



# Dubai Municipality Health and Safety Department

Technical Guideline for

Mobile Elevated Work Platforms (MEWP)

**DM-HSD-GU67-MEWP2** 



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| Document title: | Mobile Elevated Work Platform (MEWP) | عنوان الوليقة: |

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**Health & Safety Department** 



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#### 1. INTRODUCTION

The use of mobile elevated work platforms (MEWP's) is increasing as the benefits for productivity and safety are recognised. This type of work platform is acknowledged by many as the safest and most efficient means of providing temporary access to height for many work activities. However, precaution and care should be observed to ensure safety while using this equipment.

Federal Law No. 8 of 1980, UAE Labour Law and Dubai Municipality Local Order No. 61 of 1991 clearly emphasized the role of employers to take every precaution necessary for the protection of their workers and ensure their safety from any occupational illness or potential work accidents. The employer shall also initiate appropriate control measures to improve work conditions and thereby provide a healthy workplace for his/her workers.

This Technical Guideline focuses on the health and safety aspects of the different types of mobile elevated work platforms such as man lift, scissor lift, etc. This guidance document is recommended to be read in conjunction with associated health and safety Technical Guidelines and Code of Practices of Dubai Municipality available in www.dm.gov.ae.

#### 2. PURPOSE

To support all owners, managers, employees and stakeholders from industries, construction and service sectors' institutions in the Emirate of Dubai to prevent/reduce workplace accidents while using MEWP's at work.

## 3. SCOPE

This technical guideline shall apply to all establishments using mobile elevated work platforms (MEWP's) at their work in the Emirate of Dubai.

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#### 4. **DEFINITION**

Unless the context otherwise requires, the following terms shall be deemed to mean the definitions hereby assigned to them.

**MEWP** - Mobile Elevated Work Platform

**DCAS** - Dubai Corporation for Ambulance Services

**DHA** - Dubai Health Authority

DCD - Dubai Civil Defence

SSW - Safe System of Work

SWL - Safe Working Load

**PPE** - Personal Protective Equipment

BS - British Standard

**EN** - European Norms (Standard)

CSA - Canadian Standard Association

## 5. GUIDELINES

## A. Planning Method of Work and Risk Assessment

Before undertaking any work, the employer shall consider first if there is a need to carry out work at height and if it is possible that the work can be carried out safely at ground level. Employers are also required to identify the hazards and a conduct risk assessment to determine the safest and most practicable work equipment for the type of work that will be carried out considering the work area conditions it will be used in.

If the use of MEWP is determined to be the safest and most practicable work equipment for the activity to be carried out, sequencing activities shall be planned to avoid the presence of obstructions that could cause trapping, tipping over, falling from the platform and other risks by adopting alternative working methods that avoid or reduce the risks when using a MEWP.

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In assessing the risk, the employer shall consider the following minimum factors since there may be particular factors involved in the work to be undertaken which ought to be included:

- Are the operators trained in the use of a harness and lanyard?
- What type of MEWP is most suitable for the work to be undertaken?
- Does the selected MEWP have identified anchorage points?
- What is the type of work to be undertaken?
- What does the manufacturer of the MEWP recommend?
- Do you have a rescue plan?

Employers, employees and other responsible for the use of MEWP's should assess the risks and take precautions to eliminate or control those risks.

In addition Risk Assessment should cover:

- Travelling to and from the work area;
- Accessing the work area;
- Work area lighting levels and provisions; and
- Working at height;

Hazard identification and Risk Assessment shall be conducted and recorded by a competent person(s) and appropriate knowledge of the work activity.

#### **B.** MEWP Selection

Selecting a MEWP with the right operating characteristics can substantially reduce the risk of entrapment. When selecting a MEWP, account should be taken of the manufacturer's instructions and, in particular the operating parameters and limits specified. Refer to Annex A.

Vertical lift, articulated boom and telescopic boom MEWP's allow a wide variety and different sequences of platform movements to be performed. The information provided by the risk assessment on the nature of trapping risks and when the risks occur will aid decisions on the type and model of MEWP best suited to avoid trapping risks.

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## C. Safe System of Work

A safe system of work (SSW) should be devised to ensure that work tasks can be carried out safely. Key elements of the SSW should be written down.

The SSW shall be based on risk assessment to identify the following:

- Type of MEWP to be used;
- Control measures to be adopted;
- Competence and training requirements for those involved in the work; and
- Emergency arrangements.

The person who formulates the SSW shall:

- Understand the MEWP characteristics and the nature of the work to be carried out;
- Be capable of identifying site hazards that could lead to trapping accidents; and
- Have the ability to communicate the results of their findings to those responsible for managing MEWP activities.

The SSW should be communicated to all persons involved in the planning and management of the work tasks. The hazards identified and control measures to be adopted should be communicated to those who supervise and carry out the work tasks.

All MEWP operators must follow the manufacturer's guidelines for safe operational practices.

## D. MEWP Supply, Handover and Familiarization

The MEWP manufacturer or supplier shall ensure the following before placing this type of equipment into service:

- Equipment satisfies the relevant essential health and safety requirements;
- Necessary information, such as instructions are available;
- Appropriate procedures for assessing conformity are carried out;
- Equipment is accompanied with EC declaration of conformity; and
- CE marking is affixed on the equipment.

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The MEWP supplier is required to conduct a demonstration of the delivered equipment onsite to the trained operator. The person carrying out the demonstration must be trained and competent (e.g. Hold a MEWP demonstrator licence).

The demonstration provided is not considered as a training. Operator shall undergo formal competency training (Refer to Section N).

## E. Travelling, Positioning and Set-Up

The following are to be considered and checked to ensure safe travel, positioning and set-up for work:

- Equipment type and weight;
- The equipment is in travel position mode;
- Walk the route before commencing;
- Effect of limited operator visibility;
- Other traffic or work in the area;
- Poor, rough, waterlogged or frozen ground;
- Paved areas and safe slab loading;
- Un-compacted fill;
- Trenches, drains and manhole or inspection covers;
- Excavations, basements and cellars;
- Slopes and ramps;
- Services above and below ground including overhead hazards;
- Hazardous or narrow areas and obstructions;
- Continual awareness of the situation and surroundings;
- Continually observe before and during the raising or lowering of the platform always checking for obstructions above and below, or people impact or crushing points;
- Check speed and sound horn before entering a doorway;
- Effects of weather on people, the equipment and ground conditions;
- Settlement and the use of spreader pads, stabilizers and jacks;
- Equipment levelling;
- Correct position to reach work surface;
- Cordoning off the work area;
- Possible collision dangers and ejection from platform.

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#### F. Ground Condition

During use it is important that operators use the level indicators on platforms and take notice of any warnings provided. If the level indicator shows that the operating limits are being exceeded, the operator should lower the platform or the machine and then reset the machine in a level position. If it is suspected that the outriggers could sink for any reason, regular checks should be made of equipment level and adjustments made to outriggers, spreaders, mats, etc.

The assessment of ground strength can vary from a visual inspection of the ground surface to a full geotechnical survey. In the case of MEWP's, a visual inspection is often adequate as outrigger loads are relatively low compared to other equipment such as mobile cranes.

However, it is essential that the assessment is made by someone with adequate knowledge and the experience to know when further expert advice and assessment is required.

The following are the typical ground condition hazards

- Uncompacted fill Soil or other fill material might be piled along the line of a backfilled trench
  without being compacted. Cracking of the ground along the line of the trench is an indication of
  uncompacted fill.
- Proximity to excavations MEWP's should not be positioned near to the edge of trenches and
  other excavations as these are likely to collapse without warning. If the equipment needs to be
  used close to the edge of a slope or excavation, with the outriggers or wheels in the "Danger Area",
  an engineering assessment must be conducted by a competent geotechnical engineer before the
  MEWP is set up and operated.
- Floors, cellars and basements Many floors, cellars and basements are incapable of bearing the
  weight of a MEWP and could collapse without warning. The strength of floors and location of
  cellars and basements must be taken into account when siting MEWPs.
- Paved areas Paved areas can look deceptively strong but might have been aid on weak ground underneath. Footpaths should be considered to be suspect as there could be weaker material or services just underneath the surface.
- Roads If a road is used regularly by heavy commercial vehicles and does not show any signs of distress it is of less concern than a lightly-trafficked car park or road.

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- Underground services Sewers, drains, manholes, gas and water mains, etc. might be damaged by the weight of a MEWP or could even collapse and cause the MEWP to become unstable or overturn.
- Weather conditions Heavy or prolonged rain can alter ground conditions and cause sinking of outriggers or wheels. If it is suspected that the ground supporting a MEWP is getting softer, regular checks should be made on equipment level and the appropriate adjustments made to outriggers, packing mats etc.

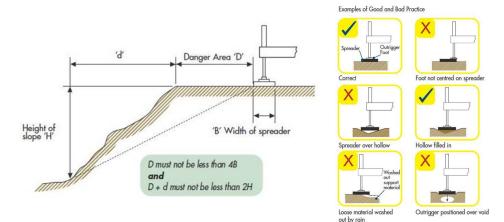
Regular checks should be carried out when after sand storms have occurred since ground can appear to be much firmer than it actually is.

## G. Outrigger Foundations

The area of the foot attached to the outrigger of a MEWP is relatively small and consequently generates high pressures on the ground. Most soils, unmade ground and some paved and tarmac covered areas are not capable of supporting these pressures and some form of foundation or spreader plate is often required to reduce the pressure to an acceptable level.

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

In addition, very poor ground conditions may require the advance preparation of additional foundations, such as timber mats, proprietary mats, steel grillages or concrete pads, before the MEWP outriggers are deployed. If timbers are used these must be in good condition and of adequate thickness (not scaffold boards).



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#### H. Electrical Hazards

In case of emergency, the equipment should not be approached and keep others away. Keep calm and when inside platform, do not climb down and not jump. Call for emergency services.

Ensure to switch off transmitter antennae and all electrical power supplies or high voltage equipment are de-energized or it is protected with insulation and with electrical work permit issued by competent person or authority prior working with MEWP.

Working from or moving a MEWP in the vicinity of overhead high voltage lines can be extremely dangerous, and essential precautions must be taken. There may also be special rules established for particular sites.

On controlled sites, where MEWPs have to pass under overhead electric lines, ground level barriers should be positioned and "goal posts" erected at the place where the equipment may pass under the overhead lines.

If there is no need to pass under the overhead lines, both ground level barrier and high-level markers, (usually bunting) will be placed to keep you at a safe distance.

Not all sites are controlled, and the operator must always be aware of the dangers of overhead electric lines.

A minimum safe distance must always be kept between the overhead lines and the closest point of the MEWP when fully extended. This distance is 15 meters with overhead lines mounted on steel towers and 9 meters with lines mounted on poles of wood, concrete or steel. Also, refer to the existing safe distance requirements of DEWA or any concerned authority where work is conducted. The stricter requirement shall be followed. Seek further advice before commencing work.

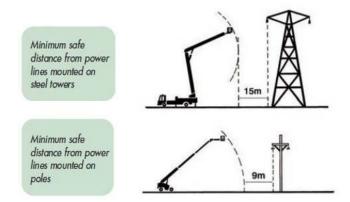
These distances are measured horizontally at ground level from a position vertically below the outermost conductor at the tower or pole position. Refer to figure below.

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All overhead lines and other electrical apparatus should be treated as live unless declared "dead" and "Safe" by DEWA (or other line operator).

Strong winds may cause overhead electric lines to sway and thus reduce the distance to a point where you are in danger.

The recommended minimum safe working distance must be rechecked and confirmed if the work platform is moved from the original location.

Ensure to observe barriers and markers where these are erected to mark safe working distances

Ensure that the equipment is properly guided by an experienced signaller when moving it under or near overhead electric lines.

Do not raise any part of the equipment when travelling under overhead lines or between two sets of goal posts.

Ensure to always seek advice from a competent person if in doubt on how to carry out the MEWP movement or work safely.

## **Wind Speed**

Maximum design wind speed (for all MEWP's used outdoors) information shall be marked prominently on the equipment and shall also be available in the safe operating procedure.

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Ensure not to operate the equipment beyond the designed maximum wind speed.

Ensure that the wind speed is measured prior working at height. It is recommended to use an anemometer for reliable measurement.

Safe precautionary measures shall be observed when working around buildings, rooflines or object corners due to wind funnelling.

Safe precautionary measures shall be observed when using large sheets of material or anything with a large surface area in a platform since it will affect the stability of the MEWP.

Safe precautionary measures shall be observed when working in areas that may be affected by local high wind speed such as aircraft slipstreams at airports and high sided vehicles on motorways.

MEWP's platform shall never be attached to a structure.

**Note:** Wind speed increases with height and may be 50% greater at a height of 20 meters above ground level.

## J. Safe Working Load (SWL)

MEWP shall not be overloaded beyond its Safe Working Load (SWL) and shall not be subjected to shock loading (i.e. the sudden increase or decrease of carried weight) at all times since these bad practices may cause the equipment to overturn leading to worker accident and damage.

When loading the equipment, always refer to the manufacturers' load chart and manual.

SWL should always be prominently marked on the equipment and shown in kilograms (and lbs.) and by diagrams indicating the maximum number of people that can be carried. Uneven distribution of the load on the work platform and sudden impact (shock) loads from falling objects, dismantling of structures, etc. could destabilize the equipment.

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## K. Loading and Unloading

MEWPs must be correctly and safely loaded, secured and unloaded prior to or following transportation by road to and from the work site.

Ensure that a competent personnel is responsible for planning MEWP deliveries, collection and transportation.

## L. Personal Protective Equipment (PPE)

All concerned personnel should always wear appropriate PPE. This might include: steel toe capped boots, hard hat, full body harness, high visibility vest, etc. This will be determined by the risk assessment.

All persons which will be working at height using an MEWP shall be using a suitable fall restraint system which includes full body harness, lanyards, and lifelines securely attached to a suitable anchor point.

Ensure that the lanyard that will be used will be as short as practicable to keep the operator inside the basket or platform. This technical guideline recommends usage of adjustable restraint.

Ensure that the approved anchor point shall be located as close as possible to the platform floor.

Ensure to provide the operator with necessary protection against wind chills while working at height.

## **Boom Type Platforms**

When working from a boom type MEWP, it is strongly recommended that a full body harness with an adjustable restraint lanyard be used to provide fall restraint. The lanyard should be adjusted to be as short as possible to avoid the wearer leaving the basket in case of catapult or rough use and may contain an energy absorbing device. This includes Static Booms (1B) and Mobile Booms (3B) categories. For further details regarding energy absorbing device seek manufacturer's guidance.

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#### **Vertical Lifts**

It is not normally recommended for personnel working in a vertical lift to wear personal fall protection equipment (PFPE), other than in exceptional circumstances where a risk assessment deems it necessary. This includes Static Vertical (1A), Mobile Vertical (3A) and Push Around Vertical (PAV) categories.

The need for a personal fall protection system will be the outcome of a job specific risk assessment undertaken prior to work commencing and taking into consideration the manufacturer's operator manual.

## **Working Next to or Over Water**

A risk assessment shall determine whether it is more appropriate to wear a full body harness to address the fall risk, or a life jacket to address the risk of drowning.

The need for a personal fall protection system will be the outcome of a job-specific risk assessment undertaken prior to work commencing and taking into consideration the manufacturer's operator manual.

#### M. Fitting Additional Devices or Equipment on MEWP's

Task specific risk assessment shall be conducted before fitting any additional equipment or device(s) to a MEWP. Ensure to seek advice from a competent person or professional body to assess whether or not such a change to the MEWP will compromise its safety.

Employer shall consult the MEWP manufacturer but should note that the health and safety regulations does not oblige the manufacturers to give advice on the fitting of additional equipment or devices on their products.

Ensure that the additional equipment or device(s) that will be fitted to the MEWP is compatible/suitable to the equipment, in compliance with all applicable and essential health and safety requirements, will not increase the overall risks associated with its use and shall not jeopardize the health and safety of the persons that might be affected.

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Ensure that the modifications done to the MEWP will be inspected and certified by an EIAC accredited third party company.

## N. Instructions and Training

Work at height is a dangerous activity and therefore recognized training should always be obtained.

All employees shall be competent to perform their work safely and they should have minimum OHS understanding.

All MEWP operators shall undergo competency training from EIAC accredited third party company. All training shall be based on the requirement stipulated in the current version of ISO 18878 standard (e.g. IPAF).

Apart from general training (e.g. induction training), all of the concerned employees are to be trained on the organizations' safe operating procedures (SOP's) for their respective activities, MEWP control familiarization, characteristics, safety devices, decals and emergency preparedness and response including rescue.

Ensure that all employees that will be involved in MEWP activity are briefed thru tool box talk prior start of work.

Records of any training including induction and tool box talks shall be properly kept for at least five (5) years and be made readily available to DM OHS inspectors and other regulatory agencies for review and demonstrate compliance with pertinent UAE and DM regulations.

## **Site Management**

Managers with responsibility for work where people on the platform may be trapped between the platform and objects in the work area should have knowledge of the factors that should be considered before selecting a MEWP for use (e.g. IPAF's "MEWPs for Managers" training course).

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#### **Supervisors**

Supervisors should be instructed in the hazards, causal factors, and control measures identified in the task specific risk assessment for the work that will be carried out. They should be familiar with the work plans and take part in regular on-site emergency lowering drills.

#### **MEWP Operators**

- Be competent to operate the MEWP in the working conditions to which they are exposed;
- Be instructed in local hazards and site rules;
- Have attended a recognized training course; and
- Be familiar with the type and model of MEWP that they are authorised to operate. It is important to ensure that the operator has received training in the correct category of MEWP that they will be using.

#### Rescuers

- Be competent to lower the MEWP platform using the ground/emergency controls in the work situations to which they are exposed;
- Be instructed in local hazards and site rules;
- Be familiar with the rescue procedures for the type of MEWP they are authorized to operate; and
- Be aware of what to do if the load control has tripped and/or the emergency control has been activated in the platform.

Rescuers at ground level do not need to be trained as MEWP operators but they must be trained by their employer and be competent to carry out rescue operations. They should be familiarized with the safety devices on the MEWP in use, its emergency lowering systems and ground controls. They should check the emergency lowering functions with the operator during the daily pre-use checks.

Rescuers should be trained in the procedures to follow when rescuing people and take part in on site emergency lowering drills.

## **Training Providers**

Those who provide training on MEWP's, should be able to demonstrate that their training activity – facilities, equipment, instructor qualifications and CPD, instructor/trainee ratio and course content are

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subject to independent assessment and ongoing audits based on international standard ISO 18878. Records should be kept of the training received.

All training shall be repeated every two years as a minimum. However, organizations can have better periodicity to ensure staff knowledge is up to date at all times considering changes.

## **MEWP Operators' Health and Fitness**

Since the safe use of MEWP's requires proper and thorough understanding of safety notices and manufacturer's instruction manual, literacy and language comprehension are important requirements for any MEWP user.

Similarly, since the assembly and use of MEWP's can be physically demanding, users should be physically fit and in good health and should, generally, not have problems with eyesight or hearing, heart disease, high blood pressure, epilepsy, fear of heights or vertigo, giddiness or difficulty with balance, impaired limb function, alcohol or drug dependence or psychiatric illness.

If the worker has any problems with literacy or language comprehension or have any doubts about his/her fitness to use MEWP's, these must be brought to the attention of the workers' employer/supervisor.

This need not preclude the worker from using MEWP's, provided that the employer conduct an assessment and is able to put into place adequate measures, to take account of any difficulties the worker may have.

The employer shall maintain the Occupational Health Card as applicable as advised by Dubai Health Authority (DHA).

## O. Emergency Preparedness

#### **Rescue Plans**

Suitable rescue plan must be developed to ensure that emergency recovery can be carried out safely and quickly in the event of an operator or anyone else becoming trapped between the platform and an adjacent object.

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Ensure that there should always be a trained person at ground level who is able to take action in the event of an emergency while a MEWP is in use and trapping risks are present.

MEWP operators, supervisors and others involved should be briefed on and practice the emergency procedures to follow if someone becomes trapped.

The location of the operator's instruction manual should be identified in the emergency plan so those people who are authorized to operate the ground and emergency controls can refer to it.

This can be used in conjunction with existing manufacturer's symbols on the MEWP to aid location of the emergency controls.

## **Emergency Drills**

Ensure to conduct periodic emergency drills including rescue. Ensure to include in the drill the practice of using ground and emergency controls specific for the equipment being utilized.

The organization shall maintain adequate number of first aiders and fire wardens as referenced in respective requirements of Dubai Corporation of Ambulance Services (DCAS) and Dubai Civil Defense (DCD).

In case of any emergency call - 998 or 999.

## P. Monitoring and Inspection

Ensure to inspect the entire equipment both before and after use which includes the platform or cage, power source, all working parts, the structure and the vehicle mounting (where applicable) in conjunction with the manufacturer's manual.

Ensure that all MEWP's are inspected every six months by an EIAC accredited third party company.

Ensure that supervisors are instructed in and supplied with safe system of works (SSW) for the activity that they are expected to control.

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Supervisors shall monitor the work and provide advice for the review and revision of the risk assessments and SSW as the work progresses.

Organization may conduct periodic inspections/audit to verify implementation of appropriate control measures based on risk assessment and this technical guideline.

Ensure that any unauthorized repairs and adjustments are not carried out. In case of any revealed defect, the equipment should be isolated, tagged and reported to the concerned person. The MEWP should not be used and report the equipment as defective.

Records of any inspection shall be properly kept and be made readily available to Dubai Municipality OHS inspectors and other regulatory agencies for review and demonstrate compliance with pertinent UAE and DM regulations.

## 6. REFERENCES

British Standard: Code of Practice for the Delivery of Training and Education for Work at Height and Rescue (BS 8454:2006).

British Standard: Code of Practice for the Safe Use of MEWPs (BS 8460:2017).

British Standard: Code of Practice for the Selection, Use and Maintenance of Personal Fall Protection Systems and Equipment for Use in the Workplace (BS 8437:2005 +A1:2012)

British Standard/European Standard: Mobile Elevating Work Platforms - Design Calculations, Stability Criteria, Construction, Safety, Examinations and Tests (BS EN 280:2013 +A1:2015)

Canadian Standard: Mobile Elevating Work Platforms – Design, Calculations, Safety Requirements, and Test Methods (CSA B354.6:2017).

International Standard: Mobile Elevating Work Platforms – Operator (Driver) Training (ISO 18878:2013).

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International Standard: Mobile Elevating Work Platforms – Safety Principles, Inspection, Maintenance and Operation (ISO 18893:2014).

International Powered Access Federation (IPAF): MEWP Operators Safety Guide (Ref: UKC01/15008).

## **ANNEX A: MEWP CATEGORIES**

MEWP's are divided into two groups:

| Group   | Description  |  |
|---------|--|--|
|         | MEWP's where the vertical projection of the centre of area of the platform at  |  |
| Group A | the maximum chassis inclination specified by the manufacturer is always inside |  |
|         | the tipping lines.   |  |
| Group B | All other MEWP's   |  |

## And into three types:

| Туре   | Description   |  |
|--------|---|--|
| Type 1 | Travelling is only allowed with the MEWP in its transport position.           |  |
| Type 2 | Travelling with raised work platform is controlled from a point of control    |  |
| Type 2 | the chassis.  |  |
| Type 2 | Travelling with raised work platform is controlled from a point of control at |  |
| Type 3 | the work platform.  |  |

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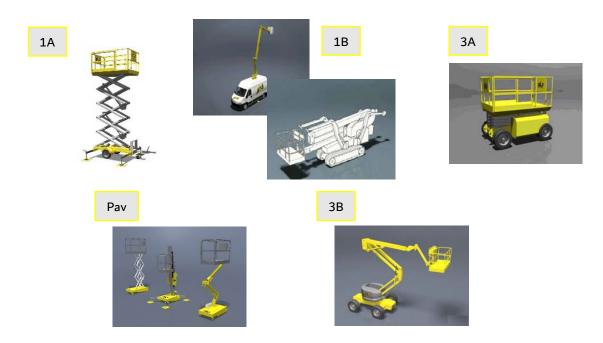
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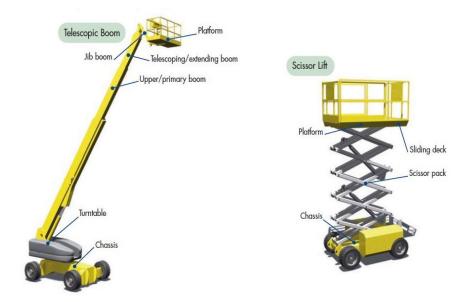


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## **ANNEX B: PARTS OF MEWP**

Below figures show the different parts of MEWP:



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