

MOBILE ELEVATING WORK PLATFORM (MEWP) PROGRAM



Contents

1.0	PURPOSE and APPLICABILITY	2
2.0	DEFINITIONS.....	2
3.0	ROLES and RESPONSIBILITIES	4
4.0	PROCEDURES.....	4
5.0	OPERATION.....	8
6.0	TRAINING & FAMILIARIZATION.....	13
7.0	REFERENCES and RESOURCES	14

1.0 PURPOSE and APPLICABILITY

- 1.1 It is the policy of the University of Pennsylvania in coordination with the Office of Environmental Health and Radiation Safety to provide the University community with a safe and healthful environment. This program defines practices and procedures to be implemented for the safe operation of Penn-owned or leased mobile elevating work platforms.
- 1.2 This program applies to the operation of Penn-owned or leased mobile elevating work platforms and to Penn-employed operators of mobile elevating work platforms owned by others. *This program does not apply to vehicle-mounted boom lifts.*
- 1.3 Typical examples of equipment covered by this program:



Group A Type 1



Group A Type 1



Group A Type 3



Group B Type 3



Group B Type 3

2.0 DEFINITIONS

- 2.1 **Aerial device:** Any device, extensible, articulating or both, which is primarily designed and used to position personnel, designed to the ANSI/SAIA A92.20 standard.
- 2.2 **Anchorage(s):** A designated point of attachment utilized with a personal fall protection system.
- 2.3 **Authorized Personnel (authorized person):** Personnel approved or assigned to perform a specific type of duty or duties at a specific location or locations at a work site.
- 2.4 **Base:** The relevant contact points of the aerial platform that form the stability fulcrum (e.g., wheels, casters, outriggers, stabilizers.)

- 2.5 **Boom:** A cantilever beam which supports the platform.
- 2.6 **Entity:** An individual or company that has its own set of responsibilities pertaining to MEWP design, safe-use and training, and may include manufacturers, dealers, owners, users, supervisors, operators, occupants, lessors, lessees and brokers.
- 2.7 **Familiarization:** Providing the necessary information regarding the features, functions, devices, limitations and operating characteristics as defined by the manufacturer in the operator's manual, in order to properly utilize a specific model MEWP, to include the location of the manufacturer's operation manuals.
- 2.8 **Group A:** MEWPs on which the vertical projection of the center of the platform area, in all platform configurations at the maximum chassis inclination specified by the manufacturer, is always inside the tipping lines. E.g., Vertical plane MEWP.
- 2.9 **Group B:** MEWPS not in group A. E.g., Boom-supported MEWP.
- 2.10 **Mobile Elevating Work Platform (MEWP):** Machine/device intended for moving persons, tools and material to working position, consisting of at least a work platform with controls, an extending structure and a chassis.
- 2.11 **Occupant:** A person on the work platform of the MEWP.
- 2.12 **Operator:** A person qualified to control the movement of a MEWP.
- 2.13 **Owner:** A person or entity that has possession of a MEWP by virtue of proof of purchase.
- 2.14 **Qualified Person:** One who, by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.
- 2.15 **Stowed Position:** Configuration of the MEWP as defined by the manufacturer in which the extending structure is lowered and retracted and stabilizers and/or outriggers are retracted.
- 2.16 **Type 1 MEWP:** MEWP for which travelling is allowed only when in the stowed position.
- 2.17 **Type 2 MEWP:** MEWP for which travelling with the work platform in the elevated travel position is controlled from a point on the chassis.

- 2.18 **Type 3 MEWP:** MEWP for which travelling with the work platform in the elevated travel position is controlled from a point on the work platform.
- 2.19 **User:** The school, center or department that has care, custody and control of the MEWP.

3.0 ROLES and RESPONSIBILITIES

- 3.1 **Penn Environmental Health and Radiation Safety (EHRS)** shall be responsible for:
- 3.1.1 Developing and periodically reviewing and updating the Mobile Elevating Work Platform Program.
 - 3.1.2 Providing or coordinating fall protection training.
- 3.2 **Penn Owners/Users** shall be responsible for:
- 3.2.1 Implementation of the Mobile Elevating Work Platform Program with the operators.
- 3.3 **Penn Operators** shall be responsible for:
- 3.3.1 Complying with the procedures prescribed in the Mobile Elevating Work Platform Program.

4.0 PROCEDURES

- 4.1 Manuals and Documentation:
- 4.1.1 Upon purchase or lease of the MEWP, the user shall ensure the operating and maintenance manuals have been received.
 - 4.1.2 The user shall, within sixty days (60) of acquisition, provide the manufacturer with the full name and address of the purchaser and the model and serial number of the mobile elevating work platform acquired. The purpose of notification is to ensure that any important safety bulletins and recall information is effectively communicated and that any warranty is effectuated.
- 4.2 Record Retention: The following records shall be maintained by the user for the duration of ownership of the mobile elevating work platform:
- 4.2.1 Purchase information including receipts and serial number.

- 4.2.2 Inspections, maintenance, safety bulletins and repair documentation.
 - 4.2.3 Training/familiarization records of all individuals receiving operator training/familiarization. Records must include the name of the individual trained/familiarized, name of trainer, summary of training content (i.e. based on the content of the particular operator's manual of the machine to be operated) and training/familiarization date. Submit copies of training records to [EHRS](#) to enable updating of Penn's learning management system training database. Records shall be maintained in the office of the user responsible for coordinating inspections, maintenance and training for the MEWP.
 - 4.2.4 Resale – A bill of sale that includes a release from liability for Penn must be completed with the purchaser. [Contact Penn's Office of General Counsel](#) to obtain the appropriate bill of sale.
- 4.3 Maintenance and Repair:
- 4.3.1 Scheduled Maintenance - Maintenance specified in the equipment's operation and service manual shall be performed on a timely basis by an individual who is qualified to perform the task. This maintenance and service record shall be documented through the use of a log book or electronically. Aside from minor routine tasks identified in the operator's manual, it is expected that most maintenance tasks shall be completed by the authorized service or repair vendor. A preventative maintenance program developed in accordance with the manufacturer's recommendations and taking into account the environment and severity of use shall be implemented.
 - 4.3.2 Replacement Parts - When any entity replaces a part or component, it shall be identical or equivalent to the original MEWP part or component.
 - 4.3.3 Safety-Related Bulletins
 - 4.3.3.1 All entities shall comply with safety-related bulletins from the manufacturer.
 - 4.3.3.2 Records shall be retained by entities in accordance with section 4.2 of this program and/or as instructed by the safety-related bulletin.
 - 4.3.3.3 The owner shall ensure that the MEWP is registered with the manufacturer so safety-related bulletins may be received from the manufacturer.
 - 4.3.4 Repairs - When the aerial platform is damaged or in need of repair, all malfunctions and problems identified shall be corrected before it is returned to service. The unit shall be conspicuously tagged (and locked if feasible) out of service.

4.4 Inspections:

4.4.1 Frequent Inspection

- 4.4.1.1 Prior to placing a MEWP into service, a frequent inspection shall be completed in accordance with the operator's manual.
- 4.4.1.2 A frequent inspection is required if the MEWP has been out of service for a period longer than three months, or if environmental conditions require a shorter period.
- 4.4.1.3 The inspection shall be made by a person qualified to inspect the specific make and model of the MEWP. The inspection shall include all items specified by the manufacturer for a frequent inspection, to include manufacturer's bulletins, and shall as applicable include, but not be limited to the following:
 - 4.4.1.3.1 all functions and their controls, including controls for emergency operation, for speed(s), proper operation and limits of motion;
 - 4.4.1.3.2 ground-level controls, including the provisions for overriding of additional controls;
 - 4.4.1.3.3 all chain and cable mechanisms, for adjustment and worn or damaged parts, all guards are in place and in good working order;
 - 4.4.1.3.4 lubrication of all moving parts, inspection of filter elements(s); hydraulic oil, engine oil, and coolant;
 - 4.4.1.3.5 visual inspection of structural components and other critical components such as fasteners, pins, shafts, turntable attachment devices and locking devices;
 - 4.4.1.3.6 instructions, warnings and control markings are in place and legible;
 - 4.4.1.3.7 hydraulic or pneumatic systems, for proper fluid or pressure levels and observable for proper operation, damage, leaks or external wear;
 - 4.4.1.3.8 electrical systems, for signs of damage, deterioration, dirt or moisture accumulation;
 - 4.4.1.3.9 tires for damage and proper inflation, as applicable;
 - 4.4.1.3.10 wheel fasteners are in place and properly tightened;
 - 4.4.1.3.11 lights, if applicable, for proper operation and illumination;
 - 4.4.1.3.12 batteries are checked for adequate fluid level and connections are secure and free from damage and corrosion, if applicable;
 - 4.4.1.3.13 drive systems, brakes, steering and speed controls for proper operation;

4.4.1.3.14 audible or visual *alarms*, if applicable, for proper operation; and

4.4.1.3.15 any *communication system* between platform and ground is working properly.

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

4.4.2 Annual Inspection

4.4.2.1 User must coordinate performance of an annual inspection no later than thirteen months from the date of the prior annual inspection. The inspection shall be performed by a person qualified to inspect the specific make and model of MEWP. The inspection shall include all items included in the frequent inspection (See 4.4.1.3) plus items specified by the manufacturer for an annual inspection, to include manufacturer's bulletins. The inspection shall verify that the MEWP is registered with the MEWP manufacturer and that any open safety-related bulletins are addressed as part of the inspection. The MEWP shall not be placed back into service until all malfunctions and problems identified in the inspection have been corrected.

4.4.2.2 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.

4.4.3 Pre-Start Inspection

4.4.3.1 Before each day or at the beginning of each shift, the user shall ensure the operator performs a pre-start and functions test (example checklist in section 7.6) that includes the following:

4.4.3.1.1 operating and emergency controls;

4.4.3.1.2 audible and visual alarms and beacons;

4.4.3.1.3 personal protective equipment that will be worn while operating/occupying the MEWP;

4.4.3.1.4 air, hydraulic and fuel-system leaks;

4.4.3.1.5 electrical cables and wiring harness;

4.4.3.1.6 loose, damaged, worn or missing *parts*;

4.4.3.1.7 tires (where applicable tire pressure), wheels and wheel fasteners;

4.4.3.1.8 instructions, warnings, control markings and operator's manual(s);

4.4.3.1.9 structural items including extending structure and stabilizers/outriggers;

- 4.4.3.1.10 work platform, including guardrail system, floor, anchorage and mounting;
- 4.4.3.1.11 cleanliness and general signs of damage;
- 4.4.3.1.12 brake operation and performance;
- 4.4.3.1.13 fluid levels including engine coolant, engine oil and hydraulic oil;
- 4.4.3.1.14 pins, pin securing devices and visible damage to the means of support of the work platform and extending structure;
- 4.4.3.1.15 operation of stabilizers/outriggers, extendable and oscillating axles;
- 4.4.3.1.16 required scheduled inspections and maintenance are current; and
- 4.4.3.1.17 any additional item specified by the manufacturer.

5.0 OPERATION

- 5.1 Personnel – There must be at least two individuals present whenever a MEWP is being used. One individual will operate the platform and the other person will be on hand to serve as a spotter to keep individuals away from the platform while it is in motion, alert the operator of any identified hazards and to summon aid if needed.
- 5.2 Before Operation – To ensure the safe operation of MEWPs, the user shall direct their personnel, including the supervisor of MEWP operations, operators and occupants of a MEWP to be aware of and comply with all provisions set forth in this program including, but not limited to the following:
 - 5.2.1 Understanding of the task to be performed;
 - 5.2.2 Selection of a MEWP appropriate for the task to be performed (see Selection Best Practices in section 7.6);
 - 5.2.3 Knowledge of the possible hazards associated with the task, site, or environment and the means to safely deal with any such hazards;
 - 5.2.4 knowledge of the intended purpose and function of each control and items specified by the manufacturer;
 - 5.2.5 stabilizing devices, such as outriggers, extendable axles, or other stability-enhancing means are used as required by the manufacturer;
 - 5.2.6 guardrails are installed and access gates or openings are closed or in appropriate positions per manufacturer's instructions;
 - 5.2.7 loads and their distribution on the work platform and any platform extension are in accordance with the manufacturer's instructions;
 - 5.2.8 read and understand or have a qualified person explain the manufacturer's operation instructions(s) and user safety rules;

- 5.2.9 read and understand or have a qualified person explain all decals, warnings, and instructions displayed on the MEWP;
 - 5.2.10 use of appropriate personal protective equipment for the conditions including the environment in which the MEWP will be operated; and
 - 5.2.11 ensuring that there is another qualified person on site, who is not working on the platform and knows how to use the emergency controls.
- 5.3 Work Site Inspection – Before and during the use of the MEWP, the user shall ensure and the operator shall perform a work site inspection in the area where the MEWP is used in order to identify possible hazards, such as but not limited to:
- 5.3.1 drop-offs or holes, including those concealed by water, ice, mud, etc.;
 - 5.3.2 slopes;
 - 5.3.3 bumps, floor obstructions and electric cables;
 - 5.3.4 debris;
 - 5.3.5 overhead obstructions;
 - 5.3.6 electrical conductors;
 - 5.3.7 hazardous atmospheres and/or hazardous locations;
 - 5.3.8 surfaces such as utility access covers that are inadequate to sustain the ground-bearing pressures imposed by the MEWP in all operating configurations;
 - 5.3.9 wind and weather conditions;
 - 5.3.10 presence of personnel, the public and other mobile equipment; and
 - 5.3.11 traffic hazards.
 - 5.3.12 Example job site checklist link in section 7.5
- 5.4 Fall Protection – The guardrails of the MEWP provide principal fall protection. The guardrails must be properly positioned and free of damage. If the platform has an access door, ensure that it latches or secures properly after use. Occupants and operators of group B boom-supported MEWPs must also wear a full-body harness and tie off to the anchorage point provided on the platform. The full-body harness shall be connected to the approved anchorage point by either a 4-foot non-shock absorbing lanyard or a self-retracting lanyard. All fall protection equipment must be approved by EHRS and inspected and used according to the manufacturer’s specifications and [Penn’s Fall Protection Program](#).
- 5.5 Ground Condition Considerations – The spotter/ground safety person shall identify potential hazards caused by ground conditions including inadequate outrigger foundations or sub-surface voids such as culverts, pipes, etc., and provide the operator with warning and instructions. Operators shall comply with the instructions and notify their supervisor if additional potential hazards are identified during their work site inspections and avoid the risk until directed otherwise by their supervisor.

- 5.6 Terrain – Operators shall transport and operate the work platform within the defined parameters of the operator’s manual.
- 5.7 Stabilization – Ensure that stabilizers (outriggers or screw jacks), if equipped, are used in accordance with the operator’s manual.
- 5.8 Precautions Prior to Operation – Prior to driving a powered platform or raising or lowering the platform, the operator must make sure that there are no individuals in the pathway of travel. Individuals must be kept clear of the platform while it being raised or lowered. It is imperative to ensure that no one is located under the lift platform (sitting on the base while the platform is raised) prior to lowering the platform.
- 5.9 Distribution of Load – Load on the work platform must be distributed according the manufacturer’s specifications.
- 5.10 Boarding & Leaving the MEWP – Maintain three points of contact at all times and face the MEWP while boarding or leaving it. Slips and falls while boarding or leaving the MEWP is a leading cause of injury related to their use.
- 5.11 Footing on the Work Platform – Individuals shall maintain footing on the floor of the platform. Ladders or other means of increasing height on the platform is prohibited. Climbing on the platform toe boards or guard rails is prohibited.
- 5.12 Electrical Hazards – MEWP operators must be particularly aware of any electrical hazards that may be encountered during operation or transportation. Ensure that a clearance of at least ten feet is provided from overhead lines or other sources of electricity. Clearance of tools and equipment to be used from the work platform while it is elevated must also be taken into account.
- 5.13 Capacity Limitations – Rated capacities and rated number of occupants shall not be exceeded when loads are transferred to the platform at any height.
- 5.14 Fueling – The engine shall be shut down while fuel tanks are being filled. Fueling shall be completed in a well-ventilated area free of flame, sparks, or other hazards that may cause fire or explosions.

- 5.15 Battery Charging – Charging of batteries shall be completed in well-ventilated areas. Proper personal protective equipment including eye/face protection shall be worn during battery maintenance. There shall be an eyewash station present in the battery charging area.
- 5.16 Improper Platform Stabilization – The aerial platform shall not be positioned against another object to steady the platform or improve stability.
- 5.17 Misuse as a Crane – The aerial platform shall not be used as a crane.
- 5.18 Travel Speeds – The spotter/ground safety person shall direct the operator to limit travel speed according to conditions, including the condition of the support surface, congestion, visibility, slope, location of personnel, and other factors leading to hazards which may cause a collision or result in potential injury.
- 5.19 Public Safety – The spotter/ground safety person shall warn the public to stay clear of the MEWP while it is in use or during movement. Cones and barricades shall be installed around the MEWP while it is in use to keep the public clear of the MEWP and the work above.
- 5.20 Traveling Requirements – Before and during driving while the platform is elevated, the operator shall:
- 5.20.1 maintain a clear view of the support surface and route of travel;
 - 5.20.2 move at speeds that are appropriate for safe operation;
 - 5.20.3 not lean over or place objects on the work platform control panel;
 - 5.20.4 ensure personnel in the worksite area that may be affected are aware of the movement, communicating and maneuvering the aerial platform as required to protect against personal injury;
 - 5.20.5 maintain a safe distance from obstacles, debris, drop-offs, holes, depressions, lightweight manhole/vault covers, ramps, and other hazards to ensure safe travel;
 - 5.20.6 maintain a safe distance from overhead obstructions and energized electrical conductors; and
 - 5.20.7 travel with the boom/platform positioned at the lowest safest position for the conditions.
- 5.21 Altering Safety Devices – Interlocks or other safety devices shall not be altered or disabled.
- 5.22 Snagged Platform – If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal motion by adjacent structures or other obstacles such that control reversal does not free the platform, all personnel shall be removed from the platform before attempts are made to free the platform using the lower controls.

- 5.23 Vacating (or entering) a MEWP at Height– MEWPS are not specifically designed to transfer personnel from one level to another or for leaving the work platform. Exiting (or entering) a MEWP at height shall only be permitted through a procedure developed in consultation with EHRS.
- 5.24 Problems or Malfunctions– Any problems or malfunctions that affect the safety of operations shall be repaired prior to the use of the aerial platform.
- 5.25 Rescue from Height – A rescue plan must be developed for each lift application to allow for safe and timely rescue. Aside from lowering a lift through use of the ground controls, Penn is not trained or equipped to provide rescue services. Local emergency responders shall be contacted for rescue from height. The MEWP operators must have a means to contact help.
- 5.26 Parking – On completion of the task, the MEWP shall be parked in the designated area with the engine or motor switched off, the work platform lowered to its stowed position and the brakes applied. The MEWP shall not be left unattended in the elevated position unless approved by the manufacturer.
- 5.27 Security – The elevating work platform must be secured to prevent unauthorized operation. Typically, elevating work platforms are configured to allow installation of a padlock on the battery switch or some other component of the control system. Keys should be issued only to authorized operators and retained by them until the end of the task period.
- 5.28 Ventilation– The user shall ensure that proper ventilation is provided in enclosed areas where internal combustion powered equipment is used. Contact EHRS to evaluate ventilation requirements. Operators shall verify compliance with their supervisor if work with an MEWP is required in enclosed areas.
- 5.29 Weather – MEWPs used outdoors must not be used when there is a threat of an electrical storm or in winds exceeding the limits defined in the operations manual. If no maximum wind speed is published, consider 25 miles per hour to be the maximum gust that a work platform may be operated in. A calibrated handheld anemometer shall be used to monitor wind speeds in the location where the platform will be used. Local conditions including terrain and buildings may cause wind speeds to be greater than reported by weather services. Care shall be taken when handling building materials, sheet materials, panels and other such materials which can act as sails.

6.0 TRAINING & FAMILIARIZATION

- 6.1 Operators - Ensure individuals who use/operate the boom-supported elevating work platform have been trained and familiarized with the particular work platform they will be operating. The content of the training should be specified in the operator's manual. If it is not, contact EHRS and a training program will be created. Typically, initial training should be provided by the work platform dealer upon delivery. Notify EHRS of training to be provided by third parties during the time of scheduling, so that EHRS can integrate any Penn-specific requirements into the training. Additionally, all personnel who use group B boom-supported mobile elevating work platforms must complete EHRS training that covers the proper use of the assigned personal fall protection equipment.
- 6.2 Supervisors - All personnel who directly supervise MEWP operators shall receive training. Training shall cover selection of the appropriate MEWP for the task, maintenance and inspection requirements, fall protection requirements, specific operations limitations of the MEWP and judging proficiency of operators.
- 6.3 Maintenance and Repair - The owner/user shall ensure that their maintenance and repair personnel are trained by a qualified person to inspect and maintain the MEWP in accordance with this program and the manufacturer's requirements.
- 6.3.1 Maintenance and Repair Safety Precautions – Owner/User shall ensure that their maintenance and repair personnel are aware of and comply with the requirements of this section.
- 6.3.1.1 Before adjustments and repairs are started on MEWPs, the following precautions shall be taken, as applicable:
- 6.3.1.1.1 Read and understand the instructions and precautions provided by the MEWP manufacturer;
 - 6.3.1.1.2 power plant stopped and means of starting rendered inoperative;
 - 6.3.1.1.3 all controls are in the "off" or "neutral" position and all operating systems secured from inadvertent motion;
 - 6.3.1.1.4 work platform lowered to the full down position, if possible, or otherwise secured to prevent motion;
 - 6.3.1.1.5 hydraulic oil pressure relieved from all hydraulic circuits before loosening or removing hydraulic components; and
 - 6.3.1.1.6 safety props or latches used as required and instructed by the manufacturer.

6.3.1.2 Maintenance work may require MEWP to be in conditions other than those described above in 6.3.1.1, and safety measures shall be followed as described in the manufacturer's maintenance and repair instructions.

6.4 Retraining – The user shall designate a qualified person to monitor, supervise and evaluate operators on a regular basis to ensure proficiency. Examples of situations when retraining would be necessary include, but are not limited to:

- 6.4.1 expiration of the operator's valid training period;
- 6.4.2 deterioration of the operator's performance;
- 6.4.3 the operator's extended period of time with no operation of a MEWP;
- 6.4.4 the operator's introduction to new or significantly different MEWP technology; and
- 6.4.5 the operator has been involved in an accident or near miss with the MEWP.

The evaluation will be accomplished through visual observation, at a minimum, which shall be documented for retention of the user.

6.5 Familiarization – 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, as specified by the manufacturer:

- 6.5.1 Identification of the location for the operator's manual(s) storage;
- 6.5.2 requirement for confirmation that the required manual(s) specified by the manufacturer are with the MEWP;
- 6.5.3 purpose and function of the controls specific to the model of MEWP to be used;
- 6.5.4 features, limitations and devices; and
- 6.5.5 operating characteristics specific to the model of the MEWP.

When authorized by the user, self-familiarization can be achieved, by a properly trained operator reading, understanding and following the manufacturer's operator's manual. The user shall ensure that after familiarization, the operator operates the MEWP for a sufficient period of time to achieve proficiency.

7.0 REFERENCES and RESOURCES

- 7.1 American National Standards Institute/Scaffold Industry Association A92.22-2018 Safe Use of Mobile Elevating Work Platforms (MEWPs).
- 7.2 Occupational Safety and Health Administration (OSHA) [1926-453 Construction – Aerial Lifts](#)

- 7.3 Occupational Safety and Health Administration (OSHA) [1926-452 – Mobile Lifts & Scaffold Standard Interpretations.](#)
- 7.4 [University of Pennsylvania Fall Protection Program - https://ehrs.upenn.edu/health-safety/general-safety/fall-protection](#)
- 7.5 [MEWP Jobsite Checklist](#)
- 7.6 [MEWP Prestart Safety Checklist](#)
- 7.7 [MEWP Best Practices – Selecting the Proper Work Platform](#)
- 7.8 [MEWP Best Practices – Fall Protection](#)