taken to prevent striking or interfering with the MEWP controls.

6.8.17 Load Transfer

Adding materials to the work platform at height shall be done only if the work platform will not be overloaded. Load-sensing systems do not provide protection in these situations.

6.8.18 Work Area

The operator shall ensure that the area surrounding the MEWP is clear of persons and equipment before any raising, lowering, or slewing operation (if applicable).

6.8.19 Fueling

The engine (if applicable) shall be shut down while fuel tanks are being filled. Fuelling shall be done in a well-ventilated area free of flame, sparks, or other hazards that can cause fire or explosion.

6.8.20 Battery Charging

Some batteries produce explosive gas when being charged. Batteries shall be charged in a well-ventilated area free of flame, sparks, or other hazards that can cause fire or explosion. Battery acid is highly corrosive. Appropriate PPE must be worn. Caution shall be taken when filling batteries to avoid splash or spillage.

6.8.21 Improper MEWP Stabilization

The MEWP shall not be positioned against, tied to, or restrained by another object.

6.8.22 Misuse as A Crane or Elevator

The MEWP shall not be used as a crane or elevator unless specifically designed and approved by the manufacturer.

6.8.23 Use of MEWP for Grounding

A MEWP shall not be used for the electrical grounding to the earth when welding adjacent structures unless specifically designed and approved by the manufacturer.

6.8.24 Climbing the Extending Structure

Climbing of the MEWP extending structure is prohibited.

6.8.25 Unusual Operating Support Conditions

The MEWP shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment unless the application and the method are approved in writing by the manufacturer or a competent person.

6.8.26 Stunt Driving

Stunt driving and reckless operations on MEWP are prohibited.

6.8.27 Securing the MEWP

The operator of the MEWP shall use the means provided to protect against use by a designated person(s).

6.8.28 Interference with Safety Devices

Safety devices provided on MEWP shall not be tampered, altered or disabled.

6.8.29 Snagged MEWP

If the work platform or extending structure becomes caught, snagged, or otherwise prevented from normal motion by adjacent structures or other obstacles such that control reversal does not free the MEWP, all persons shall be removed from the work platform before attempts are made to free the MEWP using lower controls.

6.8.30 Vacating (or entering) a MEWP at Height

MEWPs are not specifically designed to transfer personnel from one level to another or for leaving or entering the work platform at height. Consideration shall be given to assessing other options to accomplish these tasks. Local regulations should also be considered relative to vacating or entering a MEWP at height. When allowed by the manufacturer, vacating (or entering) a MEWP at height shall only be done after addressing the following hazards:

a) Falling of persons during transfer between the work platform and the structure;

- b) Falling of tools and materials during transfer between the work platform and the structure;
- c) Sudden movement of the MEWP or work platform;
- Additional loads or changing of loads imposed on the MEWP for which it was not designed, which could affect stability or overload the machine;
- e) Dynamic and impact loads from personal fall protection equipment;
- f) Damage to the MEWP or structure by an unintentional movement of the MEWP;
- g) Stranding of people;
- h) Use of extending decks and gates;
- i) Use of double lanyards and ensuring that one leg of the lanyard is connected to the structure or work platform being moved to;
- j) Maintenance or replacement of fall protection measures for persons while they are on the structure;
- k) Distance between transfer surfaces, both horizontally and vertically; and
- I) Potential for movement of transfer surface with changing loads.
- 6.8.31 Carrying Materials Larger than the Work Platform

The operator shall ensure that only properly secured tools and materials which are evenly distributed and can be safely handled by a person(s) working from the work platform are moved. Such operations shall be performed according to the manufacturer's instructions.

6.8.32 Carrying Materials Outside the Work Platform

Carrying materials outside the work platform is prohibited, except when using a carrier designed for this purpose and with written authorization from the manufacturer or a competent person.

6.8.33 Allowable Rated Forces

The operator shall ensure that any of the rated forces allowed by the manufacturer, such as rated horizontal forces and dynamic and impact loads from operations not to be exceeded.

6.8.34 Protection against Unauthorized Use

The operator shall not provide the MEWP to other persons for any use without authorization.

6.8.35 Misuse as a Jack

A MEWP shall not be used as a jack, a prop, or a tie to support itself, other structures, or machines, for example, using the boom and/or work platform of the MEWP to jack the wheels off the ground, unless approved by the manufacturer or a competent person.

6.8.36 Moving Overhead Obstructions

When a MEWP operates within the area of moving overhead obstructions, steps shall be taken to prevent a collision with the MEWP.

6.8.37 Parking of MEWP

Wherever possible, MEWPs shall be parked in a secure compound or in a supervised area inaccessible to undesignated persons when not in use and all keys shall be removed from the MEWPs. Keys shall be issued only to authorized operators and retained by them until the end of the work period. Upon completion of the work, the MEWP shall be parked in the designated parking area with the engine or motor switched off, and the brakes applied.

6.8.38 Transport the MEWP

The MEWP, including its stabilizers, shall be in the manufacturer's recommended configuration when being transported.

Annex A - Pictograms of MEWP Misuse

Table A.1 – Examples of Scissor-type MEWP Misuse

Misuse of scissor-type MEWPs Pictograms are shown in Table A.1.

A.1.1 Tipping hazard – side	
A.1.2 Tipping hazard – front/back	
A.1.3 Crushing hazard – head	
A.1.4 Electrocution hazard – overhead wires	
A.1.5 Electrocution hazard – ground	

Table A.2 — Examples of Boom-type MEWP Misuse

Misuse of boom-type MEWPs Pictograms are shown in Table A.2.

A.2.1 Fall hazard – platform	
A.2.2 Tipping hazard – side	
A.2.3 Tipping hazard – front/back	
A.2.4 Crushing hazard – head (raising)	

A.2.5 Crushing hazard – lowering	
A.2.6 Crushing hazard – body part	
A.2.7 Electrocution hazard – overhead wires	
A.2.8 Electrocution hazard – ground	

Table A.3 — Examples of Vertical Mast Type MEWP Misuse

Misuse of vertical mast type MEWPs Pictograms are shown in Table A.3.

A.3.1 Fall hazard – platform	
A.3.2 Tipping hazard – side	
A.3.3 Tipping hazard – front/back	
A.3.4 Crushing hazard – head (raising)	
A.3.5 Crushing hazard – head (lowering)	
A.3.6 Electrocution hazard – overhead wires	

Table A.4 – Examples of Vehicle-Mounted MEWP Misuse

Misuse of vehicle-mounted MEWPs Pictograms are shown in Table A.4.

A.4.1 Fall hazard – platform	
A.4.2 Tipping hazard – side	
A.4.3 Crushing hazard – lowering	
A.4.4 Electrocution hazard – ground	
A.4.5 Electrocution hazard – overhead wires	

Stakeholders Duties and responsibilities Remarks Manufacturer or Provides product information Safe lowering, recovery and retrieval operations supplier and instructions for use during emergencies For safe rescue Rental and leasing • Makes available product information and instructions for use during operation of personnel company emergencies **MEWP** owner • Makes available product information For safe rescue and instructions for use operation of personnel during emergencies Provides familiarisation instruction on emergency lowering and retrieval User Ensure safe emergency • Establishes a rescue plan according to the requirements of the safe work plan for rescue of procedure (SWP) and fall prevention personnel from the working platform is plan (FPP) prepared and made · Communicates the rescue plan to the available at the work parties involved place Ensures competency and availability of emergency personnel · Ensures operators and emergency personnel go through the familiarisation instruction on emergency lowering and retrieval Operator/ Knows the emergency procedures • In the event the operator supervisor/ is unconscious, rescue banksman/ operations should be emergency conducted personnel Authorised officer/ • Recommends the occupier of the Safe co-ordination coordinator workplace or other person(s) in with occupier of the charge of the workplace reasonably Workplace. practicable measures to eliminate any foreseeable risks

Annex B - Stakeholders' Duties and Responsibilities – Rescue from Height

Additional Information

1. Best Practice Guidance for MEWPs - Avoiding Trapping / Crushing Injuries to People in the Platform by Strategic Forum for Construction Plant Safety Group

MBAM Annual SAFETY & HEALTH AWARDS

WE CARE



GOLDEN HELMET AWARD

This award is presented to a person who has made an outstanding and significant leadership contribution to safety & health in the construction industry.

PRIZE : GOLDEN HELMET and certificate

SITE PERSONNEL AWARD

This award is presented to a person who has shown high commitment in implementation of safety and health at construction site(s).



MBAM



REQUIREMENTS

Nomination is open for :

- Directors
- Malaysian only **Government Servants** MDs CEOs
 - others

REQUIREMENTS

- All Malaysian construction site personnel supervising workers locally at their current project site
- Safety Officers / Safety Inspectors are welcome to apply
- Applicants who are working in construction industry related fields such as fabrication and manufacturing are welcome to apply
- Recognition by company on the OSH performance (if any).
- Involvement in other NGO activities related to safety (if any).
- Past MBAM Safety & Health Awards recipients are not eligible for participation.

Organised by : Co - Organiser : Supported by :



ENQUIRIES

MASTER BUILDERS ASSOCIATION MALAYSIA (MBAM) Persatuan Kontraktor Binaan Malaysia, No. 2, Jalan 2/109E, Desa Business Park, 58100 Kuala Lumpur, Wilayah Persekutuan. Tel: 03-7984 8636 | Fax: 03- 7982 6811 E-mail: mbam06@mbam.org.my | mbam14@mbam.org.my Contact Person: Ms Chai Min Fung, Manager | Ms Ida Fatmawati, Assistant Manager



SISTEM PENILAIAN KESELAMATAN DAN KESIHATAN DALAM INDUSTRI PEMBINAAN (CIS 10:2008 SHASSIC)

CCD

Tingkatkan Tahap Keselamatan Dan Kesihatan Dalam Pembinaan Melalui SHASSIC

'Enhancing The Level of Safety and Health In Construction Through SHASSIC'



Lembaga Pembangunan Industri Pembinaan Malaysia | Construction Industry Development Board Malaysia Sektor Pembangunan Teknologi Tingkat 23, Sunway Putra Tower, No. 100, Jalan Putra, 50350 Kuala Lumpur Talian Am : 03-4047 8000 | Talian Faks : 03-4047 8080