



**International
Standard**

ISO 18893

**Mobile elevating work platforms —
Safety principles, inspection,
maintenance and operation**

*Plates-formes élévatrices mobiles de personnel — Principes de
sécurité, inspection, entretien, mise en oeuvre et utilisation*

**Third edition
2024-10**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 214, *Elevating work platforms*.

This third edition cancels and replaces the second edition (ISO 18893:2014), which has been technically revised.

The main changes are as follows:

- the Scope was updated to clarify the purpose of the document and its applicability to both new MEWPs on the market and those currently in service;
- in [Clause 3](#), additional terms were added to support the clarifications on MEWP groups and types throughout the document;
- in [Clause 4](#), changes were made to the modification requirements (manufacturer modifications versus owner modifications);
- in [Clause 6](#), requirements were broadened for operator training to include topics such as authorization, supervisor training and operator retraining;
- the original Annex containing examples of misuse was deleted, and a new [Annex A](#) was added to show examples of each group and type MEWP.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document, as other documents on mobile elevating work platforms (MEWPs), is part of a programme of work regarding standardization of terminology, ratings, general principles (technical performance requirements and risk assessment), safety requirements, test methods, maintenance, and operation for MEWPs used to raise (elevate) and position personnel (and related work tools and materials).

MEWPs are machines/devices which provide protection from falling when working at height.

The entities with responsibilities related to safe use of a MEWP are established by law in some countries. This document provides guidance in the identification of those responsible entities.

The responsibility for safe operation of a MEWP lies with employers, managers, supervisors, operators, and others using these machines/devices. This document provides requirements so that appropriate MEWPs are selected for use and positioned, used, maintained and inspected for safe use.

The use of competent authorized persons and trained operators (see ISO 18878) is critical to the safe operation of a MEWP.

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Mobile elevating work platforms — Safety principles, inspection, maintenance and operation

1 Scope

This document applies to all mobile elevating work platforms (MEWPs) intended for moving a person(s) along with their necessary tools and materials at an elevated work location.

This document specifies the requirements for selection, inspection, training, maintenance, repair and safe operation of MEWPs to achieve the following objectives:

- a) eliminate or reduce accidents, personal injuries and property damage;
- b) establish criteria for selection, inspection, training, maintenance, repair and safe operation;
- c) help manufacturers, dealers, owners, users, operators, occupants and qualified persons to understand their responsibilities;
- d) establish a process for reviews to verify compliance with this document;
- e) provide a guide for governmental authorities desiring to formulate safety rules and regulations.

In this document, MEWP classifications comprise a MEWP group (platform location in reference to tipping line) with an associated MEWP type (reference to travelling).

This document is applicable to both new MEWPs put on the market and those MEWPs currently in service.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18878, *Mobile elevating work platforms — Operator (driver) training*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

anchorage

designated point of attachment utilized with a personal fall protection system

3.2

authorized person

person approved or assigned to perform a specific type of duty or duties at a specific location or locations at a work site

3.3

configuration

positions in which a *MEWP* (3.13), chassis, *extending structure* (3.5), or work platform can be placed within intended operating limits, including creating variable rated loads

3.4

delivery

transfer of custody, care, and control of a *MEWP* (3.13) from a person or entity to another person or entity

3.5

extending structure

structure that is connected to the chassis and supports the work platform and allows movement of the work platform to its required position

[SOURCE: ISO 16368:2024¹⁾, 3.8]

3.6

fall arrest system

personal fall protection system designed to arrest the fall of an *operator* (3.17) or *occupant(s)* (3.15)

[SOURCE: ISO 16368:2024, 3.9]

3.7

fall restraint system

personal fall protection system that restrains or prevents an *operator* (3.17) or *occupant(s)* (3.15) from reaching a fall hazard

[SOURCE: ISO 16368:2024, 3.10]

3.8

familiarization

provision of the necessary information to a *qualified person* (3.20) or trained *operator* (3.17) regarding the features, functions, devices, limitations, and operating characteristics, as defined by the *manufacturer* (3.12), in order to properly use a specific model of *MEWP* (3.13)

3.9

hazardous atmosphere

location that contains, or has the potential to contain, an explosive or flammable atmosphere

3.10

load-sensing system

system of monitoring the vertical load and vertical forces on the work platform

[SOURCE: ISO 16368:2024, 3.19]

3.11

maintenance

act of upkeep such as inspection, lubrication, refuelling, cleaning, adjustment, and scheduled parts replacement

3.12

manufacturer

person or entity that makes, builds, or produces a *MEWP* (3.13)

1) Under preparation. Stage at the time of publication: ISO/FDIS 16368:2024.

3.13

mobile elevating work platform MEWP

machine/device intended for moving a person(s), along with their necessary tools and material, to an elevated work location, consisting of at least a work platform with controls, an *extending structure* (3.5), and a chassis

[SOURCE: ISO 16368:2024, 3.22]

3.13.1

group A MEWP

MEWP (3.13) on which the vertical projection of the centre of the work platform area, in all work platform configurations (3.3) at the maximum chassis inclination specified by the *manufacturer* (3.12), is always inside the tipping lines

[SOURCE: ISO 16368:2024, 3.23]

3.13.2

group B MEWP

MEWP (3.13) that is not in group A

[SOURCE: ISO 16368:2024, 3.24]

3.13.3

type 1 MEWP

MEWP (3.13) for which travelling is only allowed when in the stowed position

[SOURCE: ISO 16368:2024, 3.25]

3.13.4

type 2 MEWP

MEWP (3.13) for which travelling with the work platform in the elevated travel position is controlled from a point on the chassis

Note 1 to entry: Type 2 and type 3 MEWPs can be combined.

[SOURCE: ISO 16368:2024, 3.26]

3.13.5

type 3 MEWP

MEWP (3.13) for which travelling with the work platform in the elevated travel position is controlled from a point on the work platform

Note 1 to entry: Type 2 and type 3 MEWPs can be combined.

[SOURCE: ISO 16368:2024, 3.27]

3.14

modification

change or addition to a MEWP (3.13) as originally manufactured which affects the *operation* (3.16), stability, safety factors, rated load, or safety of the MEWP

3.15

occupant

person in the MEWP (3.13) work platform other than the *operator* (3.17)

[SOURCE: ISO 16368:2024, 3.35, modified — “MEWP” was added before “work platform”.]

3.16

operation

performance of functions of a MEWP (3.13) within the scope of its specifications and in accordance with the *manufacturer's* (3.12) instructions, work rules and applicable governmental regulations

3.17

operator

person who controls the *operation* (3.16) of a *MEWP* (3.13)

3.18

operator's manual

manual provided by the *manufacturer* (3.12) and intended to be a part of the *MEWP* (3.13) which includes information to allow for safe *operation* (3.16) of the MEWP

3.19

owner

person or entity that has possession of a *MEWP* (3.13) by virtue of proof of purchase or legal possession of the MEWP

3.20

qualified person

person who, by possession of a recognized degree, certificate or professional standing, or by extensive knowledge, *training* (3.26) and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work or the project

3.21

repair

act of restoring to good condition that which has been broken, damaged or worn due to use, abuse or other reasons

3.22

retraining

required instruction based on the user's observations or evaluations to maintain a previously trained person's status as qualified for the task

3.23

risk assessment

process to identify potential hazards associated with a task and the work environment where the task is to be performed, and the development of methods to remove or control the risk to workers from identified hazards

3.24

safety-related bulletin

publication from the *manufacturer* (3.12) of a *MEWP* (3.13) that needs attention to ensure safe *operation* (3.16) of the MEWP

3.25

stabilising device

device or system used to stabilise a *MEWP* (3.13) by supporting and/or levelling the complete MEWP or the *extending structure* (3.5)

EXAMPLE Outrigger, jack, suspension-locking device, extending axle, torsion bar.

[SOURCE: ISO 16368:2024, 3.50]

3.26

training

instruction to enable the trainee to become a *qualified person* (3.20) regarding the tasks to be performed, including knowledge regarding potential hazards

3.27

transport

movement of the *MEWP* (3.13) outside the boundaries of the work site

3.28

travelling

movement of the chassis, except when the *MEWP* (3.13) is being transported

[SOURCE: ISO 16368:2024, 3.53]

3.29

user

person or entity that has care, control, and custody of the *MEWP* (3.13)

Note 1 to entry: The user can be more than one person or entity.

4 General requirements

4.1 Basic principles

4.1.1 The information in this document shall be supplemented by good job management, while applying sound principles of safe use planning, safe operation, training, inspection, maintenance, repair, and *MEWP* selection. All data available regarding the parameters of intended use and expected environment shall be considered. Decisions on the use and operation of the *MEWPs* 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.

4.1.2 The operation of any *MEWP* is subject to certain hazards that can be protected against only by the exercise of intelligence, care, and common sense and not by any device. It is essential to have persons who are medically and physically fit for the task selected to be trained and qualified in the intended use, safe operation, maintenance, and repair of this type of equipment.

4.1.3 It is an essential requirement that:

- a) the selection, positioning, operation, maintenance and inspections of a *MEWP* are properly planned, appropriately supervised by qualified persons and carried out in a safe manner;
- b) qualified person(s) evaluate the risks associated with the use of a *MEWP* and puts appropriate control measures and safe work procedures in place;
- c) all *MEWP* operators be trained in accordance with ISO 18878;
- d) all *MEWP* maintenance and repair work be performed by a qualified person in accordance with the manufacturer's recommendations, having regard to the environment and the severity of use.

NOTE National or local requirements can apply which can be more stringent.

4.2 Safe use planning

A safe use plan specific to *MEWPs* shall be developed by the user. It shall include, but not be limited to:

- a) performing a site risk assessment to:
 - 1) identify hazards;
 - 2) evaluate risks;
 - 3) develop control measures;
 - 4) identify safe work procedures;
 - 5) communicate with affected persons;
- b) selecting, provisioning and using of a suitable *MEWP* and work equipment associated with it;

- c) accessing, preparing and maintaining the work site, as required, to include an assessment of the support surface to ensure that it:
 - 1) is adequate to support the loads imposed by the use of the MEWP;
 - 2) does not exceed the inclination/slope limits for safe MEWP operation;
- d) maintaining the MEWP, including inspection(s) and repairs as required by this document and as recommended by the manufacturer;
- e) ensuring that only authorized personnel are allowed to operate or occupy the MEWP;
- f) familiarizing authorized MEWP operator(s) with the specific MEWP to be used;
- g) informing the operator of local site requirements;
- h) monitoring the performance of the operator by a trained and qualified supervisor(s) to ensure compliance with the provisions of this document;
- i) preventing unauthorized use of the MEWP;
- j) safeguarding of persons not involved in the operation of the MEWP;
- k) developing and communicating a rescue plan;
- l) recording of information as required by [4.4](#).

4.3 Manual(s)

4.3.1 Operator's manual(s)

4.3.1.1 The operator's manual(s) which is intended to be readily available and which is necessary for the operation and daily inspection/maintenance of the MEWP shall be provided with each rental, lease, or sale delivery.

4.3.1.2 The user shall ensure that the operator reads and understands the operator's manual(s) or have it (them) explained.

4.3.1.3 In case the manufacturer no longer exists, and the operator's manual(s) are not available from other sources, equivalent manual(s) shall be provided by a qualified person.

4.3.1.4 The operator's manual(s) shall be stored in the weather-resistant storage compartment provided by the manufacturer.

4.3.2 Parts and service manual(s)

The manufacturer's parts and service manual(s) shall be made available for use by trained personnel of the entity responsible for servicing the MEWP.

4.4 Record retention

The following records shall be created and retained by the owner of each MEWP for a minimum of four years after the sale of the MEWP or until the MEWP is permanently removed from service:

- a) name and address of each owner of the MEWP by serial number and date of delivery;
- b) written records of the pre-delivery, frequent, and annual inspections on the MEWP, including the date of inspection, deficiencies found, corrective action accomplished and identification of the person(s) performing the inspection;

- c) written records of all repairs, manufacturer recalls, upgrades and approved modifications accomplished on the MEWP, including the date work is completed, a description of the work accomplished, and identification of the person(s) performing the repair.

4.5 Modifications

4.5.1 Manufacturer modifications

Except as provided in 4.5.2, modifications or alterations to a MEWP that can affect the capacity, stability or safe operations of the MEWP shall only be made with prior written permission of the original manufacturer or its successor thereof. When the manufacturer or its successor approves a modification or alteration, appropriate changes shall be made to capacity plates, decals, tags, and manufacturer's operator's manual(s) (or supplementary documentation can be provided if appropriate) and stored with the manufacturer's operator's manual(s) on the MEWP.

4.5.2 Owner modifications

4.5.2.1 In the event that the manufacturer is no longer in business and there is no successor, or it is not possible to obtain a response from the manufacturer or successor, the owner may arrange for modifications or alterations to the MEWP, and shall:

- a) arrange for the modification or alteration to be designed, tested and implemented by a qualified person(s);
- b) maintain a permanent record of the design, test(s) and implementation of the modification or alteration;
- c) make appropriate changes to the capacity plate(s), decals, tags, and operator's manual(s);
- d) affix a permanent and readily visible label on the MEWP stating the manner in which the MEWP has been modified or altered, together with the date of the modification or alteration, and the name and address of the organization that accomplished the tasks;
- e) be responsible for all aspects of the modification.

NOTE Supplementary documentation can be provided, if appropriate, and stored with the operator's manual(s) on the MEWP.

4.5.2.2 The user shall ensure that MEWP supervisors and operators are aware and comply with the requirement that only the MEWP owner can authorize a modification to a MEWP.

5 Maintenance

5.1 Preventive maintenance

5.1.1 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.

5.1.2 The scheduled maintenance programme shall include inspections as defined in 5.2 and by the manufacturer's recommendations and bulletins. All malfunctions and problems identified that affect the safe operation shall be corrected by a qualified person before the MEWP is placed or returned to service. Repairs or adjustments shall not be made unless specifically authorized by the MEWP owner.

5.2 Maintenance inspections

5.2.1 General

5.2.1.1 The MEWP shall have 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 of the maintenance inspections 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. MEWPs that are not in proper operating condition shall be corrected by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations.

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

5.2.2 Pre-delivery inspection

The 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

The user shall ensure before use each day or at the beginning of each shift, that the MEWP has been given a visual inspection and functional test by the operator, including but not limited to the following:

- a) operating, emergency and auxiliary controls;
- b) safety devices;
- c) personal protective equipment;
- d) air, hydraulic and fuel system for leaks;
- e) cables and wiring harness;
- f) loose, damaged, worn, or missing guards or parts;
- g) tyres (where applicable, tyre pressure), wheels, wheel fasteners and tracks (if equipped);
- h) instructions, warnings, control markings and operating manual(s);
- i) structural items, extending structure and stabilising devices;
- j) work platform, including guardrail system, floor, anchorage and mounting;
- k) cleanliness and general signs of damage;
- l) brake operation and performance;
- m) verification that fuel or battery power level are adequate for intended operation;
- n) lights (when applicable);
- o) fluid levels including engine coolant, engine oil and hydraulic oil;
- p) pins and pin-securing devices and visible damage to the prime means of support for the work platform and extending structure;
- q) operation of stabilising devices (if equipped);
- r) other items specified by the manufacturer in the operator's manual.

5.2.4 Frequent inspection

5.2.4.1 The MEWP owner shall ensure that a frequent inspection has been performed in accordance with the manufacturer's instructions:

- a) on a MEWP that has been in service for three months or 150 hours, whichever comes first;
- b) before putting back into service a MEWP which has been out-of-service for a period longer than three months of time.

5.2.4.2 The frequent inspection shall be made by a qualified person to inspect the specific make and model of the MEWP. This inspection shall include all items specified by the manufacturer for a frequent inspection and shall include but not be limited to the following:

- a) all functions and their controls, including controls for emergency operation, for speed(s), smoothness, and limits of motion;
- b) base-level 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) verification that all emergency controls, guards, and safety devices 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) verification that instructions, warnings and control markings are in place and legible;
- h) hydraulic or pneumatic systems:
 - 1) for proper fluid or pressure levels;
 - 2) 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) verification that wheel nuts and bolts are in place and properly tightened;
- l) 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;
- p) communication system, if any, between platform and ground level is working properly.

5.2.5 Annual inspection

5.2.5.1 The MEWP owner shall ensure that an annual inspection be performed no later than 13 months from the initial in-service date or from the prior annual inspection. The inspection shall be performed by a qualified person for the specific make and model of MEWP.

5.2.5.2 The annual inspection shall include, but not be limited to:

- a) all items specified by the manufacturer for an annual inspection;
- b) verification that the MEWP is registered with the MEWP manufacturer;
- c) verification that applicable manufacturer's safety-related bulletins are addressed;
- d) all items included in a frequent inspection (see [5.2.4](#));
- e) all critical and suspect areas;
- f) all accessible structural elements and welds, such as:
 - 1) housing (boxes) for stabilising devices, including the underside of the housing;
 - 2) platform rotating mechanism;
 - 3) slewing mechanism, including the condition and torque of the ring gear bolts;
- g) brakes;
- h) all tie down points;
- i) boom sections, pins, cylinder rod ends and stabilising devices;
- j) switches for wiring and all electrical connections;

5.2.5.3 The owner shall maintain on the MEWP a means, as provided by the manufacturer, to identify the date the last annual inspection was performed and the interval at which annual inspections are required.

5.2.5.4 An annual inspection shall be performed upon transfer of custody of the MEWP unless it is determined that the annual inspection is current.

NOTE Some countries require that annual inspections be performed by a third party.

5.3 Maintenance personnel training

Maintenance personnel shall be trained by a qualified person to inspect and maintain the MEWP in accordance with the manufacturer's recommendations and [5.2](#) in this document.

5.4 Maintenance and repair safety precautions

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

- a) instructions and precautions provided by the MEWP manufacturer have been read and understood;
- b) only qualified personnel are performing maintenance or repair on MEWP;
- c) power plant is stopped and means of starting are rendered inoperative;
- d) all controls are in the "off" position and all operating systems are secured from inadvertent motion;
- e) work platform is lowered to the full down position, if possible, or otherwise secured to prevent dropping;
- f) hydraulic oil pressure is relieved from all hydraulic circuits before loosening or removing hydraulic components;
- g) safety props or latches are installed where applicable as prescribed by the manufacturer.

5.4.2 Certain maintenance work can require the MEWP to be in conditions other than those described in [5.4.1](#) a) to g). In this case, safety measures shall be followed as described in the manufacturer's maintenance instructions.

5.4.3 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-related bulletins

The owner shall ensure that the MEWP is registered with the manufacturer, so safety-related bulletins are received and addressed as specified by the manufacturer. Safety-related bulletins as received from the manufacturer or its authorized representative shall be complied with. Records shall be retained in accordance with [4.4](#) and/or as instructed by the safety-related bulletin.

6 Qualification and training

6.1 Authorization to operate

Operators of MEWPs shall be qualified as to visual, auditory, physical, and mental ability to operate the equipment safely. Only trained and authorized persons shall be permitted to operate a MEWP. The user shall ensure that operator training and familiarization are delivered under the direction of a qualified person in accordance with ISO 18878 and this document before operating the MEWP.

6.2 User conformance evaluations

The user shall ensure that operators understand that MEWP safe operation is the operator's responsibility and be knowledgeable of, and observe, the safety rules and requirements of this document. The user shall provide periodic "on-the-job" operator evaluations to ensure conformance with this document.

6.3 Retraining

The operator shall be retrained as necessary, based on the observation of the user [see [4.2](#) h)], to keep the level of proficiency at an acceptable level. Examples of situations when retraining can be necessary include, but are not limited to:

- a) deterioration of proficiency is observed;
- b) following an accident or near-miss while operating or using a MEWP;
- c) if a condition in the workplace changes in a manner that can affect the safe operation of the MEWP;
- d) new MEWP technologies and working methods have emerged;
- e) expiration of valid training period (see ISO 18878).

6.4 Assessment of personnel

The user is responsible to assess if personnel are qualified to perform the task.

6.5 Occupant knowledge

The user shall ensure that the MEWP operator provides instruction or otherwise ensures all occupants have a basic level of knowledge to work safely on the MEWP. The occupant knowledge provided shall include, at a minimum, the following:

- a) when personal fall protection is required and the location of designated anchorage to attach fall protection in the work platform;
- b) MEWP stability factors, including how their actions could affect stability;
- c) safe use of MEWP accessories they are assigned to use;
- d) site-specific work procedures the occupants shall follow related to the operation of the MEWP;
- e) hazards related to the task at hand and their avoidance, to include any applicable site risk assessment safe work procedures;
- f) emergency MEWP operation if included in the rescue plan;
- g) manufacturer's warnings and instructions.

6.6 Supervisor training

The user shall ensure that all personnel that directly supervise MEWP operators shall receive supervisor training. This training shall include, but not be limited to:

- a) how to select the proper MEWP for the work to be performed;
- b) the rules, regulations, and standards that apply to MEWPs, including the safe use provisions in this document;
- c) what potential hazards are associated with the use of MEWPs and what means have been provided to protect against those hazards;
- d) where the operator's manual is stored on the MEWP and what information in the operator's manual the supervisor needs to read and understand;
- e) when personal fall protection is required and the location of designated anchorage.

6.7 Familiarization

6.7.1 Prior to user's authorization of an operator to use a specific model of MEWP, the user shall ensure the operator is familiarized on the following, and as specified by the manufacturer:

- a) identification of the location for the manual(s) storage;
- b) requirement for confirmation that the required manual(s) specified by the manufacturer are with the MEWP;
- c) purpose and function of the controls specific to the model of MEWP to be used;
- d) features, limitations and devices;
- e) operating characteristics specific to the model of the MEWP.

6.7.2 When approved by the user, self-familiarization can be achieved, by a properly trained operator reading, understanding and following the manufacturer's operator's manual.

6.7.3 The user shall ensure that after familiarization, the operator operates the MEWP for a sufficient period of time to achieve proficiency.

6.8 Assistance to operators

6.8.1 The user shall assist their approved operators and respond to questions related to rated capacity, intended use, maintenance, repair, inspection, or operation of the MEWPs. The user shall obtain the proper information from the dealer or manufacturer, if needed.

6.8.2 This information shall be obtained from a qualified person if the manufacturer is no longer in business.

7 Operation

7.1 General

7.1.1 The user shall direct their personnel (for example, MEWP supervisors, operators, occupants) who will be involved in MEWP operations to be aware of and in compliance with the provisions set forth in this document and the manufacturer's requirements.

7.1.2 The user shall implement the safe use programme (4.2), monitor personnel performance, and supervise their work to ensure the use, selection and operation of the MEWP is in conformance with the provisions set forth in this document, warn personnel of potential hazards as defined in this clause, provide means to protect against identified hazards and explain the potential consequences of misuse or not following proper operating guidelines.

7.2 Risk assessment

7.2.1 General

The extent of the risk assessment depends on the task and the hazards associated with it. It is the user's responsibility to ensure the risk assessment is carried out.

7.2.2 Stages of risk assessment planning

7.2.2.1 Identify the task to be undertaken

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

7.2.2.2 Selecting an appropriate MEWP

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.

7.2.2.3 Assessment of the risks associated with the task

Assessment of the risks associated with the task shall be identified. These can 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.

7.2.2.4 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.

7.2.2.5 Identifying safe work procedures

Once the control measures have been identified, safe work procedures shall be developed to ensure the control measures are implemented (for example, place barricades, have spotter to help maintain safe distances).

7.2.2.6 Communication of the results

One of the most important aspects of risk assessment is to ensure that the results are communicated effectively to the parties involved, taking into account language differences. The risk assessment shall be reviewed before the job starts.

7.2.2.7 Continual monitoring of risk assessment

Immediately before a job starts and periodically throughout a long-term job, the risk assessment shall be reviewed to check if any parts of the task or the working environment have changed, considering the effect that can have on the safety of the operation. If any modifications to the risk assessment are required, these should be communicated to all those involved prior to resuming the job.

7.3 Rescue from height

7.3.1 General

7.3.1.1 Rescue planning is a necessary component of a risk assessment when working at height. Both mechanical failure of the MEWP and fall arrest require prior planning to ensure a safe and timely rescue.

7.3.1.2 A fall from the platform when using a fall arrest system will require a rescue plan to determine how the affected worker will return safely to the platform or the ground. The plan shall be put in writing. All occupants shall receive instructions to follow if they fall and await rescue or witness another worker's fall. Ideally, this plan will limit the time that a properly restrained worker hangs suspended in the air.

7.3.1.3 In the case of platform entanglement, the operator and occupants shall be removed from the platform prior to making attempts to free the platform. MEWPs that have tipped shall be stabilised and secured before attempting rescue. Technical rescue can 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 can be stranded at height and any need for prompt action.

7.3.1.4 Rescue should be carried out by qualified personnel using the machine's ground controls or secondary lowering system when feasible. All rescue procedures near electrical conductors shall comply with the minimum approach distance (MAD) (see [7.8.9.3](#) and [Table 1](#)) or shall not begin until power has been completely de-energized.

7.3.2 Rescue plan

7.3.2.1 Rescue plans can include:

- a) self-rescue – by the person involved;
- b) assisted rescue – by others in the work area;
- c) technical rescue – by emergency services.

7.3.2.2 As part of the rescue 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 complete machine malfunction or work platform entanglement.

7.3.3 Rescue using another MEWP

7.3.3.1 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 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 platforms of both machines shall be adjacent to each other with a minimal horizontal/vertical gap between them and the power to controls on both machines should be switched off during the transfer;
- c) the person being rescued should be fitted with proper personal fall protection equipment and the lanyard should be attached to the anchor points on the rescue machine before the transfer takes place;
- d) the rescue machine shall not be overloaded during the rescue, which can mean making more than one trip to complete the rescue;
- e) the manufacturer's recommendations stated in the operator's manual(s) should always be followed.

7.3.3.2 If there is injury, illness or risk of exposure (such as suspension trauma), 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.

7.4 Addressing system failure

7.4.1 A system failure of the MEWP that results in the loss of the platform control functions shall be addressed by the use of:

- a) the MEWP auxiliary power function of the controls; or
- b) the MEWP secondary manual emergency descent controls.

7.4.2 The manufacturer's directions shall be followed in the use of these systems. The rescue plan shall include requirements to ensure that appropriate personnel have been instructed in the use of auxiliary or emergency controls for each MEWP in use.

7.5 Before operation

Before operation of a MEWP, the user shall direct their personnel (which can include supervisors of MEWP operations, operators and occupants) to follow the provisions of this clause which includes, but is not limited to:

- a) understanding of the task to be performed;
- b) selection of a MEWP (see [Annex A](#) for examples) appropriate for the task to be performed;
- c) having knowledge of the possible hazards associated with the task, site, or environment and the means to safely deal with these hazards;
- d) having knowledge of the intended purpose and function of each control and safety devices;
- e) prior to authorization to operate a MEWP, ensuring that personnel have been trained, are familiar with, understand the risk assessment, and are aware of the responsibilities of an operator as defined in this document;
- f) ensuring that stabilising devices, such as outriggers, extendible axles, or other stability-enhancing means, are used as required by the manufacturer;
- g) ensuring that guardrails are installed and access gates or openings are closed or in appropriate positions per manufacturer's instructions;

- h) ensuring 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;
- i) understanding of the manufacturer's operating instruction(s) and user safety rules, or having them explained by a qualified person;
- j) understanding by reading or by having a qualified person explain all decals, warnings and instructions displayed on the MEWP;
- k) ensuring the use of appropriate personal protective equipment for the conditions, including the environment in which the MEWP will be operated;
- l) ensuring that another responsible person is on the job site, who is not working on the platform, and knows how to use the emergency controls;
- m) ensuring that the operator performs a daily pre-start inspection (as defined in [5.2.3](#)).

7.6 Work site inspection

Before and during the use of the MEWP, the user shall ensure that the operator performs a work site inspection during which the area in which the MEWP is to be used is checked by the operator for possible hazards, such as, 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) traffic hazards;
- i) surfaces inadequate to sustain the ground-bearing pressures imposed by the MEWP in all operating configurations;
- j) wind and weather conditions;
- k) presence of other personnel and other mobile equipment.

7.7 Understanding of hazardous locations

7.7.1 The user shall identify the presence of hazardous atmospheres, such as flammable or explosive gases, combustible dust, or easily ignitable fibres. If a MEWP is to be used in a hazardous atmosphere environment where flammable or explosive gases or particles are present, advice shall be sought from the person in charge of the site regarding the need to select MEWPs that are designed for use in the hazardous environment, and regarding the use of personal protective equipment or machine devices, for example spark arresters.

7.7.2 The user shall ensure that the operator is aware of the MEWP's operating limitations. A MEWP designed/ designated for this environment shall be used as recommended by the manufacturer or a qualified person.

7.8 Specific requirements of operation

7.8.1 Weather considerations

7.8.1.1 General

The user shall define, and the operator shall comply with, control measures to address the potential risk associated with weather conditions when operating MEWPs outdoors, to include conditions such as wind, lightning, ice, fog, or any other weather condition that directly or indirectly affects the safe operation of a MEWP as appropriate. The control measures described in [7.8.1.2](#), [7.8.1.3](#), [7.8.1.4](#) and [7.8.1.5](#) shall be addressed.

7.8.1.2 Effect of wind forces on MEWPs

MEWPs shall not be operated in wind speed conditions beyond the maximum allowed by the manufacturer. No modifications or additions to the MEWP that affect its wind loading, and consequently its stability, shall be made without the manufacturer's approval. Where this approval cannot be obtained because the manufacturer has gone out of business, advice shall be obtained from a qualified person.

7.8.1.3 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.

7.8.1.4 Local wind effects

The shielding and funnelling 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 roadways.

7.8.1.5 Use in thunderstorms

MEWPs shall not be used where subject to the effects of thunderstorms. MEWPs can be used inside of a building where the MEWP and operator are not subject to a lightning strike.

7.8.2 Ground condition considerations

7.8.2.1 General

The stability of MEWPs 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 MEWPs specified limits, then the operator shall lower and reset the machine in a level position.

7.8.2.2 Inadequate stabilising device foundations

Some soil types, moist soils and soils which have not been compacted, as well as some improved surfaces (for example, paved, concrete, compacted), are not capable of supporting the pressures of stabilising device spreader pads. If some form of blocking or spreader pad is required, it shall have sufficient size, stiffness, and strength to spread the load over the required area to reduce the ground pressure to an acceptable level, as determined by a qualified person.

7.8.2.3 Sub-surface voids

Sub-surface voids (for example, cellars, basements, culverts, pipes) shall be taken into consideration when determining the adequate strength required to support the MEWP in its operating condition.

7.8.3 Transporting and travelling on public roads

7.8.3.1 The user shall identify potential hazards caused by any operations on roads and provide the operator with warning and instructions. Operators shall comply with the instructions and notify their supervisor if they identify additional hazards during their workplace inspections and avoid the risk until directed otherwise by their supervisor.

7.8.3.2 Where MEWPs 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 persons involved from traffic. These measures include but are not limited to:

- a) warning cones;
- b) road signs and signalling devices;
- c) flag personnel to warn other vehicles of the presence of the MEWP and any associated vehicles.

7.8.3.3 When a MEWP travels between work sites, adequate protection or signalling devices to warn the public shall be provided.

7.8.4 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.

7.8.5 Deployment of stability enhancing means

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

7.8.6 Fall protection

7.8.6.1 The guardrail system of the MEWP is the primary fall protection for persons in the work platform.

NOTE It is generally not necessary for persons working from a group A MEWP to wear personal fall protection equipment, other than in specific circumstances identified in a risk assessment.

7.8.6.2 On group B MEWPs, persons in the work platform shall wear appropriate personal fall protection equipment.

7.8.6.3 On any MEWP when a fall restraint system or fall arrest system is used by persons in the work platform, it shall be attached to the appropriate rated anchorage(s) on the work platform in accordance with the manufacturer's instructions.

7.8.7 Distribution of load

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

7.8.8 MEWP movement

7.8.8.1 Maintaining clearance from obstructions

The operator shall ensure adequate clearance is maintained from obstructions.

7.8.8.2 Before moving the work platform or MEWP

7.8.8.2.1 The operator shall visually inspect the area around the work platform for obstructions and check the direction of planned work platform movement with reference to the indicators on the MEWP base, if applicable, and the controls before operating.

7.8.8.2.2 The operator shall ensure that persons in the work site area are aware of the movement of the MEWP as required to protect against personal injury.

7.8.8.3 When moving the work platform or MEWP

The operator shall:

- a) maintain a clear view in the direction of movement of the MEWP, including above and below the work platform;
- b) move at speeds that are appropriate for safe operation;
- c) travel with the boom/work platform positioned at the lowest safe position for the conditions;
- d) allow for the distance the work platform moves or MEWP will travel when controls are released or returned to neutral position;
- e) move the work platform clear of obstructions before using the MEWP travel or work platform movement controls at full speed;
- f) not lean on or over the guardrails while the MEWP is elevating or travelling close to obstructions;
- g) not lean their 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 occupants in the work platform during any MEWP movement.

7.8.8.4 Travelling to, from, or within the work area

The operator shall:

- a) adjust the platform position to ensure adequate clearance with overhead obstructions and other obstacles in the direction of travel;
- b) allow for the platform movements when travelling over uneven surfaces, slopes and ramps.

7.8.8.5 While working at height

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

7.8.8.6 Distractions

The operator shall:

- a) give full attention while moving the MEWP;
- b) not engage in horseplay.

7.8.9 Electrocution hazards

7.8.9.1 Electrical conductors shall be considered energized until determined to be otherwise by tests or other appropriate methods or means, and properly grounded.

7.8.9.2 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.

7.8.9.3 The operator shall maintain the minimum approach distance (MAD) from energized conductors at all times in accordance with [Table 1](#). In the event the voltage is not known, the maximum distance shall be observed.

NOTE National or local requirements can apply which can be more stringent.

Table 1 — Minimum approach distances

Voltage range (phase to phase) kV	Minimum approach distance (MAD) m
0 to 0,6	1
> 0,6 to 6	1,2
> 6 to 50	3
> 50 to 220	4
> 220 to 500	5
> 500 to 750	10
> 750 to 1 000	13
> 1 000 to 1 250	16

7.8.10 Footing for personnel

Persons shall maintain a firm footing on the MEWP floor while working thereon. Climbing by occupants on the toeboards, 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. When in motion, kneeling or crouching on the MEWP floor is prohibited.

7.8.11 Precaution for other moving equipment

7.8.11.1 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.

7.8.11.2 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. Arrangements should be made for operators to be able to communicate clearly with each other during the operation.

7.8.12 Reporting safety-related problems or malfunctions

The operator shall immediately cease operation of the MEWP and report to an authorized person any safety-related problem(s) or malfunction(s) that become evident during operation. Consult with a qualified person if necessary, so that all problem(s) or malfunction(s) that affect the safety of operations are eliminated prior to continued use.

7.8.13 Reporting potentially hazardous locations

The operator shall immediately cease operation of the MEWP and report to an authorized person any potentially hazardous location(s) with potentially flammable or explosive gases or particles.

7.8.14 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.

7.8.15 Entanglement

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

7.8.16 Load transfer

Adding materials or personnel loads 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.

7.8.17 Work area

Before any movement of the MEWP, the operator shall ensure that the area surrounding the MEWP is clear of persons and equipment.

7.8.18 Fuelling

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.

7.8.19 Battery charging

7.8.19.1 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.

7.8.19.2 Battery acid is highly corrosive. Caution shall be taken when filling batteries to avoid splash or spillage.

7.8.20 Improper MEWP stabilisation

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

7.8.21 Misuse as a crane or elevator

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

7.8.22 Use of MEWP for grounding

A MEWP shall not be used for the electrical grounding to the earth when welding adjacent structures unless specifically approved by the manufacturer or a qualified person.

7.8.23 Climbing the extending structure

Climbing of the extending structure is prohibited.

7.8.24 Unusual operating support conditions

The MEWP shall not be operated except for loading or unloading purposes 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 qualified person (see [4.5](#)).

7.8.25 Travelling

Before and during travelling, the operator shall:

- a) comply with the manufacturer's requirements for travelling;
- b) maintain a clear view of the support surface and route of travel;
- c) allow for the distance the work platform moves or MEWP will travel when controls are released or returned to neutral position;
- d) ensure that persons in the work site area (see [7.8.17](#)) are aware of the movement of the MEWP as required to protect against personal injury;
- e) maintain a safe distance from obstacles, debris, drop offs, holes, depressions, ramps and other hazards to ensure safe travel;
- f) maintain a safe distance from overhead obstacles;
- g) limit travel speed according to conditions, including the condition of the support surface, congestion, visibility, slope, location of persons and other factors.

7.8.26 Stunt driving

Stunt driving and reckless operations are prohibited.

7.8.27 Securing the MEWP

The operator shall use the means provided to protect against use by an unauthorized person(s).

7.8.28 Interference with safety devices

Safety devices shall not be altered or disabled.

7.8.29 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.

7.8.30 Vacating (or entering) a MEWP at height

7.8.30.1 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;
- d) additional loads or changing of loads imposed on the MEWP for which it was not designed, which can 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;