

Office of State Human Resources

ROY COOPER
Governor

BARBARA GIBSON
Director, State Human Resources

Number:

Subject: Mobile Elevated Work Platforms (MEWP)

Effective Date: April 1, 2021

Revision Date: N/A

Revision #: N/A

The purpose of this program is to establish general guidelines for AGENCY and UNIVERSITY programs for Mobile Elevated Work Platform (MEWP) safety. MEWPs are pieces of machinery designed to lift or lower people and equipment using telescopic, hinged, or articulated devices, or a combination of these from a base support. These devices provide temporary access to high, hard to reach and otherwise inaccessible areas. MEWPs are used predominately to complete work at elevated heights in construction and general industry.

RELATED LEGISLATION/RULES:

OSHA General Industry and Construction Standards

- 29 CFR 1910.67 – Vehicle Mounted Elevating and Rotating Work Platforms
- 29 CFR 1910.29 – Manually Propelled Mobile Ladder Stands and Scaffolds (Towers)
- 29 CFR 1926.452 – Scaffolds-Additional Requirements
- 29 CFR 1926.453 – Aerial Lifts
- 29 CFR Subpart I Personal Protective Equipment
- 29 CFR Subpart S Electrical

American National Standards Institute (ANSI)

- ANSI A92.2-2015 – Vehicle-Mounted Elevating and Rotating Aerial Devices
- ANSI A92.10-2009 (R2014) – Transport Platforms
- ANSI A92.20-2018 – Design, Calculations, Safety Requirements and Test Methods for MEWPs
- ANSI A92.22-2018 – Safe Use of Mobile Elevating Work Platforms (MEWPS)
- ANSI A92.24-2018 – Training Requirements for Operators of Mobile Elevating Work Platforms MEWPs
- ANSI/NFPA 505-2018 – Fire Safety Standard For Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, And Operations
- ANSI A92.22-24 The Manual of Responsibilities

Exclusions

This program does not include any type of mast climbing work platforms, suspension scaffolds, rope descent or rope access systems, recreational or sport climbing systems, or any type of stationary

scaffolds. It also does not include elevators, escalators, lifts designed for use by mobility impaired persons such as chair lifts or performing arts lifts such as stage and orchestra lifts.

Program Contents

- I. POLICY
- II. DEFINITIONS
- III. ROLES AND RESPONSIBILITIES
- IV. TRAINING
- V. EQUIPMENT SPECIFICATIONS
- VI. INSPECTION, MAINTENANCE AND TESTING
- VII. OPERATIONAL SAFETY PRECAUTIONS
- VIII. HAZARD AVOIDANCE
 - a. Electrocution
 - b. Tip Over and Collapse
 - c. Falls
 - d. Collision
 - e. Entanglement
 - f. Improper Use and Unauthorized Use
 - g. Hazardous Atmosphere
 - h. Defective Equipment
- IX. RISK ASSESSMENT
- X. SAFE USE PLAN
- XI. RESCUE PLAN
- XII. RECORD RETENTION
- XIII. APPENDICES
 - Appendix A: Images of Various MEWPs
 - Appendix B: Knowledge Evaluation Sheet
 - Appendix C: Practical Knowledge Evaluation Test for Type 1 MEWPs
 - Appendix D: Practical Knowledge Evaluation Test for Type 2 MEWPs
 - Appendix E: Practical Knowledge Evaluation Test for Type 3 MEWPs
 - Appendix F: MEWP Operator Training: Certificate of Completion
 - Appendix G: Example of an MEWP License
 - Appendix H: Preventive Maintenance Schedule
 - Appendix I Part A: Equipment Lockout/Tagout
 - Appendix I Part B: Repair and Maintenance Log
 - Appendix J: MEWP Pre-Start and Function Test
 - Appendix K: Frequent/Annual Inspection Checklist
 - Appendix L: Best Practices for Exiting Work Platform
 - Appendix M: Work Area Risk Assessment Checklist
 - Appendix N: Implementation Plan

I. POLICY

It is the policy of [INSERT AGENCY/UNIVERSITY NAME] to minimize employee exposure to hazards associated with MEWPs and to comply with all regulatory requirements for the safe operation of such equipment. Management will train selected supervisors and operators to become the designated Qualified Person(s) (QP) for the MEWPs being used. Supervisors, operators, and occupants must receive appropriate training prior to lift use and are considered trainees until they are trained and qualified to perform the task and operate a specific lift. MEWP set-up and use must be performed by at least two persons trained and qualified regarding the task to be performed on the specific lift type. Employees must not operate contractor lifts. Contractors are not authorized to use [INSERT AGENCY/UNIVERSITY NAME] lifts. [INSERT AGENCY/UNIVERSITY NAME] employees acting as occupants are only allowed to ride in contractor MEWPs if they have documented verification of inspection, maintenance, and operator training records, which shall include training completion date and a description of training that will be provided by the contractor. All training must be documented. A written risk assessment, safe use plan, and rescue plan must be in place prior to using any lift.

II. DEFINITIONS (See Appendix A: Images of Various MEWPs)

Aerial ladder – An aerial device that consists of a single or multiple section rung ladder.

Aerial Lift – A mobile or manually propelled device that has an adjustable position platform, supported from ground level by a structure.

Agency - Cabinet agency, Council of State agency, University, Community College, or School.

Articulating boom – An aerial device that has two or more hinged boom sections.

Authorized person – A person who is approved and assigned to perform specific types of duties by the employer and who is qualified to perform those duties because of his or her training or experience.

Climber – Pole climbing equipment.

Chassis - Part of the MEWP that provides support for mobility of the elevating assembly. A commercial chassis is built for over-the-road (roadway) travel.

Contractor Lift - A lift brought onsite by the contractor for contractor's use.

Examiner - A qualified person who evaluates or tests the competency of the trainee.

Group A MEWP – 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.

Group B MEWP – MEWPs not included in Group A.

Insulated aerial device - MEWP that is designed with dielectric components to meet specific electrical insulating ratings.

Mobile Elevating Work Platform (MEWP) - Machine/device intended for moving persons, tools, and material to working positions, consisting of at least a work platform with controls, an extending

structure, and a chassis. Examples include manual or self-propelled units; push around vertical, track mount, scissor lifts, articulating booms, telescoping booms, and vehicle mounted articulating booms.

Occupant – A person on the MEWP platform who is not the Operator.

Operator – Person responsible for controlling the operation of the MEWP and the safety of the occupant.

Platform – Portion of an MEWP, such as a bucket, basket, stand, cage, or the equivalent, that is designed to be occupied by personnel.

Power Line – Distribution or transmission electrical line.

Qualified Person (QP) – Person who possesses a recognized degree, certificate, professional standing, or skill and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to the subject matter, the work, or the project.

Supervisor – Monitors Operator performance and supervises the Operator's work.

Training – Instruction to enable the trainee to become a qualified person regarding the task to be performed, including knowledge regarding potential hazards.

Type 1 MEWP – MEWP for which travelling is allowed only when in the stowed position.

Note: Refer to Section 1.1.3 MEWP Classification for application of groups and types.

Type 2 MEWP – MEWP for which travelling with the work platform in the elevated travel position is controlled from a point on the chassis. Note: Type 2 and type 3 MEWPs can be combined.

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

Underbridge MEWP – MEWP intended to provide access to the sides or beneath a bridge structure and equipped to inspect and maintain bridge structures that can elevate/lower personnel above/below grade.

Vehicle – Any carrier that is not manually propelled. May be mounted elevating and rotating MEWP; Aerial device or MEWP.

III. ROLES AND RESPONSIBILITIES

Safety Leader

The Safety Leader ensures that a written plan is in place to establish program requirements for the safe use of MEWPs and reviews the program periodically. The Safety Leader is responsible for coordinating training for Qualified Persons (QP), Supervisors, Occupants, Operators and Maintenance staff. The Safety Leader, with the QP, supervisor, and operator, will review program requirements, risk assessments, safe use plans, and the implementation plan as needed. (See Appendix N: Implementation Plan).

Manager/Supervisor

The manager/supervisor ensures that only authorized and trained staff use MEWPs, and that employees comply with the procedures in this Plan. The manager/supervisor ensures that designated staff successfully complete the qualification procedures outlined in this Plan prior to using MEWPs. The manager/supervisor designates the Qualified Person for each use of an MEWP by his or her employees. The manager/supervisor ensures training documentation is maintained.

Qualified Person (QP)

The QP conducts a risk assessment of the job or task, selects the appropriate MEWP for the task, develops a Safe Work Plan, and ensures operator, supervisor, and occupant competencies for each task. The QP conducts frequent and annual inspections on any MEWP she or he is qualified to inspect. The QP shall also monitor, supervise, and evaluate operators on a regular basis. QPs are designated by [INSERT AGENCY/UNIVERSITY NAME] management.

Operators

Operators who use MEWPs are responsible for complying with this program and participating in the Risk Assessment and Safe Work Plan. Operators are also responsible for reporting equipment defects and discontinuing operations when unsafe conditions exist. Operators are responsible for ensuring all occupants can work safely. Operators are responsible for familiarizing themselves with any MEWP they are not familiar with including:

- Reading the operator manual.
- Performing a walk-around inspection.
- Familiarizing themselves with the controls.
- Understanding any limitations of the equipment.
- It is expected that departments will provide detailed training to staff based on the general type of MEWP that their staff will operate (e.g., vehicle-mounted MEWP, manually propelled elevating lift, boom-supported MEWP, and self-propelled MEWP).
- When operating equipment similar to the equipment on which an operator was trained, the trained operator is responsible for reviewing the model specific hazard information provided in the owner's manual, and for familiarizing themselves with all applicable operational requirements.

IV. TRAINING

- a. The Supervisor of the MEWP operator shall ensure the operator of an MEWP is physically and mentally capable to operate the MEWP safely.
- b. The QP shall ensure that the MEWP operator provides instruction or otherwise ensure all occupants have a basic level of knowledge to work safely.
- c. Training shall include both theory (classroom/online) training and practical (hands-on) operation, and an evaluation.
- d. The QP shall ensure that training is presented in a manner that trainees can understand.
- e. The QP will confirm maintenance technicians are trained to inspect and service the MEWP according to manufacturer's recommendations.
- f. Theory (classroom/online) training shall include MEWP safe use as defined in A92.22, and shall also include the following:
 - The selection of appropriate MEWPs from the various classifications including available options.
 - The purpose and use of operation manuals, placards and decals, and safety rules.
 - Understanding that operation manuals are an integral part of the MEWP and need to be stored properly in the weather-resistant compartment on the MEWP when not in use.
 - Validation that annual inspection is current on the placard when present on the MEWP.

- Knowledge of how to perform a pre-start inspection.
 - Responsibilities associated with problems or malfunctions affecting the operation of the MEWP.
 - Knowing and understanding factors affecting stability.
 - Recognition and avoidance of hazards associated with operation.
 - Knowing and understanding workplace inspections and that they must be performed prior to each use.
 - Knowing and understanding wind hazards and weather conditions.
 - Thorough understanding of the intended purpose and function of the MEWP controls, including platform, ground, and emergency descent controls.
 - General knowledge of various MEWPs and features and devices specified by the MEWP manufacturer to include physical characteristics and other machine options.
 - Applicable regulations, standards, and safety rules.
 - Use of personal protective equipment (PPE) appropriate to the task, worksite, and environment and those required by the manufacturer.
 - Safe traveling practices.
 - Issues associated with transport (if appropriate).
 - Understanding that authorization by the QP is required to operate MEWP.
 - Understanding that securing the MEWP from unauthorized use is required.
 - The requirement for familiarization in addition to training.
 - Understanding of hazardous location(s) (flammable or explosive atmospheres).
 - Warnings and instructions.
 - Familiarity with the requirements of operators.
 - The dangers associated with high pressure systems.
 - Other subjects required by the MEWP manufacturer.
- g. Practical (Hands-On) Training: The qualified trainer shall conduct a risk assessment of the location of the hands-on training and evaluation. Operator training shall include a sufficient period of time for the trainee to operate the MEWP to demonstrate to a qualified trainer proficiency in:
- Walk around and familiarization with the MEWP.
 - Major components – identification and function.
 - Perform pre-start inspection – carry out daily checks and inspections.
 - Planning the route of travel and worksite inspection.
 - Setting the MEWP for work (if applicable).
 - Operation and function of all controls – completing course tasks.
 - Parking and securing the MEWP.
- h. Operators must complete training and demonstrate proficiency in the recognition and mitigation of hazards associated with the operation of each type of MEWP. To achieve proficiency, operators will demonstrate the following:
- Ability to find and locate specific safety information located in the operator’s manual and safety placard.
 - Ability to complete a prework inspection checklist from the operators’ manual and record findings.
 - Conduct a site evaluation risk assessment.
 - Ability to safely move and operate the MEWP.
 - Ability to select and use the proper personal protective equipment (PPE); and
 - Pass an exam at the end of the training demonstrating knowledge of the MEWP they are being trained on.
- i. Employees must be trained in the hazards associated with the use of MEWPs before their use. This training must include safety guidelines for avoiding hazards above, below, and beside the MEWP. This training at a minimum must include:
- Fall protection, risk assessment, safe use plans

- Unstable surfaces
 - Live power proximity
 - Tipping hazards and outriggers
 - Falling objects and barricading
 - Load capacity of the MEWP
 - Crushing and pinch-points
 - Wind exposure limits
 - Sloping surfaces
 - Ground surface potholes
 - Emergency descents
 - Identification of malfunctions
 - Purpose of placards and decals
 - Operator warnings and instructions
 - Function tests
 - Evaluating work site hazards unique to the general type of MEWP
 - Occupants must receive training on fall protection systems and what to do if the Operator can no longer operate the lift.
- j. Supervisor Training: The QP will ensure personnel that directly supervise MEWP operators are trained in the following:
- Proper selection of the correct MEWP for the work to be performed;
 - The rules, regulations and standards that apply to MEWPs, training, and familiarization, and
 - The work being performed;
 - Potential hazards associated with use of MEWPs and the means to protect against identified hazards; and
 - Knowledge that the manufacturer's operation manuals are an integral part of the MEWP and need to be stored properly in the weather-resistant compartment on the MEWP.
- k. Occupant Training: The Qualified Trainer will ensure that occupants are trained, and the training is documented. The knowledge that every occupant must have shall include at a minimum the following:
- The requirement to use fall protection and the location of fall protection anchors;
 - Factors including how their actions could affect stability;
 - Safe use of MEWP accessories they are assigned to use;
 - Site-specific work procedures the occupants must follow related to the operation of the MEWP;
 - Hazards related to the task at hand and their avoidance, to include any applicable site risk assessment;
 - General knowledge of the intended purpose and function of MEWP controls and safety-related items specified by the manufacturer, including emergency shut-down and lowering procedures, to the extent required to lower the MEWP safely to the ground/stowed position;
 - Manufacturer's warnings and instructions; and
 - [INSERT AGENCY/UNIVERSITY NAME] will ensure that the MEWP operator has a documented list of instructions to share with the occupants. This instruction should provide at least one of the occupants with the knowledge to operate the controls in an emergency where the operator cannot. This instruction does not give the occupant authorization to operate the controls at any time except in an emergency.
- l. All training shall be delivered by a Qualified Trainer, who is experienced with the classification of MEWP and knowledgeable regarding the laws, regulations, safe use practices, manufacturer's requirements, and recognition and avoidance of hazards associated with MEWPs. The curriculum shall clearly identify that training covers only the classification for the MEWP(s) included in the training.

Appendix B: Knowledge Evaluation Sheet

Appendix C: Practical Knowledge Evaluation Test for Type 1 MEWPs

Appendix D: Practical Knowledge Evaluation Test for Type 2 MEWPs

Appendix E: Practical Knowledge Evaluation Test for Type 3 MEWPs for examples of training evaluations.

m. Upon successful completion of the training program, the Safety Leader and Supervisor of the MEWP Operator should be furnished with proof of training by the training entity referencing compliance with this standard. This could be done with collaboration of on-site training support staff to document training.

- Name of the entity providing training or retraining.
- Name of the trainer.
- Clear identification of the classification of MEWP covered in training.
- Date of training completion.
- Name of trainee.
- Period training is valid (if applicable).

Note: see example of MEWP operator certificate in **Appendix F: MEWP Operator Training: Certificate of Completion**

- Operator should sign license **Appendix G: Example of an MEWP License**

Retraining

[INSERT AGENCY/UNIVERSITY NAME] Management shall designate a QP(s) to monitor, supervise and evaluate operators on a regular basis to ensure their proficiency. Examples of situations requiring retraining:

- Within one year of training, operator has not had reason to use the lift, must receive hands-on training from an operator who is familiar with safe set-up and operation of the lift;
- Expiration of the operator's valid training period [INSERT AGENCY/UNIVERSITY NAME] requires training be done every two years (highly recommended);
- Deterioration of skills or improper use of equipment;
- New or significantly different MEWP technology;
- Operator has been involved in an accident or near miss with the MEWP; and
- The evaluation will be accomplished through visual observation, at a minimum, which shall be documented for retention by whatever system the Agency uses to document and track training.

V. EQUIPMENT SPECIFICATIONS

MEWPs must meet the following requirements:

- a. MEWPs acquired for use before July 1, 1975 which do not meet the requirements of ANSI A92.2—1969, may not be used after July 1, 1976, unless modified so as to conform with the applicable design and construction requirements of ANSI A92.2—1969. MEWPs per 29 CFR 1910.67 (b) (1) must not be field modified for uses other than those intended by the manufacturer unless a modification has been certified in writing by the manufacturer or by any other equivalent entity.
- b. Directional controls must:
 - Be of the type that will automatically return to the off or neutral position when released.
 - Be protected against inadvertent operation.
 - Be clearly marked as to their intended function.
 - Have an overriding control which must be continuously activated for platform directional controls to be operational and which automatically returns to the off position when released.

- Be equipped with emergency controls at ground level that are clearly marked as to their intended function and be capable of overriding the platform controls.
 - Must be a trained and authorized operator on the ground who can return elevated workers to the ground in the event of an unexpected malfunction or an emergency.
 - Lower-level controls shall not be operated unless permission has been obtained from the employee in the lift except in the case of an emergency.
- c. The following information must be clearly marked in a permanent manner on each MEWP:
 - Special workings, cautions, or restrictions necessary for operation;
 - Rated workload;
 - A clear statement of whether the MEWP is electrically insulated;
 - Rotating shafts, gears, and other moving parts that are exposed to contact must be guarded, as prescribed in general industry safety standard 29 CFR 1910 Subpart O; and
 - Attachment points described in 29 CFR 1910.502 must be provided for fall protection devices for personnel who occupy the platform on MEWPs.
- d. MEWP manufactured on or after 12/10/19 should include the following:
 - Platform load-sensing: Most machines will monitor load and will not operate with normal control functionality when overloaded beyond rated capacity, except emergency controls.
 - Maximum wind rating must be listed at the control position. There is potential for reduced capacity on scissors and vertical platform lifts or limitation to indoor use only. MEWPs can be designed for indoor use only with zero exposure to wind and must be clearly marked as such.
 - Foam-filled only (no air-filled) tires on most rough terrain scissors or booms.
 - Chain guarding of entrances on scissors and vertical platform lifts are no longer allowed. Toe boards are required at entrances on all MEWPs.
 - In addition to the existing required alarm for tilt sensor, MEWPs will be prevented from certain movements when reaching allowed limits of chassis inclination.
 - A decal or other means must be provided on the MEWP to mark the date of the last annual inspection and the date of the next future inspection.
 - The operator's manual shall include a listing of MEWP functions, features, operating characteristics, limitations, and devices to be included in familiarization, making it clear what must be included.
 - Minimum railing heights increased from 0.99 m (39 in) to 1.1m (43.3 in) may require folding rails for movement through standard doorways on some models. Rails shall be locked in the upright position prior to any lift.

VI. INSPECTION, MAINTENANCE, TESTING AND MODIFICATIONS

- a. Prior to accepting delivery of an MEWP for sale, lease, rental, or any form of use, the QP shall ensure the MEWP is inspected, repaired, and adjusted in accordance with the manufacturer's specifications.
- b. Each MEWP must be inspected, maintained, repaired, and kept in proper working condition in accordance with the manufacturer's operating or maintenance and repair manual or manuals. (see **Appendix H: Preventive Maintenance Schedule**) for a list of Lifts, storage location and preventive maintenance schedule including electrical testing and bursting test requirements.
- c. Any MEWP found not to be in a safe operating condition shall be removed from service until repaired. All repairs must be made by an authorized person in accordance with the manufacturer's operating or maintenance and repair manual. Repairs and maintenance of MEWPs must be documented (see **Appendix I Part A: Equipment Lockout/Tagout and Appendix I Part B: Repair and Maintenance Log**).

- d. Before use, a visual pre-start equipment inspection is performed (see **Appendix J: MEWP Pre-Start and Function Test**).
- e. If the MEWP is rated and used as an insulated aerial device, the electrical insulating components must be tested for compliance with the rating of the MEWP in accordance with the manufacturer's requirements. Such testing must comply with the following provisions:
 - The test shall be performed not less than annually.
 - Written, dated, and signed test reports are retained by the department responsible for the insulated aerial device.
 - The insulated portion of an aerial device must not be altered in any manner that might reduce its insulating value.
 - All danger, caution, and control markings and operational plates must be legible and not obscured.
 - A copy of the operator's manual must be in a dry compartment on the MEWP.
- f. Bursting safety factor. All critical hydraulic and pneumatic components shall comply with the manufacturer's Bursting Safety Factor requirement. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical components shall have a bursting safety factor of at least two to one.
- g. Any time an aerial platform lift has not been used for a period of 3 months or more (or after the lift has been rented or purchased) a frequent inspection is performed by a QP.
- h. The inspection frequency and requirements are determined by the manufacturer. (see **Appendix K: Frequent/Annual Inspection Checklist**). **[Agency/university] will update the checklist based on the manufacturers' requirements.**
- i. Owners shall ensure an annual inspection is performed no later than thirteen (13) months from the date of the prior annual inspection. The annual inspection shall be performed by a person qualified to inspect the specific make and model of MEWP. The annual inspection shall include all items included in the frequent inspection 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.
- j. 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 date by which the next annual inspection is required.
- k. Only the owner can authorize a modification to an MEWP after meeting requirements of this section. Modifications or additions to an MEWP shall be made only with prior written permission of the manufacturer. In case the manufacturer no longer exists, modifications to an MEWP shall be made under the direction of an engineer with expertise in MEWPs. The owner shall retain written permission and provide it to any subsequent owner, as applicable. The QP shall ensure that MEWP supervisors and operators are aware and comply with the requirement that only the MEWP owner can authorize a modification to an MEWP.

VII. OPERATING PROCEDURES

- a. Two-trained personnel are required to work together to set-up, prepare an MEWP for operation.
- b. Attaching a personal fall protection system to an adjacent pole, structure, or equipment while working from an MEWP is not permitted. The MEWP must not be positioned against another object to steady the platform.
- c. Employees shall always stand firmly on the floor of the MEWP and may not sit or climb on the edge of MEWP guardrails, or use toe boards, planks, guardrails, ladders, or other devices for a work position.

- d. When required, a personal fall protection system shall be attached only to anchorage locations specified by the manufacturer or the QP.
- e. The MEWP shall be used in accordance with the manufacturer's operating instructions and safety rules.
- f. The designed rated capacity for a given angle of elevation must not be exceeded.
- g. The manufacturer's rated load capacity must not be exceeded. The load and its distribution on the platform must be in accordance with the manufacturer's specifications. The MEWP rated load capacity must not be exceeded when loads are transferred to the platform at elevated heights.
- h. Only employees, their tools, and necessary materials are permitted on or in the platform.
- i. The guardrail system of the platform shall not be used to support materials, other lifts, or employees.
- j. Fuel gas cylinders shall not be carried on bucket platforms that would allow the accumulation of gases.
- k. Only MEWPs equipped with manufacturer's installed platform controls for horizontal movement may be moved while in the elevated position.
- l. The MEWP must not be operated from a position on a truck, trailer, railway car, floating vessel, scaffold, or similar equipment, except when loading or unloading for transport.
- m. The boom and platform of the MEWP are not used to move or jack the wheels off the ground unless the machine is designed for that purpose by the manufacturer.
- n. If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal motion by adjacent structures or other obstacles so that control reversal does not free the platform, all employees must be rescued or otherwise exit from the platform before attempts are made to free the platform. (See **Appendix L: Best Practices for Exiting Work Platform**).
- o. Stunt driving and horseplay are prohibited.
- p. Outriggers or stabilizers, when provided, are used in accordance with the manufacturer's instructions. Brakes are set and outriggers and stabilizers are positioned on pads or a solid surface.
- q. MEWPs are elevated only when on a firm and level surface or within the slope limits allowed by the manufacturer's instructions. [list slope limits for each device or have on the inspection form for the specific model].
- r. A vehicle-mounted MEWP must have its brakes set before elevating the platform.
- s. A vehicle-mounted MEWP must have wheel chocks installed before using the unit on an incline.
- t. Pole Climbing spikes must not be worn while performing work from an MEWP.
- u. Platform gates must be closed while the platform is in an elevated position.
- v. Altering, modifying, or disabling safety devices or interlocks is prohibited.
- w. The operator shall ensure no ropes, cords, or hoses become entangled in the MEWP.
- x. Mobile scaffolds during construction shall:
 - i. Be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent racking or collapse of the scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.
 - ii. When constructed of tube and coupler or fabricated frame components comply with 29CFR1926.452(b) and (c), and with manufacturer's requirements.
 - iii. Have scaffold casters and wheels locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the scaffold while the scaffold is used in a stationary manner.
 - iv. Have manual force used to move the scaffold applied as close to the base as practicable, but not more than 5 feet (1.5 m) above the supporting surface.
Power systems used to propel mobile scaffolds shall be designed for such use. Forklifts, trucks, similar motor vehicles or add-on motors shall not be used to propel scaffolds unless the scaffold is designed for such propulsion systems.

- v. Be stabilized to prevent tipping during movement.
- vi. Not allow riders unless the following conditions exist:
 - The surface on which the scaffold is being moved is within 3 degrees of level, and free of pits, holes, and obstructions.
 - The height to base width ratio of the scaffold during movement is two to one or less, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements such as those listed in paragraph 2. (w) of appendix A to 29CFR1926, Subpart L.
 - Outrigger frames, when used, are installed on both sides of the scaffold.
 - When power systems are used, the propelling force is applied directly to the wheels, and does not produce a speed in excess of 1 foot per second (.3 mps).
 - No employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
- vii. Not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
- viii. Use screw jacks or equivalent means where leveling of the scaffold is necessary.
- ix. Have caster stems and wheel stems pinned or otherwise secured in scaffold legs or adjustment screws.
- x. Not be moved until each employee on the scaffold has been made aware of the move.

VIII. HAZARD AVOIDANCE

COLLISION

Collision hazards can exist both overhead and on the ground. To avoid collision hazards:

- a. Lockout overhead cranes that are located within the working distance of the MEWP.
- b. Look below before lowering a platform to verify that persons or objects are not present.
- c. Give warning of your intent to descend (audible alarm, voice commands, etc.). If working as a team, verbally verify clearance of your teammate(s) on the ground before lowering.
- d. Avoid setting-up in high traffic areas. If necessary, attempt to conduct work at low-traffic times or work with appropriate personnel to temporarily interrupt traffic during the time that the lift is in use. Regardless of the traffic level, place warning barricades at a safe perimeter around the lift to detour both pedestrian and vehicular traffic.
- e. Be aware of the swing range. Set-up in a manner that avoids objects within the range of motion of the MEWP.
- f. When moving an MEWP, use extreme caution and slow and deliberate motions, particularly when space is limited, traffic is high, surface conditions are potentially hazardous (slippery, potholes, etc.), or the route contains corners, blind spots, and other visual obstructions.
- g. For drivable boom lifts, use the boom controls (not the drive controls) for final positioning of the platform close to objects.

ENTANGLEMENT

Lifts have many moving parts, which create pinch and/or shear points. To avoid injury from pinch/shear points:

- a. Keep hands, arms, and other body parts within the confines of the platform and guard rail while working on the platform. Keep hands and fingers away from moving parts while on the ground.
- b. Avoid loose clothing that could become caught in chains, pulleys, lifts, etc. Keep long hair confined.

UNAUTHORIZED OR IMPROPER USE

- a. Remove the key or otherwise secure a lift while it is being stored so that it is not available to unauthorized persons.
- b. Do not allow anyone to operate a lift until they have completed instructional and hands-on training and they have demonstrated competency in the operation of the specific lift they are expected to use.
- c. Contractors are not allowed to operate [INSERT AGENCY/UNIVERSITY NAME] owned or rented equipment.

HAZARDOUS ATMOSPHERES

- a. The QP shall ensure that if an MEWP is to be used in a hazardous environment where flammable or explosive gases or particles are present, an MEWP designed/designated for this environment shall be used as recommended by the manufacturer or a QP.
- b. The QP shall incorporate in the Safe Use Plan appropriate fire prevention measures according to the location atmospheric hazard classification and the type of lift. Refer to ANSI/NFPA Standard 505: "Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations."
- c. MEWPs are not intrinsically safe, meaning that they can create sparks that could ignite flammable vapors, fibers, or dusts that may be in the atmosphere. Under no circumstances should a lift be operated in a hazardous location (contains, or has the potential to contain, an explosive or flammable atmosphere). While [INSERT AGENCY/UNIVERSITY NAME] does not have work sites that ordinarily would contain flammable vapors/dusts/fibers, it is important to recognize that conditions could present such a hazard (e.g., leak/ruptured drum or tank for gasoline or other solvent, etc.) and this would preclude the use of an MEWP.
- d. The other atmospheric hazard to be aware of may arise from operation of certain lifts in unsuitable locations. For example, gasoline, propane, and diesel engines generate exhaust fumes (carbon monoxide and other pollutants) that can be hazardous to the operator and others. This is especially problematic when operating a combustion engine lift in areas that have insufficient ventilation. To avoid creating a hazardous atmosphere:
 - Use electric powered units in confined areas.
 - Install carbon monoxide detectors in use areas.
 - Adhere to maintenance schedules to ensure efficient fuel combustion.
 - Remove a lift from service that does not appear to be operating normally (e.g., excessive smoke)
 - Clean up spills and leaks of fluids.
 - Know the symptoms of exposure to carbon monoxide. Carbon monoxide is colorless and odorless- you cannot easily detect overexposure through your ordinary senses. Rather, you are likely to suffer symptoms such as shortness of breath, nausea, headache, or light-headedness at low to moderate concentrations. Prolonged or high exposures can lead to death. If you suspect an overexposure, seek fresh air. As needed, seek medical attention.

FALL PROTECTION

- a. An operator and occupant must use a full body harness that has a lanyard which is in compliance with the [INSERT AGENCY/UNIVERSITY NAME] Fall Protection Plan and which is affixed to attachment points provided and approved by the manufacturer. A trained operator may use a harness with a restraint device with the lanyard and the anchor arranged so that the employee is restrained from falling.
- b. A fall arrest system is only used where the MEWP is designed to withstand the vertical and lateral loads caused by an arrested fall as specified by the manufacturer. Instead, the employee must use a restraint device where the MEWP cannot withstand the vertical and lateral loads imposed by an

- arrested fall as specified by the manufacturer.
- c. Group A MEWP with approved guardrails can be used without a personal fall protection system unless required by the manufacturer.
 - d. Group B MEWP operators and occupants shall use personal fall arrest or fall restraint systems at all times.
 - e. Always follow manufacturers requirements for restraint systems.
 - f. Operators and occupants are prohibited from tying off to any adjacent pole, structure, or equipment while working from an MEWP.
 - g. An operator or occupant must not exit an elevated MEWP, except where elevated work areas are inaccessible or hazardous to reach. Exiting an elevated MEWP must be included in the Risk Assessment. The Safe Work Plan must include a Rescue Plan. Employees must be attached to a suitable anchorage at all times when exiting, when working away from, and when entering an elevated MEWP.
 - h. A written rescue plan must provide for the prompt rescue of employees in the event of a fall. This could include self-rescue if such means are required. If the rescue plan includes the use of emergency personnel, a means of communication shall be available on the MEWP.

ELECTRICAL HAZARDS

- a. If work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protection shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.
- b. When a qualified person, as defined by applicable electrical safety standards, is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person must comply with applicable electrical safety standards (29 CFR 1910 Subparts I, R, & S, § 1926 Subparts E, K, & V, NFPA 70E, and IEEE [standard #]) Workers in MEWPs that are not electrically insulated must not come within 10 feet of energized overhead power lines. If you are unsure of the voltage of a line, stay at least 35 feet away to ensure your safety. Keep yourself and anything you are touching the minimum distance from power lines.

Note: The work practices used by qualified persons installing insulating devices on overhead power transmission or distribution lines are covered by 1910.269 of this Part, not by 1910.332 through 1910.335 of this Part. Unqualified persons are prohibited from performing this type of work.

TRAFFIC AND VEHICULAR HAZARDS

- a. Before moving a vehicle supporting an MEWP for travel, inspect the boom to ensure it is properly cradled and the outriggers are in the stowed position.
- b. Before moving a vehicle supporting an aerial ladder for highway travel, secure ladders in the lower position. Use the manually operated device at the base of the ladder, or other effective means to prevent elevation or rotation of the ladder.
- c. When a vehicle-mounted elevating platform is elevated with employees in working position, the vehicle supporting an aerial device:
 - must not be moved unless it is specifically designed for this operation;
 - must be chocked; and
 - must be set in park with the parking brake set and wheels chocked.
- d. Before and during travel, an operator must do all the following:
 - Inspect to see that booms, platforms, aerial ladders, or towers are properly cradled or secured.
 - Ensure that outriggers are in a stored position.
 - Limit travel speed according to the following factors:

- Condition of the surface
 - Congestion
 - Slope
 - Location of personnel
 - Other hazards
- e. Operators of an MEWP over or adjacent to any public or private roadway must maintain adequate clearances of all portions of the MEWP to prevent being struck by vehicular traffic.
- f. The QP shall identify potential hazards caused by operations on roads and provide the operator with safe work instructions. Operators shall comply with the instructions. Should operators identify additional hazards during workplace inspections, the safe work plan will be modified.
- g. When an MEWP is loaded/unloaded from a transporting vehicle on a public road, the QP ensure that appropriate measures are taken to protect the persons involved or affected. These measures may include but are not limited to:
- warning cones;
 - road signs and signaling devices;
 - use of appropriate personal protective equipment, such as reflective clothing;
 - work zone or flagger personnel to warn other vehicles of the presence of the MEWP and any associated vehicles; and
 - compliance with local, state, and federal regulations.
- h. When an MEWP travels between worksites, adequate protection or signaling to warn the public shall be used.
- i. The MEWP shall not be operated on grades, slopes, ramps, or cambers exceeding those for which the MEWP is rated by the manufacturer.
- j. Deploy and lock into place as required by the manufacturer any stabilizing devices such as outriggers, extendible axles, oscillating axles, or other stability-enhancing means.
- k. Install and position guardrails, and that access gates or openings shall be properly closed or in appropriate positions per the manufacturer's instructions. The guardrails of the MEWP shall not be used to carry materials unless approved by the manufacturer and such materials shall not cause the platform to be loaded beyond the rated capacity.
- l. Load weights and distribution on the MEWP and any MEWP extension(s) shall be in compliance with the manufacturer's requirements.
- m. The operator shall ensure adequate clearance is maintained from overhead obstructions.
- n. Before moving the work platform or MEWP the operator shall comply with the manufacturer's requirement for traveling, to include:
- Visually inspect the area around the platform for obstructions and check the direction of platform movement with reference to the indicators on the MEWP chassis, if applicable, and the controls before operating; and
 - Ensure that persons in the work site area are aware of the movement of the MEWP.
- o. The operator shall:
- Maintain a clear view of the area continuously in the direction of movement, including above and below the work platform, maintain an adequate clearance distance from hazards and avoid any distractions;
 - Travel with the boom/platform positioned at the lowest safe position for the conditions;
 - Move at speeds that are appropriate for safe operation;
 - Allow for the platform movements when traveling over uneven surfaces, slopes, and ramps;
 - Allow for the distance the work platform may move or MEWP will travel before a complete stop after controls are released or returned to neutral position;
 - Not lean on or over the guardrails while the MEWP is elevated or traveling close to obstructions;
 - Not lean over the work platform control panel at any time;
 - Not place objects on the work platform control panel;

- Provide for the safety of any others in the work platform during MEWP movement; and
 - While working at height the operator should use available devices to deactivate the controls on the work platform, whenever possible.
- p. Materials on the work platform floor shall be secured and not pose a hazard.
- q. Occupants shall maintain a firm footing on the MEWP platform floor.
- r. Climbing by the operator or occupants on the toe board, mid-rail or top rail 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.
- s. When other moving equipment and vehicles are present, requirements for special precautions to comply with local ordinances or safety standards established for the workplace shall be followed. Warnings, such as but not limited to flags, roped-off areas, flashing lights, traffic cones and barricades, shall be used as appropriate.
- t. When an MEWP is to be operated in conjunction with a crane or some other moving equipment, the QP shall ensure the MEWP operation is properly planned and a safe work plan developed and coordinated with operation of the other moving equipment.

IX. RISK ASSESSMENT

- a. A jobsite inspection must be completed before the use of the MEWP using **Appendix M: MEWPS Work Area Risk Assessment Checklist** as a guide.
- b. Any unsafe conditions identified in the jobsite inspection must be corrected prior to the use of an MEWP in the jobsite area.
- c. Before and during driving, an operator of an MEWP must look in the direction of travel, keep a clear view of the path of travel, and make sure that the path is firm and level. A driver must avoid:
- Pedestrians
 - Vehicles
 - Debris
 - Drop-offs
 - Holes
 - Depressions
 - Ramps
 - Overhead obstructions
 - Overhead electrical lines
 - Other hazards to safe travel
- d. Weather conditions such as wind and lightning must be evaluated prior to raising the boom or platform. Manufacturer's recommendations for use in windy conditions shall be followed.
- Effect of Wind Forces on MEWPs – MEWPs shall not operate 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 written approval in advance. Where this approval cannot be obtained from the manufacturer, approval shall be obtained from a qualified engineer.
 - 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.
 - Local Wind Effects – The shielding and funneling effects of structures 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 that shall be considered in relation to safety at worksites are at airports and along roadways.
 - Use in Thunderstorms – MEWPs shall not be used outdoors in a thunderstorm. MEWPs can be used inside of a building where the MEWP and operator are not subject to a lightning strike.
- e. Ground Condition Considerations

Potential hazards caused by ground conditions shall be identified and evaluated as part of the Risk Assessment. The safe use plan shall specify methods of avoidance, hazard controls, and other mitigations to maintain safe operations. Operators shall comply with the instructions and notify their supervisor if additional potential hazards are identified during their workplace inspections and avoid the risk until the safe use plan is modified to address the potential hazards.

- f. The stability and safety of MEWPs are affected by poor ground conditions which can lead to the machine becoming out of level and unstable. The QP shall ensure that the area where the MEWP is going to be used be inspected prior to operation and shall ensure compliance with all warnings and instructions provided by the manufacturer. If the level indicator indicates that the operating limits are nearing the MEWP's specified limits, then the operator shall lower and reset the MEWP in a level position.
- g. **Inadequate Outrigger Foundations**
Some soil types such as moist soils, soils previously disturbed, or soils which have not been compacted, as well as some improved surfaces (paved, concrete, compacted, etc.) are not capable of supporting the pressures of outrigger pads. In such cases, the QP shall determine and ensure that a stable foundation or spreader pad is installed to reduce the ground pressure to an acceptable level. Spreader pads shall have enough size, stiffness, and strength to spread the load over the required area.
- h. The locations of sub-surface voids such as cellars, basements, culverts, tanks, and pipes shall be taken into consideration when determining the adequate strength required to support the MEWP in its operating configuration.
- i. MEWPs can create sparks that could ignite flammable vapors, fibers, or dusts that may be present.

X. SAFE USE PLAN

It is the Qualified Person's responsibility to ensure an appropriate MEWP risk assessment is completed and a Safe Use Plan created. Following are guidelines for completion:

- a. Identify the job, location, and time frame. Include a description.
- b. Ensure the operator is familiar with local site requirements and has the means to protect against identified hazards in the areas where the MEWP will be operated.
- c. Select an appropriate MEWP based on the following factors:
 - Rated capacities;
 - Working heights and reaches required for the job for the task;
 - Constraints of the worksite;
 - Assessment that the support surface is adequate to support the weight of the MEWP;
 - Ground conditions;
 - Site access, preparation, and maintenance, and proximity to the public or other workers or other operations or equipment; and
 - MEWP maintenance including inspection(s) and repairs as required by applicable standards and by the manufacturer.
- d. Ensure only trained and authorized personnel are allowed to operate and/or occupy the MEWP.
- e. Ensure familiarization of authorized MEWP operator(s) with the specific MEWP to be used.
- f. Ensure trained and qualified supervisor(s) monitor the performance of the work of the operator to ensure compliance with provisions of this standard.
- g. Prevent unauthorized use of the MEWP.
- h. Assess the risks associated with the task (See **Appendix M: MEWPS Work Area Risk Assessment Checklist**).
 - Identify risks related to using the MEWP or other equipment, and any hazardous materials.

- Risks might be associated with the location where the work is to be carried out, the nature of the MEWP or the personnel, materials, and equipment to be carried.
- Identify risks to persons not involved in the operation of the MEWP.
- Identify fire safety risks and include fire prevention planning.
 - Ensure the lift is suitable for the location atmospheric Hazard Classification (NFPA 70, NFPA 505).
 - Keep MEWPs clean and reasonably free of lint, excess oil, and grease. Clean only with non-combustible agents.
 - Follow the manufacturer's safe handling instructions for refueling and battery charging. Ensure proper ventilation is provided. Stop and cool engine prior to refueling.
- i. Identify control measures. Once the hazards and risks involved in the task have been identified, the procedures and measures required to control them shall be identified and implemented, including any contingencies required.
- j. Ensure the safe use plan is properly documented.
- k. Ensure the operator is trained on the safe use plan.

XI. RESCUE PLAN

- a. Rescue from Height
 - Rescue planning is a necessary component of a risk assessment when working at height.
 - There are situations that require prior planning to ensure a safe and timely rescue.
 - 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 ground.
 - The rescue plan shall be in writing and training on the rescue plan shall be provided.
 - Anyone working in or around the MEWP must receive training on what to do if they see someone fall from an MEWP, or if they themselves fall.
- b. A system failure of the MEWP that results in the loss of the platform control functions may be addressed using:
 - The MEWP auxiliary power function of the controls.
 - The MEWP secondary manual emergency descent controls.
 - At least one operator, familiar with the MEWP in use, must be available on the ground, at all times an MEWP is being used.
- c. Follow the manufacturer's directions in the use of these systems. This plan should be included in operator training and occupant instructions. The plan must address methods and means to affect the most rapid rescue possible.
- d. A rescue plan can include the following:
 - Self-rescue – by person involved;
 - Assisted rescue – by others in the work area; and
 - Technical rescue – by emergency services.
- e. As part of the plan, consideration shall be given to the rescue of MEWP work platform occupants if the machine is unable to be lowered for any reason, such as complete machine malfunction or work platform entanglement. In the case of platform entanglement, the operator and occupants shall be removed from the platform prior to attempts being made to free the platform. MEWPs which have tipped beyond their center of gravity shall be stabilized and secured before attempting rescue. Technical rescue might also be necessary in the event of illness, injury, or risk of exposure. Any rescue procedure shall consider the reasons why the platform may be stranded at height and any need for prompt action.
- f. Rescue should always be carried out by appropriately trained personnel, using the machine's ground controls or secondary lowering system when feasible.

- g. Rescue using another MEWP should be carried out only after a site review has been carried out and a safe use plan is created. The plan should consider the following:
 - 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.
 - The platforms of both machines shall be adjacent to each other with a minimal horizontal/vertical gap between them. The power to controls on both machines should be switched off during the transfer.
 - The person being rescued should be fitted with proper fall protection equipment and the lanyard should be attached to the anchor points on the rescue machine before the transfer takes place.
 - The rescue machine shall not be overloaded during the rescue. This could mean making more than one trip to complete the rescue.
 - Always comply with the manufacturer's requirements stated in the operator's manual.
 - 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 thirty minutes or less.
- h. The QP shall communicate the results of the risk assessment to the entities involved.
- i. Before a job starts and periodically throughout a long-term job, the risk assessment and Safe Use Plan shall be reviewed to check if any parts of the tasks or the working environment have changed and the effect that it could have on the safety of the operator, occupants, or personnel in the vicinity. The review shall encompass, but not be limited to:
 - Verification that all personnel have been properly trained;
 - Verification of operator familiarization of operator(s) with the specific MEWP to be used;
 - Measures to prevent unauthorized use of an MEWP;
 - Trained and qualified supervisor(s) monitor the performance of the work of the operator to ensure compliance with provisions of appropriate standard.

XII. RECORD RETENTION

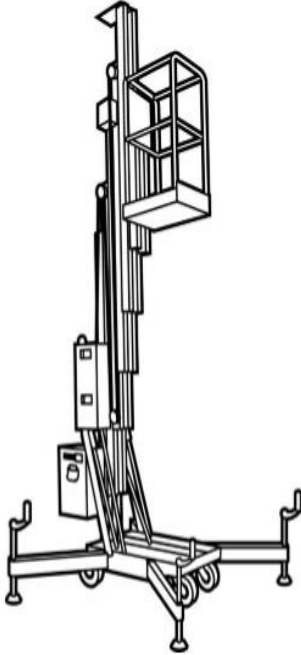
- a. The following records shall be retained by the designated entities for a period of at least four years:
 - Transfer of ownership: The manufacturer, dealer, owner, and broker records shall ensure written records include the name and address of the purchaser of each MEWP, both new and used, by serial number and date of delivery.
 - Frequent and annual inspections: The owner or entity designated by the owner shall ensure written records include inspections performed, the date of inspection, any deficiencies found, corrective action accomplished, and identification of the person(s) performing the inspections and repairs.
 - Pre-delivery preparation, service, and repairs: The owner or dealer shall ensure written records include all service and repairs made on the MEWP to include dates of work, corrective action accomplished and identification of the entity or person(s) performing the service and/or repairs.
 - Training and familiarization: Manufacturers, dealers, and agency records shall include the name of person(s) trained/familiarized, name of person(s) providing training/familiarization, date of training/familiarization, and MEWP classification (training) or model (familiarization).
- b. The following training records shall be dated and retained by the site training coordinator for at least the period the training is valid. The familiarization records will be retained for at least four years:
 - name of the entity providing training or retraining;
 - name of person(s) trained or retrained and MEWP classifications;
 - name of person(s) delivering the training;
 - name of person(s) receiving familiarization and MEWP make and model; and

- name of person(s) providing familiarization.

Records shall be retained by entities in accordance with applicable standards and/or as required by the manufacturer.

Appendix A: Examples of MEWP by Group and Type

A.1 Examples of Type 1, Group A MEWPs

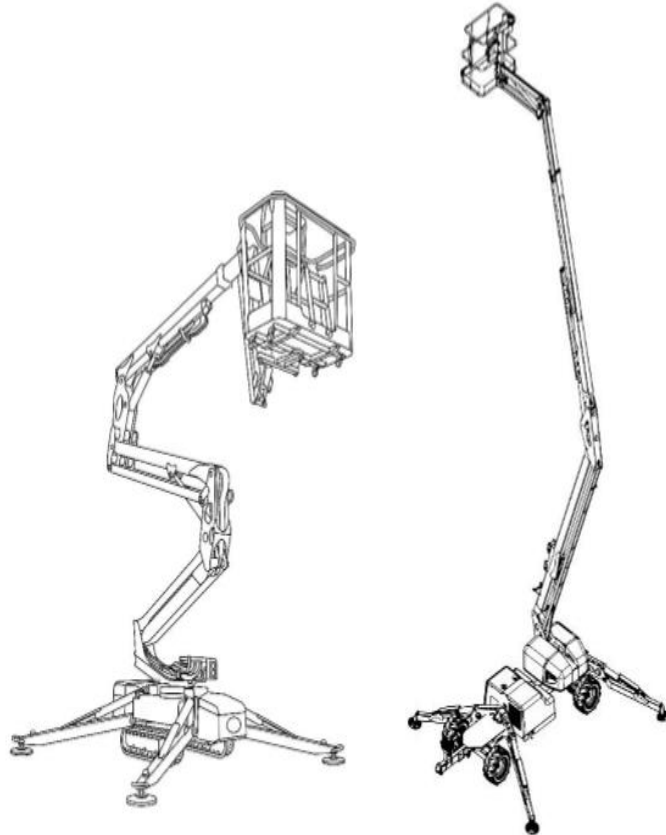


Type 1 MEWP: MEWP for which travelling is allowed only when in the stowed position.

Note: Refer to Section 11.3 MEWP Classification for application of groups and types.

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.

A.2 Examples of Type 1, Group B MEWPs

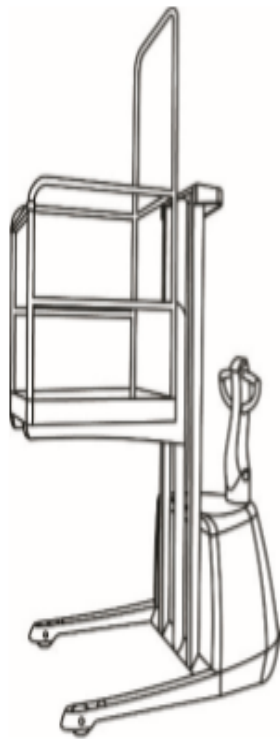


Type 1 MEWP: MEWP for which travelling is allowed only when in the stowed position.

Note: Refer to Section 11.3 MEWP Classification for application of groups and types.

Group B: MEWPs not in Group A.

A.3 Examples of Type 2, Group A MEWPs

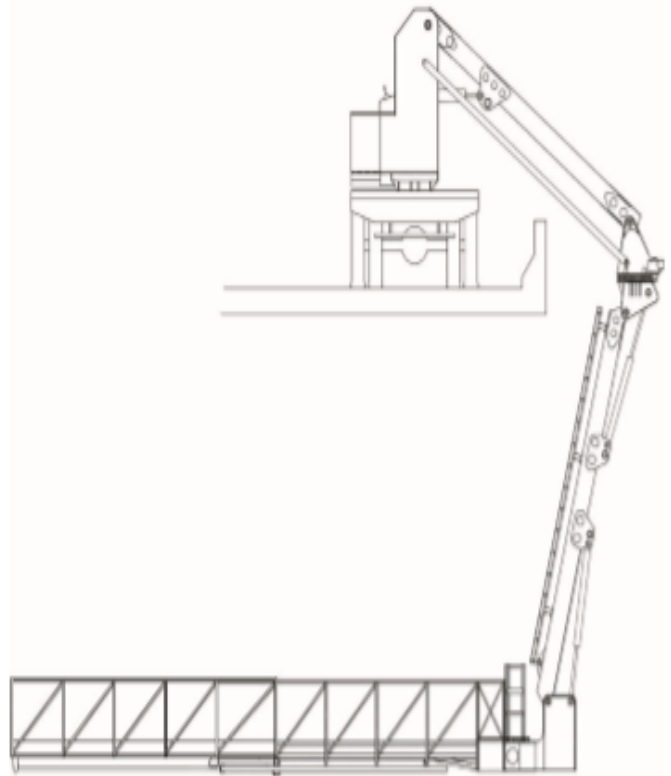


Type 2 MEWP: MEWP for which travelling with the work platform in the elevated travel position is controlled from a point on the chassis.

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

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.

A.4 Examples of Type 2, Group B MEWPs

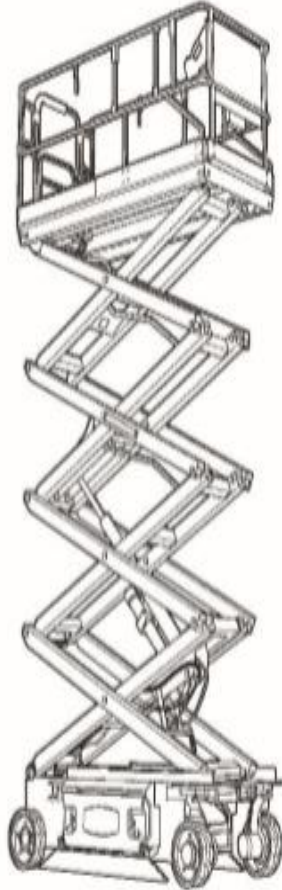


Type 2 MEWP: MEWP for which travelling with the work platform in the elevated travel position is controlled from a point on the chassis.

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

Group B: MEWPs not in Group A.

A.5 Examples of Type 3, Group A MEWPs



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.

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

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

A.6 Examples of Type 3, Group B MEWPs



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.

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

Group B: MEWPs not in Group A.

Vehicle Mounted MEWP / Bucket Truck, Type 2 or Type3, Group B



The lift platform is an integral part of an over-the-road vehicle.

Articulating Boom MEWP, Type 2 or Type 3, Group B



This lift has at least 2 hinged sections which are used to increase mobility.

Man Lift/Cherry Picker, Type 2 or Type 3, Group A



This lift will rise vertically but does not articulate in any direction horizontally.

Scissor Lift, Type2 , Group A



This lift will rise vertically but does not articulate in any direction horizontally.

Extendable or Extensible/Telescopic MEWP, Type 2 or Type 3, Group B



This lift has a boom that extends vertically and horizontally.

Appendix B: Example of Knowledge Evaluation Sheet

Training Date: _____

Name of Training Entity: _____

Name of Examiner: _____

Name of Trainee: _____

Check MEWP(s) covered: Type 1, Group A Type 1, Group B Type 2, Group A

Type 3, Group A Type 3, Group B

Mark If acceptable

Know the manufacturer's obligations.	
Know the agency obligations (training, issuing of the authorization to operate) and the operator's responsibility.	
Know MEWP classifications by category.	
Know the technology of the different elements of the MEWP.	
As a function of the different categories of MEWP, able to identify the characteristics of each category, the common uses, the advantages, and disadvantages.	
Know the hazards: overturning (wind, nature of the ground, work platform load) falling, crushing, etc.	
Know the rules for minimizing the risks of electrical hazards.	
Know how to determine load restrictions.	
Know the rules for driving, travelling, and parking and protection against unauthorized use.	
Know how to select an MEWP depending on the nominal load, working height, nature of work, and atmospheric hazards.	
Know the rules for stability and use: Stabilizing devices, such as outriggers, extendable axles, or other stability-enhancing means are used as required by the manufacturer.	
Know about the safety-related items that have been specified by the manufacturer, and common inspections and maintenance to be carried out.	
Know the orders and movements linked to use of emergency controls. Knowledge of the intended purpose and function of each control and items specified by the manufacturer.	
Know the function and use of manuals, decals, and placards.	
Know how to carry out a pre-start Inspection.	
Know how to carry out a work-site inspection.	

Appendix C: Practical Knowledge Evaluation Test for Type 1 MEWPs

TYPE 1 MEWPs – SECTION 1

Date: _____

OBSERVATIONS

Name of Instructor: _____

Name of Trainee: _____

The Trainee is capable of: _____

Mark the applicable column. Then mark the Operator Performance column if acceptable. OBSERVATIONS	*Vertical Axis	*Work Platform Movement	Operator Perf.
Assess the suitability for the task.			
Visually check the condition of the MEWP.			
<ul style="list-style-type: none"> • Verify that the safety related items specified by the manufacturer operate correctly. • Guardrails are installed and access gates or openings are closed or in appropriate positions per manufacturer's instructions. • 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. • Appropriate PPE is included in the Safe Use Plan, inspected, and on hand. • MEWP has had required inspection and maintenance. 			
Direct the operator and evaluate ability to Interpret and execute the command and communication gestures.			
Position the unit at a location.			
Bring the MEWP into service.			
Set up the markers and signs.			
Adjust the stabilizers.			
Set the MEWP horizontal.			
Position the work platform along a flat vertical surface.			
Move the work platform along a flat vertical surface.			
Position the work platform above a flat surface.			
Move the work platform across this surface.			
Position the work platform below a flat surface.			
Move the work platform across this surface.			
Position the work platform in a restricted space.			
Put the MEWP into the transport position.			
Smoothness of the maneuvers.			
Accuracy of the maneuvers.			
Perform recovery maneuvers.			
Perform rescue maneuvers from the ground position.			

Appendix D: Practical Knowledge Evaluation Test for Type 2 MEWPs

TYPE 2 MEWPs – SECTION 1

Date: _____

OBSERVATIONS

Name of Instructor: _____

Name of Trainee: _____

The Trainee is capable of: _____

Check applicable column. Then mark the Operator Performance column if acceptable. OBSERVATIONS	*Vertical Axis	**Work Platform Movement	Operator
Assess the suitability for the task.			
Visually check the condition of the MEWP.			
Verify that the safety-related items specified by the manufacturer operate correctly. Guardrails are installed and access gates or openings are closed or in appropriate positions per manufacturer's instructions. 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.			
Direct the operator and evaluate ability to Interpret and execute the command and communication gestures.			
Get someone else to position the vehicle.			
Position the platform along a flat vertical surface.			
Move the work platform along this surface.			
Position the platform above a flat surface.			
Move the work platform across this surface.			
Position the platform below a flat surface.			
Move the platform across this surface.			
Position the platform in a space with limited accessibility.			
Demonstrate correct procedure in the event of an Inclination warning.			
Put the MEWP into the transport position.			
Smoothness of the maneuvers.			
Accuracy of the maneuvers.			
Perform recovery maneuvers.			
Perform rescue maneuvers from the around position.			
Position the unit at a location.			
Carry out the suitability examination.			
<p>*NOTE "Vertical axis" refers to the vertical movements of the work platform due to movements of the lifting structure. It includes awareness of the position of the platform and lifting structure when raising and lowering the platform and when slewing the lifting structure.</p> <p>**NOTE: "Work platform movement" refers to any movement of the work platform excluding movements resulting from operation of the lifting structure. This Includes horizontal platform movements when the MEWP base is moved, vertical and horizontal platform movements caused by travelling over uneven ground, bounce and sway resulting from lifting structure flexing.</p>			

Appendix D (continued) TYPE 2 MEWPs - SECTION 2

TYPE 2 MEWPs – SECTION 2

Date: _____

OBSERVATIONS

Name of Instructor: _____

Name of Trainee: _____

The Trainee is capable of: _____

Check applicable column. Then mark the Operator Performance column if acceptable OBSERVATIONS		*Vertical Axis	**Work Platform Movement	Operator
TRAVELING		Visually check the condition of the MEWP		
Platform raised	Platform on vehicle axis (forwards or backwards)	Travel In a straight line forward.		
		Travel in a straight line backwards.		
		Travel in a curve (slalom, bend) forward.		
		Travel In a curve (slalom, bend) backwards.		
	Platform at right angles to vehicle to the left or to the right	Travel In a straight line forward.		
		Travel in a straight line backwards.		
		Travel In a curve (slalom, bend) forward.		
		Travel in a curve (slalom, bend) backwards Travel with simultaneous platform movements.		
VERIFICATION	Guide the operator and evaluate ability to interpret and execute the command and communication gestures.			
	Travel safely over different types of surface conditions approved by the manufacturer.			
	Use the audible warning correctly.			
	Look backwards before moving backwards.			
	Demonstrate safe travel and obey all rules and notice boards.			
	Adapt driving to suit the traffic conditions (congestion, bend, etc.).			
	Smoothness of maneuvers.			
	Accuracy of maneuvers.			
	Demonstrate correct procedure in the event of an inclination warning.			
	Position of the MEWP in its stowed/parked location (remove key).			

*NOTE "Vertical axis" refers to the vertical movements of the work platform due to movements of the lifting structure. It includes awareness of the position of the platform and lifting structure when raising and lowering the platform and when slewing the lifting structure.

**NOTE: "Work platform movement" refers to any movement of the work platform excluding movements resulting from operation of the lifting structure. This Includes horizontal platform movements when the MEWP base is moved, vertical and horizontal platform movements caused by travelling over uneven ground, bounce and sway resulting from lifting structure flexing.

Appendix E: Practical Knowledge Evaluation Test for Type 3 MEWPs

TYPE 3 MEWPs – SECTION 1

Date: _____

OBSERVATIONS

Name of Instructor: _____

Name of Trainee: _____

The Trainee is capable of: _____

Check applicable column. Then mark the Operator Performance column if acceptable OBSERVATIONS		*Vertical Axis	**Work Platform Movement	Operator Performance
SUITABILITY		Assess the suitability for the task.		
VERIFICATION		Visually check the condition of the MEWP.		
		Verify that the safety-related items specified by the manufacturer operate correctly.		
Platform raised	Platform in the direction of travel	Travel in a straight line forward.		
		Travel in a straight line backwards.		
		Travel in a curve (slalom, bend) forward.		
		Travel in a curve (slalom, bend) backwards.		
	Platform in opposite direction to travel	Travel in a straight line forward.		
		Travel in a straight line backwards.		
		Travel in a curve (slalom, bend) forward.		
		Travel in a curve (slalom, bend) backwards.		
	Platform at right angles to direction of travel	Travel in a straight line forward.		
		Travel in a straight line backwards.		
		Travel in a curve (slalom, bend) forward.		
		Travel in a curve (slalom, bend) backwards.		

TRAVELING	Travel safely over different types of ground.			
	Use the audible warning correctly.			
	Look backwards before moving backwards.			
	Display safe travel and obey all rules and notice boards.			
	Adapt driving to suit the traffic conditions (congestion, bend, etc.).			
	Smoothness of maneuvers.			
	Accuracy of maneuvers.			
POSITIONING	Position the work platform above a flat surface.			
	Move the work platform across this surface.			
	Position the work platform below a flat surface.			
	Move the work platform across this surface.			
	Position the work platform in a restricted space.			
	Demonstrate the correct procedure in the event of an inclination warning.			
	Move and position the platform with combined functions.			
	Movements.			
	Position the MEWP in its garage location (remove the key).			
EMERGENCY	Perform recovery maneuvers.			
	Perform rescue maneuvers (from the ground position).			

*NOTE "Vertical axis" refers to the vertical movements of the work platform due to movements of the lifting structure. It includes awareness of the position of the platform and lifting structure when raising and lowering the platform and when slewing the lifting structure.

**NOTE: "Work platform movement" refers to any movement of the work platform excluding movements resulting from operation of the lifting structure. This includes horizontal platform movements when the MEWP base is moved, vertical and horizontal platform movements caused by travelling over uneven ground, bounce and sway resulting from lifting structure flexing.

Appendix F: MEWP Operator Training: Certificate of Completion

I the undersigned [Trainer/Evaluator's name], an employee at [agency or vendor name] acting in the capacity of evaluator for [Agency/University] after having verified the theoretical and practical knowledge of [Operator's name] or (see roster dated) issue the following [operator/supervisor/occupant] with the **Safe Operating Aptitude Certificate**.

For the operating of MEWPs of the following classifications:

_____	_____
_____	_____
_____	_____

Signature: _____

Date: _____

This certificate of completion is valid until: _____

Appendix G: Example of an MEWP License

MEWPs "Authorization to Operate" Card

The authorization to operate can also be presented in the form of an "identification card."

Company Logo (optional)		Authorization to drive
	Ref: _____	
	Issued by: _____	
Name:	_____	
Position:	_____	
Date:	_____	
Signature:	_____	

Photograph (optional)	
Title holder: Name of title holder	
Qualification: _____	
is authorized to operate MEWPs.	
Type:	Valid until:
_____	_____
_____	_____

Front

Back

The reference shown on the front may correspond to the title holder's personal training file, in which are given:

- the results of the evaluation tests, together with the name of the trainer/evaluator.

The limit of validity can be given by affixing a stamp or the signature of the trainer/evaluator who issued the card.

Appendix H: Example Preventive Maintenance Schedule

Division:	Facility:
Location:	Supervisor:
Manufacturer:	Model #:
Serial #:	MEWP ID:

[Agency/University] must complete this list of required maintenance for each MEWP.

Preventive Maintenance Examples	Frequency	Date Due	Date Completed
Electric Testing			
Bursting Test			
Other			
Other			
Other			
Other			

Appendix I: MEWP Repair & Maintenance Record Part A LOTO Procedure

Division:	Facility:
Location:	Supervisor:
Manufacturer:	Model #:
Serial #:	MEWP ID:

Describe the repair or maintenance to be completed:

Energy Type (Check All Applicable Energy Sources)	Magnitude of Energy (Volts, PSI, etc.)	Energy Isolating Device (Disconnect, Breaker, Valve, etc.) Description/ID#	Energy Isolating Device Location	Lockout Device Required
Electrical				
Pneumatic				
Hydraulic				
Mechanical				
Thermal				
Stored Energy				
Other (List Below)				

Lockout/tagout procedures need to be determined prior to maintenance and repair. MEWP are complex and LOTO is not always just one step. For instance, truck-mounted aerial lift would have unique LOTO procedures if the truck had malfunctioning brakes as compared to if the truck's boom lift cylinder had a leak. [Agency/University] will detail basic lockout/tagout procedures and include these here and edit what is relevant below for the repairs to be completed.

Before adjustments and repairs are started on MEWPs, the following precautions shall be taken, as applicable:

- Park in a safe, approved area under cover or indoors that is away from any traffic or congested areas. Block the wheels.
- De-energized before conducting maintenance and repairs.
- Read and understand the instructions and precautions provided by the MEWP manufacturer.
- Power stopped and means of starting rendered inoperative.
- All controls in the "off" or "neutral" position and all operating systems secured from inadvertent motion; Remove key.
- Always push in an e-stop, at least one ground or upper controls.
- Work platform lowered to the full down position, if possible, or otherwise secured to prevent motion.

- Hydraulic oil pressure relieved from all hydraulic circuits before loosening or removing hydraulic components; and safety props or latches used as required and instructed by the manufacturer.
- If equipped with transport pins, locks, or straps for elevating or rotating assemblies, always position in the transport or locked position.
- Disconnect and remove the upper controls on units equipped with removable upper controls.
- Disconnect or turn off, and padlock (if available), any battery disconnects or doors to battery disconnects.
- Tagout both upper and lower controls with an approved tag firmly attached that lists the problem, date and person tagging the machine.
- Always inform responsible management or supervisors in the situation and document.

Appendix J: MEWP Pre-Start and Function Test

The [agency/university] must use the manufacturers checklist and modify this checklist for each model. The operator shall inspect MEWPs prior to placing the machine in service at the beginning of each work shift. Deficiencies noted on the inspection form must be corrected prior to operation. If the deficiencies cannot be corrected, the MEWP must not be used and lockout/tagout procedures initiated according to the MEWP Program. Keep documentation of repairs with preventive maintenance records on file for no less than 30 days, form is subject to review by Safety Leader. See Appendix I: Maintenance and Repair Record

Division:	Facility:
Location:	Supervisor:
Manufacturer:	Model #:
Serial #:	MEWP ID:
Inspected by:	Date:

Inspection Items	OK	Maintenance
Operating and emergency controls.		
Safety devices (audible and visual alarms and beacons).		
Structural and other critical components present and all associated fasteners and pins in place.		
Personal protective devices worn while operating/occupying the MEWP (if required (harness, lanyard, attachment, etc.).		
Fluid levels checked (hydraulic oil, engine oil, coolant, etc.) and no leaks.		
Hydraulic power unit, reservoir, hoses, fittings, cylinders, and manifolds.		
Electrical components, wiring harness, and electrical cables-no damaged control/cables and no loose wires.		
Loose, damaged, worn, or missing parts.		
Tires, wheels, and wheel fasteners.		
Instructions, warnings, control markings present.		
Owner's manual legible and stored inside container located on platform.		
Operation of outriggers, stabilizers, extendable and oscillating axles, and other structures.		
Work platform, including guardrail system, floor, anchorage and mounting.		
Cleanliness and general signs of damage.		
Brake operation and performance.		
Cracks in welds or structural components.		
Dents, bent or broken structural members or damage means of support of the work platform and extending structure.		
ADD other items here, e.g., Safety Interlock Test.		
Other items specified by manufacturer.		

Comments:

Appendix K: Frequent/Annual Inspection Checklist

Keep documentation of repairs with preventive maintenance records for no less than FOUR years, form is subject to review by Safety Leader. Any time an aerial platform lift has not been used for a period of 3 months or more (or after the lift has been purchased). 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.

Division:	Facility:	
Location:	Supervisor:	
Manufacturer:	Model #:	
Serial #:	MEWP ID:	
Inspected by:	Date Frequent:	Date of Annual:

Inspection Items	OK	Maintenance
All functions and their controls, including controls for emergency operations, for speed(s), proper operation, and limits of motion;		
Ground-level controls, including the provisions for overriding of additional controls;		
All chain and cable mechanisms, for adjustment and worn or damaged parts;		
All guards are in place and in good working order;		
Lubrication of all moving parts, inspection of filter element(s); hydraulic oil, engine oil, and coolant;		
Visual inspection of structural components and other critical components such as fasteners, pins, shafts, turntable attachment devices and locking devices;		
Instructions, warnings, and control markings are in place and legible;		
Hydraulic or pneumatic systems, for proper fluid or pressure levels and observable for proper operation, damage, leaks, or external wear;		
Electrical systems, for signs of damage, deterioration, dirt, or moisture accumulation;		
Tires for damage and proper inflation, as applicable;		
Wheel fasteners are in place and properly tightened;		
Lights, if applicable, for proper operation and illumination;		
Batteries are checked for adequate fluid level and connections are secure and free from damage and corrosion, if applicable;		
Drive systems, brakes, steering and speed controls for proper operation;		
Audible or visual alarms, if applicable, for proper operation; and		
Any communication system between platform and ground is working properly		
Annual Inspection: Performed no later than thirteen (13) 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 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.		

Comments:

Appendix L: Exiting an Elevated Work Platform

Best practices to prevent falls on the rare occasion that occupants need to enter/exit a platform when elevated:

- This can be done only when permitted by the manufacturer and following the guidelines and instructions provided by the manufacturer.
- Only properly trained, qualified and authorized personnel operate the machine;
- Adherence to OSHA Regulations and ANSI Standards;
- To follow the employer's safe work practices;
- The operator uses their best judgement and experience to determine whether it is safe to exit the platform;
- Only one person can exit the platform at any time;
- Operators must always maintain 100% tie-off;
- A qualified person always guards the ground controls to prevent other personnel operating the MEWP;
- Platform controls must not be operated when the person is out of the lift and still connected to the lift;
- Movement of the boom or lift and external structure due to factors such as wind load, structure sway etc. Are taken into consideration;
- The platform must be located within one foot of the structure;
- The platform entry must be aligned with the pathway to the adjacent structure to eliminate pinch and crush points during transfer;
- The position of the platform is such that the operator does not have to jump down from or up to the platform;
- The operator exits or enters only through the gate, never over the railing;
- The surface being stepped on to is safe, stable, and clear of debris to avoid slip, trip or any other Hazards;
- That no part of the lift or boom contacts or rests upon the structure.

Appendix M: MEWPS Work Area Risk Assessment Checklist

Before an MEWP is used and during use, the operator shall check the area in which the MEWP is to be used for possible hazards. Hazards include, but are not limited to, those in the following checklist. Keep this form on file for no less than 30 days, form is subject to review by Safety Leader. The risk assessment results are used to plan safe work procedures, including any contingencies required, in carrying out the identified tasks.

Model Name	Model #
Max Wind Speed:	Max Slope for this model:
Division:	Facility:
Location:	Supervisor:
Inspected by:	Date:

Description of Job Task:

Inspection Items/ Hazards	Yes	No	Controls
Drop-offs or holes			
Slopes			
Bumps and floor obstructions			
Debris			
Overhead obstructions and high voltage conductors			
Hazardous locations and atmospheres			
Tools and/or other equipment			
Inadequate surface and support to withstand all load forces imposed by the aerial platform lift			
20 mph wind speeds or anticipated gusts (lower lifts to a maximum height of 20 ft) [Change to manufacturers requirements]			
25 mph wind speeds or anticipated gusts (ground all lifts) [Change to manufacturers requirements]			
Presence of unauthorized people			
Other possible unsafe conditions:			
Complete a Safe Use Plan (SUP) and Rescue Plan if Yes is selected. Do not proceed if the job cannot be done safely. The purpose of the SUP is to develop control measures and communicate with affected persons.			

Appendix N: Implementation Plan

1. Review model program and designate responsible parties (QP, or Supervisor or Safety Leader or Operator).
2. Provide inventory form to all supervisors of operators of MEWPs and create an inventory of MEWPs on-site.
3. Determine the age of the MEWP.
If acquired before July 1, 1975 and does not meet the requirements of ANSI A92.2—1969, the unit may not be used after July 1, 1976, unless modified so as to conform with the applicable design and construction requirements of ANSI A92.2—1969.
4. Determine if unit has been field modified for uses other than those intended by the manufacturer. If so, the modification has been certified in writing by the manufacturer or other equivalent entity.
5. Obtain missing operating manuals for lifts.
6. Update Appendix H: Example Preventive Maintenance Schedule to include required maintenance for each model.
7. Update Appendix J: MEWP Pre-Start and Function Test for each make and model based on manufacturer operating manual.
8. Update Appendix K: Frequent/Annual Inspection Checklist for each make and model based on manufacturer operating manual.
9. Train QP's, operators, occupants, supervisors, and maintenance.
10. Determine and issue Operator License's for immediate identification of training completed, type of lift approved to operate, and expiration date as found in appendix of this document or determine other method to confirm Operator and Occupant qualification to operate.
11. The Safety Leader will work with management to designate QP(s) to monitor, supervise and evaluate operators on a regular basis to ensure their proficiency.
12. Confirm maintenance technicians are trained to inspect and service the MEWP according to manufacturer's recommendations.
13. This model program has the Operator training the Occupant. Determine best method to train occupants and document training content, rosters etc. Create a training module for Occupant Training and determine best practice for Occupant training and edit this document to describe how Occupants are receiving training.
14. Determine who will conduct training for the QP, Supervisors, Operators, Maintenance
15. Decide if the QP or Safety Leader will perform training or MEWP manufacturer or a combination of all three. Review the 2020 on-line training from the NCDOL NOW on-line streaming to determine how the training and testing could be used to help meet some of the requirements.
16. Create training programs, or and conduct or coordinate training.
17. Supervisor or competent person will detail basic lockout/tagout procedures and include these and edit what is relevant for the repairs to be completed.
18. Conduct Risk Assessments when job tasks require elevated work.
19. Develop Rescue Plans.
20. Create Safe Use Plans.

Inventory

Department Owner	Location Stored	Manufacturer	Make/Model	Date of Manufacture	Titles of Equipment Manuals