



Department of the Air Force
HQ AEDC (AFMC)
Arnold AFB, TN 37389

Safety, Health, and Environmental Standard

Title: AERIAL WORK PLATFORMS

Standard No.: D6

Effective Date: 05/22/2015

The provisions and requirements of this standard are mandatory for use by all personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

Approved:

Contractor/ATA Director
Safety and Health Group

Air Force Functional Chief

Safety, Health and Environmental Standard D6

Record of Revision

(Current revisions are highlighted in yellow and marked with a vertical line in the right margin.)

Revision Date	Description
05/12/15 Tate	Three year review: No change required
01/25/13	Added NFAC supplement; no other change.
03/19/12 Tate	Added requirement for operating contractors to complete a pre-use inspection checklist (Form GC-1863) before each use of a scissor lift or aerial work platform.
08/16/10 Tate	Two-year review; clarified fall protection issues, changed PM inspection schedule from quarterly or 200 operating hours to “semi-annual or 200 hours” to reflect current practice. Revised Training and Qualifications section to reflect minimum qualifications. Defined Operating Contractor and Outside Contractor/subcontractor. Deleted AWP Operator Skills Evaluation now incorporated into the Workforce Qualification Program. Reformatting and minor word change throughout.
02/10/09 Huggins	Deleted out-of date references; added references to ANSI B30.5-2007, OSHA 1926.269, and NFPA 70E; clarified safe distances when working around energized lines (Paragraphs 4.1.6.1; 4.1.10.2; 4.1.11); these are administrative changes and require no change to current practice.
01/23/08 Huggins 03/10/08 Nikodym	Minor revisions as follow: Para. 4.1.1 revised to clarify operator certification requirements. Para. 4.1.5.5 updated to reflect anchor point requirements. Para 4.1.7.7 revised to clarify requirements for transitioning from aerial work platform to access work area. Added reference to 29 CFR 1926.502.
08/31/07 Wheeler/Spry	Annual review: minor wording changes to 4.1.7.1 and 4.1.7.3; administrative change to incorporate existing practice of issuing a hard hat decal rather than a license card to indicate successful completion of required training; also added blanks for operator signature and supervisor information to sample skills evaluation.
09/13/06 Wheeler	Annual review: made minor wording changes to 4.1.5.5 & 4.1.7.3
10/01/04	Initial Safety Standard Issued.



Safety, Health, and Environmental Standard

AERIAL WORK PLATFORMS

1.0 INTRODUCTION/SCOPE/APPLICABILITY

This standard outlines the minimum requirements for the safe use, inspection, and operation of aerial work platforms (AWPs). This standard is applicable to all AEDC employees, contractors and sub-contractors. Operator training and certification requirements are specified.

- 1.1 Introduction – This standard describes the tasks, activities and actions required when using various types of aerial work platforms at AEDC.
- 1.2 Scope –This standard incorporates AWP operating requirements and objectives of OSHA, ANSI, Air Force and other nationally recognized national consensus standards to assure implementation at AEDC.
- 1.3 Applicability – This standard applies to all AEDC personnel and operations, including Air Force, Navy, Army Corps of Engineers and Contractors (including Subcontractors) at the Tennessee location and operations conducted by AEDC personnel outside the confines of Arnold AFB. Training requirements (to include use and inspection) for Subcontractor personnel training requirements are established and provided by their management.

2.0 BASIC HAZARDS/HUMAN FACTORS

Aerial work platforms range from complex articulating devices to manually propelled vertical lifts. Regardless of complexity, they are typically used to provide the worker a safe, elevated platform from which to work. Improper use and operation can result in fatality or property damage. Typical hazards include: structural failure due to overloading, overturning due to improper operation (i.e., operation on an inclined or unstable surface, driving over obstructions or potholes, lifting large or irregular shaped objects uncontained inside the platform, etc.), electrocution via contact with energized electrical lines, collision with objects/vehicles/pedestrians, or lack of maintenance. Each year several fatalities and hundreds of injuries result from inattention, lack of knowledge or skills, or procedural non-compliance throughout the nation. Most if not all these types of incidents can be prevented by following the safe work practices identified in this standard.

3.0 DEFINITIONS

Aerial Work Platform – A manual or self-propelled elevating work platform positioned by articulating boom, extensible boom, or vertical mast (i.e., scissor lift) primarily designed as a personnel carrier attached to a rotating or non-rotating base.

Articulating Boom – A boom with two or more hinged sections that extends to accommodate a variety of work positions.

Extensible Boom – An aerial device with a telescopic or otherwise extendable boom and personnel platform attachment.

Fall Restraint – A fall protection system that prevents the user from falling *any* distance. The system is comprised of a full body harness, anchorage, connectors, and other necessary equipment. The system prevents and/or restrains the user from reaching the open edge of the structure or platform.

Operating Contractor – A long-term contractor directly accountable to the Air Force for the AEDC mission.

Outside Contractor/Subcontractor – An organization employed by a contractor or the Air Force to do construction, maintenance, repair or other work at AEDC. There is no employment relationship, control or supervision of the subcontractor's employees by AEDC contractors. Also referred to as the construction contractor.

Personal Fall Arrest System – A system used to arrest an employee in a fall from a working level. It includes anchorage, connectors, a full body harness, and may include a lanyard, deceleration device, lifeline, or suitable combination of these.

Scissor Lift – A manual or self-propelled elevating work platform utilizing a scissor type framework for positioning the platform vertically, primarily designed as a personnel carrier.

4.0 REQUIREMENTS/RESPONSIBILITIES

4.1 REQUIREMENTS

4.1.1 Only trained and certified operators shall operate an Aerial Work Platform (AWP) on AEDC. Operators shall be certified by the employer and must have valid documentation available.

4.1.2 Operators must have read and be familiar with the operating and safety manual, control functions, safety devices, placards, and warnings specific to each AWP operated.

4.1.3 Prior to operation, inspect the work area for hazards such as: overhead and ground level obstructions, electrical hazards, overhead crane operations, other AWP's and vehicles, conflicting work operations, pedestrian and vehicular traffic, slopes, grades, potholes, unstable surfaces, and foul weather including wind speeds above manufacturer limits (do not operate above 30 mph where other instructions are not specified).

4.1.4 Select the appropriate type and size of AWP based on the intended use.

4.1.5 All AWP's shall meet the following conditions to be considered approved for use:

4.1.5.1 Articulating boom and extensible boom platforms shall have both upper (platform level) and lower (ground level) controls. Lower controls shall override upper controls but shall not be operated unless permission has been obtained from the employee in the platform, except in case of emergency.

4.1.5.2 All AWP platform controls will have two points of activation contact (normally a foot pedal and control lever) by the operator to activate the directional controls (horizontal and vertical movement). Where there is a time delay feature, the delay shall be set to the manufacturers' specification. Any other manufacturer supplied interlocks shall be operational.

4.1.5.3 Platforms must have top rails, mid-rails, and toe boards unless completely enclosed on all sides. Access gates or openings shall be closed per the manufacturer's instructions prior to operation.

4.1.5.4 The operating manual(s) and ANSI Manual of Responsibilities supplied by the manufacturer must be stored on each AWP in a weatherproof compartment.

4.1.5.5 Anchor points for fall arrest equipment are required for articulating and extensible boom AWP's. All scissor lifts shall be equipped with anchor points or taken out of service until anchor points are installed per manufacturer's specification.

4.1.5.6 Scissor lifts shall have provision for mechanically blocking the lifts framework during inspection and maintenance operations.

4.1.6 The following operating rules shall be adhered to at all times:

4.1.6.1 Maintain required distances for work near or on live electrical lines. A minimum safe approach distance (MSAD) of 10 feet is specified for voltages of 50kV or less. Distance increases as voltage increases. (See Section 4.1.10).

4.1.6.2 AWP's should only be operated on firm, level surfaces. AWP's shall not be driven on grades, side slopes, or ramps that exceed manufacturers incline limits.

4.1.6.3 If the machine has a separate power source to operate the movement of the base (e.g. truck mounted) the vehicle engine must be shut off and the key removed before using the platform.

- 4.1.6.4 Truck-mounted aerial devices shall be lowered and secured prior to driving the truck or vehicle on the highway.
- 4.1.6.5 If so equipped, outriggers or stabilizers and extendable axels shall be fully extended and placed on firm level surfaces or mats. Outrigger or stabilizer mats and pads should be:
 - 4.1.6.5.1 At least three times larger in surface area than the float they support,
 - 4.1.6.5.2 Flat where the outrigger or stabilizer contacts it to prevent the AWP from sliding off, and
 - 4.1.6.5.3 Strong enough to withstand the loads imposed by the outrigger.
- 4.1.6.6 AWP controls must be operated in a smooth, controlled manner at all times. Avoid sudden starts, stops, or change in direction. Never jam the controls from one travel direction to another.
- 4.1.6.7 Keep all body parts inside the platform while moving the equipment.
- 4.1.6.8 When AWP's must be moved on a slight incline, the boom should always be positioned uphill of the wheels and the wheels chocked if it is parked on an incline. See manufacturer instructions for incline limits.
- 4.1.6.9 Never use the boom to push or pull the base or any other object.
- 4.1.6.10 Boom and basket load limits specified by the manufacturer shall not be exceeded.
- 4.1.6.11 Care shall be taken to prevent electric cords, rope, and hoses from becoming entangled in the aerial platform.
- 4.1.6.12 Only tools and materials required to perform the work are permitted in the platform and must fit completely inside the basket. Small tools and materials should be kept in a properly secured container on the floor of the platform.
- 4.1.6.13 Supporting equipment, material, or rigging loads from the boom, handrails, or platform is prohibited.
- 4.1.6.14 If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal movement by adjacent structures or obstacles such that control reversal does not free the platform, all personnel shall be removed before additional attempts are made to free the platform using ground controls.
- 4.1.7 The following fall protection requirements shall be used when working in or from an AWP:**
 - 4.1.7.1 Employees must wear personal fall protection (i.e., full body harness and lanyard attached to manufacturer-approved attachment point in the platform or basket) when operating or working from an AWP or scissor lift.
 - 4.1.7.2 One of two different methods shall be used for AWP's to restrain an employee from being thrown from the platform during traveling:
 - 4.1.7.2.1 The preferred method is to use an SRL attached to the platform anchor point and the side D ring of the operator's harness.
 - 4.1.7.2.2 A second method is to attach a two-foot lanyard to the platform anchor point and the side D ring of the operator's harness
 - 4.1.7.3 Although scissor lifts are regulated as mobile scaffolds, fall protection is required. If no attachment point has been installed, the scissor lift must be taken out of service until fall protection attachments have been installed.
 - 4.1.7.4 Unusual circumstances, such as work over or adjacent to water, may be cause for a variance from this requirement if approved by the appropriate safety office.
 - 4.1.7.5 Persons working in AWP platforms shall not attach/anchor personal fall protection or any part of the lift/platform to any adjacent pole, structure, or equipment. See Section 4.1.12 for details concerning authorized egress and access of elevated AWP's.
 - 4.1.7.6 Guardrails shall be in place and access gate closed and latched while the AWP is in use.
 - 4.1.7.7 Employees shall always stand firmly on the floor of the basket or platform; and shall not sit or climb on the basket edge or platform rails, or use planks, ladders, or other objects in conjunction with the basket or

platform as a work position. Employees may transition to work areas or platforms located outside of a basket or platform using the basket edge or platform rails, while maintaining 100 percent fall protection, when they cannot be safely accessed through the devices' gate openings.

- 4.1.7.8 The floor of the platforms must remain free of trash, debris, and clutter.
- 4.1.7.9 While traveling to and from the work location, the platform shall be lowered to the traveling position near horizontal or below. The operator shall limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors that could cause collisions or injuries.
- 4.1.7.10 AWP's shall not be moved when the platform is elevated at the work location with personnel in the basket unless the travel surface is level, the equipment is designed for that purpose, and manufacturer's instructions allow it.

4.1.8 Protection of personnel in the immediate work area shall be as follows:

- 4.1.8.1 The counterweight swing radius of articulating or extensible boom AWP's shall be barricaded to prevent crushing injuries to employees on the ground.
- 4.1.8.2 While elevating or working from an elevated AWP the area underneath the work must be barricaded to prevent employees from entering.
- 4.1.8.3 Elevated platforms must be attended by a qualified operator at all times or lowered to grade.
- 4.1.8.4 When lowering elevated platforms, the operator must inspect the area around the machine to ensure that no personnel, equipment, or obstructions are in the path of travel. If the area in the path of movement is not visible, i.e., in a cloud of steam or fog, the basket should not be lowered until vision is restored or the area is otherwise determined to be clear.
- 4.1.8.5 A spotter must be utilized whenever the operator cannot see the machine base during movement of the base. A spotter should be used when operating AWP's in close proximity to obstructions, operating equipment, vehicles, or personnel.
- 4.1.8.6 Electric powered AWP's should be considered for indoor applications.
- 4.1.8.7 Gasoline or diesel powered AWP's should only be used outdoors or in well ventilated areas.
- 4.1.8.8 Only AWP's approved for use in hazardous locations and atmospheres, such as areas with explosive vapors, dusts, etc., shall be used in defined hazardous locations.

4.1.9 AWP's used by qualified electricians for live electrical work shall also meet the following additional requirements:

- 4.1.9.1 AWP's shall be designed for use on live electrical work with appropriate insulated parts.
- 4.1.9.2 AWP's shall have voltage limitations exceeding the voltage to be worked on.
- 4.1.9.3 A conductive bucket liner or other suitable conductive device shall be provided for bonding the insulated aerial device to the energized line or equipment.
- 4.1.9.4 The body of the AWP shall be effectively grounded.
- 4.1.9.5 A minimum clearance table for bare-hand live-line work, as shown below, shall be printed on a durable nonconductive plate mounted in the bucket or its vicinity so as to be visible to the operator of the AWP.

4.1.10 Use of AWP's to work near live electrical lines shall comply with the following:

- 4.1.10.1 AWP's shall not be operated where any part of the equipment, employees, tools, or materials will come closer to or above any energized electrical line than specified in the following table except for qualified electricians using insulated aerial AWP's approved for electrical service.

4.1.10.2 An overhead wire shall be considered to be an energized line unless it has been disconnected and is visibly grounded in the work area. Power lines on wooden poles generally carry from 110 to 69,000 volts. Power lines on steel towers usually carry from 69,000 to 345,000 volts. Required minimum clearances shall be maintained in accordance with the table below:

Required Clearances from Live Electrical Lines*	
Nominal Voltage, kV (Phase to Phase)	Minimum Required Clearance ft. (m)
0 – 50	10 (3.05)
51 – 200	15 (4.60)
201 – 350	20 (6.10)
351– 500	25 (7.62)
501 – 750	35 (10.67)
751 – 1,000	45 (13.72)

*Environmental conditions such as fog, smoke, or precipitation may require increased clearance.

4.1.11 AWP used to work on live electrical lines shall comply with the following:

When an AWP operating near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding shall not stand at the grounding location if there is possibility of overhead line contact.

4.1.11.2 Only qualified electricians will work directly on live electrical lines from AWPs, when allowed by relevant national regulation or AEDC safety standards and directed by their supervisor.

4.1.11.2 For barehanded live line work, the qualified electrician shall:

4.1.11.2.1 Make the required inspections and tests of the AWP and ground it.

4.1.11.2.2 Check the arm current leakage on the bucket using a voltage equal to that to be worked on for three minutes with a leakage current not to exceed 1 microampere per kilo-volt or nominal line to line voltage at beginning of shift.

4.1.11.2.3 Bond the conductive bucket liner to the energized conductor by means of a positive connection before contacting the energized part to be worked on and leave attached until the work on the energized circuit is completed.

4.1.11.2.4 Not place conductive materials over 36 inches long in the bucket, except for appropriate length clean and dry jumpers, armor rods, and tools.

4.1.11.2.5 Not use hand lines between buckets, booms, and the ground; nonconductive-type dry hand lines may be used from line-to-ground when not supported from the bucket.

4.1.11.2.6 Maintain minimum clearance distances for live-line bare-hand work as specified in the table below for all grounded objects and from lines and equipment at a different potential than to which the insulated aerial device is bonded unless such grounded object or other lines and equipment are covered by insulated guards (These distances shall be maintained between all parts of the insulated boom assembly and any grounded parts including the lower arm or portions of the body of the AWP when approaching, leaving, and when bonded to the energized circuit).

4.1.11.2.7 Use harnesses and lanyards that meet the requirements for lineman’s equipment.

4.1.11.2.8 Not wear pole climbers (metal spurs used to climb wooden poles) while working from the aerial AWP.

4.1.11.2.9 Not perform work with an electrical storm in the immediate vicinity. In keeping with weather warning protocol, cease outside operations when lightning is within 10 miles of AEDC. Appropriate warnings and all clear announcements are issued by the AEDC Operations Center.

4.1.11.2.10 Maintain minimum bare-hand live-line work clearance in accordance with the table below:

Voltage Range (phase-to-phase) (kV)	Distance in feet (m) and inches for maximum voltage	
	Phase to Ground	Phase to Phase
2.1 to 15	2' 0" (.61m)	2' 0"
15.1 to 35	2' 4"	2' 4"
35.1 to 46	2' 6"	2' 6"
46.1 to 72.5	3' 0"	3' 0"
72.6 to 121	3' 4"	4' 6"
138 to 145	3' 6"	5' 0"
161 to 169	3' 8"	5' 6"
230 to 242	5' 0"	8' 4"
345 to 362*	7' 0"	13' 4"
500 to 552*	11' 0"	20' 0"
700 to 765*	15' 0" (4.60 m)	31' 0"

* For 345-362 kV, 500-552 kV, and 700-765 kV, minimum clearance distance may be reduced provided distances are not made less than the shortest distance between the energized part and a grounded surface.

4.1.12 Elevated AWP egress and access shall comply with the following:

- 4.1.12.1 Exiting and accessing an elevated platform is permissible only when it is determined to be the safest means of access to an elevated work area. This determination must be documented on the Job Safety Analysis and have prior approval by the employee’s supervisor and safety representative.
- 4.1.12.2 When authorized, the following minimum procedures will be used to access or exit an elevated platform.
 - 4.1.12.2.1 The platform or ground controls must be attended at all times by an AWP operator while any personnel are exiting or accessing an elevated platform.
 - 4.1.12.2.2 A 100 percent tie off must be maintained while exiting or entering the elevated platform. The employee will secure a second lanyard to an anchorage point outside the platform before disconnecting their lanyard from the AWP and exiting. When re-entering, secure second lanyard to the AWP only after both feet are on the floor of the platform, and then release the lanyard attached to the outside anchorage point. (An exception to this requirement would be accessing a flat roof. See Paragraph 4.1.13.2.7).
 - 4.1.12.2.3 The floor of the platform should be at the same level as the structure to be accessed.
 - 4.1.12.2.4 At no time shall employees exit or enter over the AWP platform controls.
 - 4.1.12.2.5 Access gates are to be utilized if at all possible to exit or enter the elevated platform.
 - 4.1.12.2.6 If the manufacturer prohibits egress and access of an elevated AWP platform, such practices shall be prohibited.
 - 4.1.12.2.7 When accessing a **flat** roof using an AWP, it is permissible to exit the AWP without tying off to a building structural member, as long as the employee stays within the exterior protection of the AWP basket and the basket is within 9 inches of the edge of the roof. Before disconnecting their lanyard from the AWP anchor point, the employee shall have both feet firmly on the roof. The employee will not be required to tie off to an anchor point as long as they stay within the exterior protection of the guard railing of the AWP. When accessing the AWP the employee shall approach the AWP, staying within the exterior protection of the AWP guardrails, tie off to the AWP anchor points, and then access the AWP. A second method would be to extend the basket past the roof edge at least six feet, permitting employees to exit or access the basket at this point.

4.1.13 Inspections shall be conducted as follows:

- 4.1.13.1 Both frequent and annual inspections for AWP's shall be performed covering items specified by the manufacturer. The inspections shall be performed by a mechanic qualified on the specific make and model at the following intervals:
 - 4.1.13.1.1 Upon arrival at AEDC prior to initial use.
 - 4.1.13.1.2 Semi-annual or 200 hours, whichever comes first.
 - 4.1.13.1.3 Annually at intervals not to exceed 13 months.
 - 4.1.13.1.4 After any incident involving the AWP.
 - 4.1.13.1.5 Insulating booms of aerial devices used for work on energized high voltage conductors and equipment shall have a dielectric test performed at least every 12 months.
- 4.1.13.2 A thorough pre-use inspection shall be conducted and documented by the operator at the beginning of each shift, prior to use. The inspection shall be documented using the Operator's Inspection Guide and Trouble Report (AF Form 1800). In addition, operating contractors must complete an AWP pre-use inspection checklist (Form GC-1863) prior to each use; this document shall be submitted to the supervisor and retained at the supervisor's discretion.
- 4.1.13.3 Deficiencies or unusual conditions shall be reported to the responsible supervisor. Conditions adversely affecting safety shall be corrected before the vehicle is placed into service.
- 4.1.13.4 The pre-use inspection shall cover the following items and any additional items identified by the manufacturer in the operator's manual.
 - 4.1.13.4.1 Controls plainly and legibly marked as to their function.
 - 4.1.13.4.2 Evidence that safety devices and interlocks are in good condition and operational.
 - 4.1.13.4.3 Personal protective equipment (PPE) for operator and riders (i.e., fall protection, gloves, hardhat, safety shoes, etc.)
 - 4.1.13.4.4 Hydraulic system for: fluid level, tight connections, hose damage, and leaks.
 - 4.1.13.4.5 Fuel, engine, and ancillary system fluid levels
 - 4.1.13.4.6 Cables and wiring.
 - 4.1.13.4.7 Loose or missing parts
 - 4.1.13.4.8 Legible warning placards and decals (replace defective placards or decals prior to equipment use).
 - 4.1.13.4.9 Outriggers, stabilizers, and extensible axles.
 - 4.1.13.4.10 Guardrail systems and gate latches.
 - 4.1.13.4.11 AWP controls shall be tested prior to each use to determine whether they are in safe working condition. The ground controls shall be checked first for those units with ground controls.

4.1.14 Maintenance shall be conducted as follows:

- 4.1.14.1 A preventive maintenance program shall be established to ensure that manufacturer maintenance requirements are met.
- 4.1.14.2 Qualified maintenance personnel shall perform repairs and frequent/annual inspections as detailed in Section 4.1.13.
- 4.1.14.3 Any problems or malfunctions that affect the safety of operations shall be repaired and functionally tested before use.
- 4.1.14.4 Properly support booms, extended scissor sections, etc., during maintenance operations on the hydraulic systems.
- 4.1.14.5 All repairs should be documented.

4.1.15 The following rules shall be observed when refueling or recharging AWP:

- 4.1.15.1 The equipment must be lowered to grade, parked, and shut down prior to refueling or battery charging.
- 4.1.15.2 Refueling and recharging of AWP shall be conducted in areas with good ventilation and away from any ignition sources such as sparks, open flames, electrical arcs, etc.
- 4.1.15.3 Fire protection devices, such as fire extinguishers, shall be readily available in any refueling or recharging areas.
- 4.1.15.4 Smoking is not permitted at any refueling or recharging area.
- 4.1.15.5 Wear appropriate PPE while fueling or maintaining batteries.
- 4.1.15.6 Observe the following rules when refueling AWP:
 - 4.1.15.6.1 Refueling of gas and diesel engine AWP shall be conducted outdoors due to the possibility of spills and vapor accumulation.
 - 4.1.15.6.2 Connect the bonding wire if required; otherwise, ensure the pump nozzle makes contact the tank while filling. This will minimize the potential for static electricity that could cause a fire or explosion.
 - 4.1.15.6.3 Avoid spillage. Spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- 4.1.15.7 Observe the following rules when changing batteries or recharging AWP:
 - 4.1.15.7.1 Trained personnel shall conduct battery charging and battery replacement. Always consult and follow the manufacturer's instructions for battery replacement or recharging.
 - 4.1.15.7.2 Battery charging operations shall be conducted in adequately ventilated areas designated for that purpose.
 - 4.1.15.7.3 Smoking is prohibited in battery charging areas. "No Smoking" signs shall be posted in plain view of incoming personnel.
 - 4.1.15.7.4 Emergency eye/face and skin flushing and drenching facilities shall be provided.
 - 4.1.15.7.5 Ensure vent caps are functioning properly. The battery compartment shall be open to dissipate heat.
 - 4.1.15.7.6 Facilities shall be provided for flushing and neutralizing spilled electrolyte.
 - 4.1.15.7.7 A carboy tilter or siphon shall be provided for handling electrolyte. PPE should include face shield, apron and gloves when a potential for electrolyte exposure exists.
 - 4.1.15.7.8 When charging batteries, acid shall always be poured into water. **Never pour water into acid.**
 - 4.1.15.7.9 An adequate lifting device, such as an overhead hoist or conveyor shall be available for changing batteries.
 - 4.1.15.7.10 Tools and other metallic objects shall be kept away from the top of uncovered batteries.
 - 4.1.15.7.11 Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging areas.

4.2 RESPONSIBILITIES**4.2.1 Operating Contractor Department Directors shall:**

- 4.2.1.1 Classify hazardous locations and ensure appropriate building signs are posted before an AWP is assigned to work in the area.
- 4.2.1.2 Designate an area for charging batteries if electric-powered AWP are used.
- 4.2.1.3 Designate appropriate OJE evaluators.

4.2.2 Operating Contractor Supervisors/Managers shall:

- 4.2.2.1 Ensure that a properly classified AWP has been assigned to hazardous areas.
- 4.2.2.2 Ensure that each AWP has been assigned a Vehicle Control Officer.

- 4.2.2.3 Coordinate with and acquire concurrence from the safety office before using AWP in a hazardous area.
- 4.2.2.4 Ensure that AWP operators are trained and certified.
- 4.2.2.5 Direct qualified electricians to work on energized electrical lines from an approved AWP in accordance with AEDC Safety Standards B4 and B6.
- 4.2.2.6 Approve elevated AWP access and egress.
- 4.2.2.7 Monitor the work to assure AWP operations are being conducted in accordance with this standard.

4.2.3 Operating Contractor Vehicle Control Officers shall:

- 4.2.3.1 Act as “owner” of the assigned AWP.
- 4.2.3.2 Maintain current inventory of both mobile and manual AWP, AEDC-owned or -rented, under their control.
- 4.2.3.3 Ensure that pre-use inspection instructions are readily available to operators.
- 4.2.3.4 Ensure that the AWP manufacturer’s approval is obtained before the AWP is modified or used outside its intended purpose.
- 4.2.3.5 Ensure that data/capacity plate caution/instruction markings, and decals are in place and legible.
- 4.2.3.6 Ensure that a planned maintenance and inspection program is implemented for each AWP.
- 4.2.3.7 Ensure that, if the AWP is obtained on a rental agreement, it is inspected and found suitable for its intended use before putting it in service.
- 4.2.3.8 Ensure Manufacturers Operating Manual is available in the weatherproof compartment of each AWP.

4.2.4 Operating Contractor Vehicle Maintenance shall:

- 4.2.4.1 Maintain a current basewide inventory of AEDC-owned or -operated AWP both motorized and manual.
- 4.2.4.2 Maintain a preventive maintenance program that includes frequent inspections, annual inspections, and routine maintenance.
- 4.2.4.3 Maintain and repair defective AWP.
- 4.2.4.4 Ensure mechanics are qualified to perform maintenance and inspection per manufacturer’s requirements.

4.2.5 All Operators shall:

- 4.2.5.1 Operate the AWP in accordance with this standard.
- 4.2.5.2 Be knowledgeable of the AWP pre-use inspection criteria and perform inspections accordingly.
- 4.2.5.3 Notify the responsible supervisor when a problem is detected during either AWP inspection or operation.
- 4.2.5.4 Ensure the AWP is taken out of service if a problem is detected that would compromise safe operation.
- 4.2.5.5 Read the manufacturer’s operating manual and understand all aspects of safe operation.
- 4.2.5.6 Avoid traveling on major traffic roadways (e.g., Von Karman Road) during peak traffic flow periods (Morning: 0630-0745L, Afternoon: 1100-1245L, and Evening: 1530-1630L).

NOTE: It is recommended that AWP be followed by a slow-moving vehicle escort with emergency flasher operating while operating on main roadways and during periods of low visibility.

4.2.6 Operating Contractor Safety shall:

- 4.2.6.1 Approve the use of all AWP assigned to operate in hazardous areas.
- 4.2.6.2 Assist operating contractor management at user facilities with safety issues regarding AWP selection, modification, inspection and use.
- 4.2.6.3 Where internal combustion-powered AWP are proposed for use indoors, assist management at user facilities in establishing precautions to preclude the buildup of carbon monoxide in the work atmosphere.
- 4.2.6.4 Provide safety and health-related information to operating contractor managers and supervisors to assist them in selecting or procuring the AWP for the planned work activity.

5.0 Training and Qualifications

- 5.1 Any person operating an aerial work platform on AEDC shall be certified by the employer and have documentation of training and a practical evaluation specific to the equipment being operated. The evaluation shall have been conducted within the past 3 years.
- 5.2 Refresher training in relevant topics shall be provided to the operator when:
 - 5.2.1 The operator has been observed to operate the vehicle in an unsafe manner.
 - 5.2.2 The operator has been involved in an accident or near-miss incident.
 - 5.2.3 The operator has received an evaluation that reveals that the operator is not operating the AWP safely.
 - 5.2.4 The operator is assigned to drive a different type of AWP.
 - 5.2.5 A condition in the workplace changes in a manner that could affect safe operation of the AWP.

6.0 REFERENCES

AEDC Safety Standards

- B4 High-Voltage Electrical Work
- B6 Low-Voltage Electrical Safety

Air Force Instruction

- AFI 91-203, Air Force Consolidated Occupational Safety Instructions

American National Standards Institute (ANSI)

- ANSI B30.5-2007 Mobile and Locomotive Cranes
- ANSI A92.5-2006 Responsibilities of Owners

National Fire Protection Association (NFPA)

- NFPA 505 Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations
- NFPA 70E Standard for Electrical Safety in the Workplace

Code of Federal Regulations (CFR)

- 29 CFR 1910.67 Vehicle Mounted Elevating and Rotating Work Platforms
- 29 CFR 1926.269 Equipment Grounding
- 29 CFR 1926.451 General Requirements (Scaffolds)
- 29 CFR 1926.452 Additional Requirements Applicable to Specific Types of Scaffolding (Mobile)
- 29 CFR 1926.453 Aerial Lifts
- 29 CFR 1926.502 Fall Protection Systems Criteria and Practices
- 29 CFR 1926.952 Mechanical Equipment
- 29 CFR 1926.955, Overhead Lines

7.0 SUPPLEMENT

- NFAC A321-0801-XSP D6 Aerial Work Platforms

A321-0801-XSP D6 Aerial Work Platforms Policy

This supplement has been approved for the NFAC Site.

Review: This supplement will be reviewed and updated using the same cycle as the AEDC Standard D6 Aerial Work Platforms.

References: AEDC Safety Standard D6 – Aerial Work Platforms

NASA Ames Procedural Requirements APR 1700.1 Chapter 17 “Lifting Devices and Equipment” Subpart 17.12 “Mobile Aerial Platforms”

Scope:

This supplement outlines minimum requirements for the safe use, inspection, and operation of aerial work platforms (AWPs) at NFAC. This policy does not cover scaffolds.

This supplement applies to all personnel conducting operations, maintenance, testing, and support at NFAC, NASA Ames.

NFAC Worksite Application:

NFAC will follow the local NASA Ames Procedural Requirements APR 1700.1 Chapter 17 “Lifting Devices and Equipment” Subpart 17.12 “Mobile Aerial Platforms.” This section applies to those platforms covered by ANSI/ SIA A92.2 (Vehicle Mounted Elevating and Rotating Aerial Devices), A92.3 (Manually Propelled Elevating Aerial Platforms), A92.5 (Boom Supported Elevating Work Platforms) and A92.6 (Self-Propelled Elevating Work Platforms).

Vendors are not allowed to use NFAC aerial lifts, they must provide their own equipment and show proof of training on aerial lifts and fall protection before work begins at NFAC.

On site NASA Ames groups cannot use NFAC AWPs without the permission of the onsite Air Force Director.

- I. NFAC Site Management shall:
 - Ensure this supplement is followed.
- II. NFAC Supervisor and Test Directors shall
 1. Ensure this supplement is followed.
 2. Ensure customer and staff follow this supplement.
 3. Supervisors shall ensure all AWPs are safe to operate and that any unsafe AWPs are removed from service immediately.
 4. Ensure customers are not allowed to move any AWPs. Customers are only allowed to operate scissor lift(s) to go up and down once they have gone through NFAC training on Fall Protection and scissor lift orientation. Any operation of a boom-supported elevating work platform type man lift can only be performed by NFAC trained personnel with the customer or vendor as a passenger.
- III. NFAC Safety Engineer/Management Designee shall
 1. Maintain the inspection records of all AWPs.
 2. Train staff on Fall Protection.
 3. Provide customers with orientation on fall protection requirements.
- IV. NFAC Staff shall
 1. Ensure that this policy is followed.
 2. Utilize the correct fall protection equipment for the aerial lift being used.
 3. Perform the required equipment inspection once per shift. Immediately take any defective unit out of service and notify supervision/Test Director.
 4. Maintain training (every two years) and medical clearance (annual).