

Elevating Work Platforms

MSC-RD-10972

Revision 1

Effective Date: February 3, 2011

Topic: Worker Protection

**Approved for Public Release;
Further Dissemination Unlimited**

Elevating Work Platforms

1.0 PURPOSE AND SCOPE

This Level 2 Requirements Document establishes the minimum requirements for inspection, operation and maintenance of elevating work platforms.

The elevating work platforms within the scope of this procedure include both Site-owned equipment and units leased or rented from an off-site vendor.

These requirements are applicable to Hanford Mission Support Contract (MSC) team employees involved in MSC scope of work subject to the occupational safety and health requirements found in 29 CFR 1926.453 (*Aerial Lifts*) and 29 CFR 1910.67 (*Vehicle-Mounted Elevating and Rotating Work Platforms*), ANSI/SIA Standards A92.2, A92.3, A92.5, and A92.6 (*Vehicle-Mounted Elevating and Rotating Aerial Devices*, *Manually Propelled Elevating Aerial Platforms*, *Boom-Supported Elevating Work Platforms*, *Self-Propelled Elevating Work Platforms*, respectively), and applicable equipment manufacturer specifications. The requirements herein exclude the following:

- Personnel hoists and manlifts (reference 29 CFR 1926.552 and 29 CFR 1910.68, respectively).
- Powered platforms attached to the exterior/interior of a building.
- Material hoists.
- Crane suspended or forklift supported work platforms.
- Fire fighting apparatus.

2.0 REQUIREMENTS

2.1 General-Equipment Owner

NOTE 1: *The "Equipment Owner" referenced in this section is the person or entity who has possession of the equipment by virtue of proof of purchase or rental agreement with a vendor.*

NOTE 2: *For the tables in this section under the requirement "type" column, "V" means verbatim and "I" means interpreted.*

#	REQUIREMENT	TYPE V or I	SOURCE
1.	Where the Equipment Owner is tasked to inspect, maintain, repair, and modify the equipment, the Owner or Owner's employees shall be trained and qualified in accordance with manufacturer specifications.	I	ANSI/SIA A92.2, Sections 8.1/8.2; ANSI/SIA A92.3, Section 6.8; ANSI/SIA A92.5, Section 6.9; ANSI/SIA A92.6, Section 6.9

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2.	Equipment inspection and testing intervals shall be established, based on manufacturer recommendations, and severity of exposure and use.	I	ANSI/SIA A92.2, Section 8.2.4; ANSI/SIA A92.3, Section 6.3; ANSI/SIA A92.5, Section 6.4; ANSI/SIA A92.6, Section 6.3
3.	Equipment inspections and tests shall be completed, and include all items/components specified by the manufacturer.	I	ANSI/SIA A92.2, Sections 8.2.3/8.2.4; ANSI/SIA A92.3, Section 6.3; ANSI/SIA A92.5, Section 6.4; ANSI/SIA A92.6, Section 6.3
4.	Results of periodic equipment inspections and tests, and maintenance, repair, and modification activity shall be documented, with written records maintained as a part of equipment history. NOTE: <i>Excluded are daily or preuse inspections.</i>	I	ANSI/SIA A92.2, Section 8.3; ANSI/SIA A92.3, Section 7.14; ANSI/SIA A92.5, Section 6.2; ANSI/SIA A92.6, Section 6.2
5.	A copy of the operating manual shall be provided and kept on each piece of equipment.	I	ANSI/SIA A92.2, Section 8.11; ANSI/SIA A92.3, Section 8.2.1; ANSI/SIA A92.5, Section 6.9; ANSI/SIA A92.6, Section 6.9
6.	Equipment identified with any deficiency that constitutes a safety hazard shall be taken out of service and not returned for use until the proper maintenance is completed.	I	ANSI/SIA A92.2, Sections 8.2.3/8.2.4; ANSI/SIA A92.3, Section 6.3; ANSI/SIA A92.5, Section 6.4; ANSI/SIA A92.6, Section 6.3

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7.	<p>Modifications that could impact the stability or safety of the equipment shall be approved in writing by the manufacturer.</p> <p>NOTE 1: <i>A qualified person may approve of such modifications when the equipment is not represented by a manufacturer (e.g., the manufacturer has discontinued its business). A <u>qualified person</u> is one who, by possession of an appropriate technical degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to elevating work platform safety.</i></p> <p>NOTE 2: <i>Only the Equipment Owner can request approval for a modification from the manufacturer.</i></p>	I	<p>ANSI/SIA A92.2, Section 8.5; ANSI/SIA A92.3, Section 6.13; ANSI/SIA A92.5, Section 6.14; ANSI/SIA A92.6, Section 6.14</p>
8.	<p>Operational and maintenance safety bulletin information (e.g., consumer product safety alerts, recalls) received from an equipment manufacturer or supplier shall be disseminated to the Equipment User organization and/or incorporated into the preventive maintenance program, as applicable.</p>	I	<p>ANSI/SIA A92.2, Section 8.10; ANSI/SIA A92.3, Section 6.14; ANSI/SIA A92.5, Section 6.15; ANSI/SIA A92.6, Section 6.15</p>
9.	<p>Prior to releasing equipment to the Equipment User organization, it shall be inspected, adjusted, and serviced as applicable based on manufacturer specifications.</p>	I	<p>ANSI/SIA A92.2, Section 8.2.1; ANSI/SIA A92.3, Section 6.2; ANSI/SIA A92.5, Section 6.3; ANSI/SIA A92.6, Section 6.2</p>

2.2 General-Equipment User

1.	<p>Employees assigned to operate an elevating work platform shall be trained to safely operate the type or class of equipment assigned [e.g., technical instruction, on-the-job training (OJT), and on-the-job evaluation (OJE)].</p> <p>NOTE: <i>Technical instruction is attendance to course #042720 or equivalent, for Class 1-4 aerial lifts or course #043830, or equivalent, for Class 5-6 (vehicle-mounted) aerial lifts.</i></p>	I	<p>10 CFR 830.122 (b)(1); ANSI/SIA A92.2, Section 8.13.1; ANSI/SIA A92.3, Section 7.6; ANSI/SIA A92.5, Section 7.6; ANSI/SIA A92.6, Section 7.6</p>
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2.	<p>The proficiency of a qualified elevating work platform operator shall be assessed and documented through an on-the-job evaluation (OJE) by a qualified evaluator at least every 60 months to ensure that the operator retains and uses the knowledge and skills needed to operate the equipment safely.</p> <p>NOTE: <i>Evaluator qualifications and the forms required to document the on-the-job evaluation are outlined in the Aerial Lift Training Program Description at http://www7.rl.gov/rapidweb/TRAINING/index.cfm?PageNum=128</i></p>	I	<p>10 CFR 830.122 (b)(1); ANSI/SIA A92.2, Section 8.13.1; ANSI/SIA A92.3, Section 7.6; ANSI/SIA A92.5, Section 7.6; ANSI/SIA A92.6, Section 7.6</p>
3.	<p>The need for refresher training (e.g., full retraining, supplemental instruction, demonstration, operational exercise) of a qualified elevating work platform operator shall be determined when one of the following occurs:</p> <ul style="list-style-type: none"> • Refresher training is requested by the operator; • Operator performance is observed to be diminishing (e.g., failed performance evaluation); • A near miss or accident occurs in which operator error is determined to be a contributing cause; or, • New or modified equipment is introduced into the workplace. 	I	<p>10 CFR 830.122 (b)(2)</p>
4.	<p>A copy of the operating manual shall be maintained with the equipment.</p>	I	<p>ANSI/SIA A92.2, Section 8.11; ANSI/SIA A92.3, Section 7.2; ANSI/SIA A92.5, Section 7.2; ANSI/SIA A92.6, Section 7.2</p>
5.	<p>The equipment shall be used only for intended applications as defined in the manufacturer's operating manual.</p>	I	<p>ANSI/SIA A92.2, Section 8.13.2; ANSI/SIA A92.3, Section 7.7; ANSI/SIA A92.5, Section 7.7; ANSI/SIA A92.6, Section 7.7</p>

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6.	<p>Equipment received for use shall be released for work only after the user organization initially verifies that there are no mechanical or electrical defects, or other safety deficiencies. [If equipment includes on-board receptacles to provide power for portable electrical tools and equipment, the wiring of all such receptacles shall be checked for proper configuration and grounding as part of the electrical inspection. Ground Fault Circuit Interrupters (GFCI), if provided, shall be tested for proper operation].</p> <p>NOTE: <i>Completion of a daily visual inspection and test operation can be used to help satisfy most elements of this receipt inspection.</i></p>	I	ANSI/SIA A92.2, Section 8.2.1; ANSI/SIA A92.3, Section 7.3; ANSI/SIA A92.5, Section 7.3; ANSI/SIA A92.6, Section 7.3
7.	<p>Equipment not in proper operating condition or identified with a deficiency that presents a safety hazard shall be removed from service until qualified repair/maintenance is completed.</p>	I	ANSI/SIA A92.2, Section 10.6; ANSI/SIA A92.3, Section 7.3; ANSI/SIA A92.5, Section 7.3; ANSI/SIA A92.6, Section 7.3
8.	<p>Warnings such as (but not limited to), flags, roped-off areas, flashing lights, or barricades shall be used when other moving equipment or vehicles are present in the vicinity of elevating work platform operations.</p>	I	ANSI/SIA A92.2, Section 10.7; ANSI/SIA A92.3, Section 7.11.2; ANSI/SIA A92.5, Section 7.11.2; ANSI/SIA A92.6, Section 7.11.2
9.	<p>Where there is a risk to co-located workers of being struck by operating elevating work platforms, controls shall be implemented to protect those workers.</p>	I	ANSI/SIA A92.2, Section 10.7; ANSI/SIA A92.3, Section 7.11.7; ANSI/SIA A92.5, Section 7.11.7; ANSI/SIA A92.6, Section 7.11.7

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10.	<p>A pre-job hazard survey of the worksite shall be completed to identify and control potential ground level and overhead hazards that may affect elevating work platform safe operation.</p> <p>NOTE: <i>Such hazards may include drop-offs/holes at operating levels, inadequate operating surface support (e.g., untamped earth fill or unstable soil condition), ground level or overhead obstructions, weather conditions, falling objects, moving/mobile equipment, and other work activities in the area.</i></p>	I	ANSI/SIA A92.2, Section 10.7; ANSI/SIA A92.3, Section 7.8; ANSI/SIA A92.5, Section 7.8; ANSI/SIA A92.6, Section 7.8
11.	<p>Work positioning and handling of tools/equipment in proximity to energized overhead electrical lines shall be controlled to prevent the possibility of contact with energized overhead electrical lines while working on an elevating work platform.</p>	I	29 CFR 1910.333, (c)(3)(iii); ANSI/SIA A92.2, Sections 8.13.3/10.7; ANSI/SIA A92.3, Section 7.8/7.9; ANSI/SIA A92.5, Section 7.8/7.9; ANSI/SIA A92.6, Section 7.8/7.9
12.	<p>If operating elevating work platforms near overhead electrical lines the requirements of procedure MSC-RD-28954 (Equipment Operation Near Overhead Electrical Lines) shall be followed.</p> <p>NOTE: <i>This requirement does not apply to the Electrical Utilities organization.</i></p>	I	29 CFR 1910.333, (c)(3)(iii); ANSI/SIA A92.2, Sections 8.13.3/10.7; ANSI/SIA A92.3, Section 7.8/7.9; ANSI/SIA A92.5, Section 7.8/7.9; ANSI/SIA A92.6, Section 7.8/7.9
13.	<p>Equipment shall be set-up and operated in accordance with the safe work practices prescribed by the manufacturer and the job hazard analysis.</p> <p>NOTE: <i>Deviation from a manufacturer's recommended Minimum Safe Approach Distance to crane or hoist energized electrical bus bars (exposed or insulated) is permissible only when equivalent safety measures are established in accordance with MSC-RD-11827(Electrical Safety Program Requirements) and the safety hazards and control measures are documented in a job hazard analysis.</i></p>	I	ANSI/SIA A92.2, Section 8.13.2; ANSI/SIA A92.3, Section 8.1; ANSI/SIA A92.5, Section 8.1; ANSI/SIA A92.6, Section 8.1

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14.	Where the Equipment User organization is responsible for periodic equipment inspection and maintenance, such functions shall be performed and documented by a qualified person at prescribed intervals in accordance with manufacturer instructions.	I	ANSI/SIA A92.2, Section 8.3 & 8.4; ANSI/SIA A92.3, Section 7.3; ANSI/SIA A92.5, Section 7.3; ANSI/SIA A92.6, Section 7.3
15.	Equipment in use shall be visually inspected and test-operated daily in accordance with manufacturer instructions. <i>NOTE: Results of daily inspection and test-operation may be documented, but such documentation is not required as record information for the equipment.</i>	I	ANSI/SIA A92.2, Section 8.2.3; ANSI/SIA A92.3, Section 7.3.3; ANSI/SIA A92.5, Section 7.3.3; ANSI/SIA A92.6, Section 7.3.3
16.	Approved safe access shall be provided and used for ascending and descending the equipment's work platform.	I	ANSI/SIA A92.2, Section 8.13.2; ANSI/SIA A92.3, Section 8.6; ANSI/SIA A92.5, Section 8.6; ANSI/SIA A92.6, Section 8.6
17.	Equipment safety devices, controls, and interlocks shall not be modified, altered, overridden, or otherwise disabled.	I	ANSI/SIA A92.2, Section 8.13.4; ANSI/SIA A92.3, Section 7.11.4; ANSI/SIA A92.5, Section 7.11.4; ANSI/SIA A92.6, Section 7.11.4
18.	Platform loads on equipment shall be applied and weights distributed within the manufacturer's capacity rating limits.	I	ANSI/SIA A92.2, Section 10.5; ANSI/SIA A92.3, Section 7.11.6; ANSI/SIA A92.5, Section 7.11.6; ANSI/SIA A92.6, Section 7.11.6

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19.	Railings, planks, ladders, or other devices shall not be used within or on the elevating work platform to achieve additional working height or reach unless a hazard analysis has determined that no other means is feasible, the stability of the structure has not been compromised, and adequate fall protection is in place.	I	ANSI/SIA A92.2, Section 10.3; ANSI/SIA A92.3, Section 7.11.1; ANSI/SIA A92.5, Section 7.11.1; ANSI/SIA A92.6, Section 7.11.1
20.	<p>Exiting or entering the platform while the equipment is in an elevated position shall be performed <u>only</u> after the following conditions have been met:</p> <ul style="list-style-type: none"> • It is determined that workplace conditions do not make it possible to accomplish the access using less hazardous means, and conventional means are either more hazardous or not available. • Specific safe work controls are identified, understood, and implemented through the job hazard analysis process. • Exit and/or entry is planned through the gate, unless a hazard analysis reveals that this method will result in a greater hazard to the worker and a safer alternative has been determined. • The platform is positioned as close as possible to the adjacent secured structure; avoid creating a fall exposure opening greater than 12 inches in dimension. • Fall protection controls are implemented during the entry/exit phase per the requirements of MSC-RD-8801, <i>Fall Protection</i>. 	I	29 CFR 1926.502 (a)(2)

2.3 Additional Requirements for Manually Propelled, Self-Propelled, and Boom-Supported Elevating Aerial Platforms

1.	Frequent inspections shall be performed by either the Equipment Owner or Equipment User organization on equipment that has been in service for three months or 150 hours (whichever occurs first), or has been out of service for a period longer than three months.	I	ANSI/SIA A92.2, Section 6.8; ANSI/SIA A92.3, Section 6.4; ANSI/SIA A92.5, Section 6.5; ANSI/SIA A92.6, Section 6.5
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2.	Annual inspections shall be performed by either the Equipment Owner or Equipment User organization on equipment no later than 13 months from the date of the prior annual inspection.	I	ANSI/SIA A92.2, Section 6.8; ANSI/SIA A92.3, Section 6.5; ANSI/SIA A92.5, Section 6.6; ANSI/SIA A92.6, Section 6.6
3.	Equipment selected for use in a hazardous environment (potentially explosive or flammable atmosphere) shall be approved for use in such locations.	I	ANSI/SIA A92.2, Section 6.8; ANSI/SIA A92.3, Section 7.10; ANSI/SIA A92.5, Section 7.10; ANSI/SIA A92.6, Section 7.10
4.	Equipment outriggers or stabilizers shall be employed during use, when provided and required by the equipment manufacturer.	I	ANSI/SIA A92.2, Section 6.8; ANSI/SIA A92.3, Section 7.9; ANSI/SIA A92.5, Section 7.9; ANSI/SIA A92.6, Section 7.9
5.	<p>During use of manually propelled and self-propelled platforms, guardrails shall be installed and access gates or openings closed, or alternative means of fall protection established and utilized.</p> <p>NOTE: <i>Some self-propelled platform models are designed with lanyard anchorage points as standard equipment. In such cases, use personal fall protection in accordance with manufacturer instructions (fall arrest or fall restraint, as prescribed).</i></p>	I	ANSI/SIA A92.3, Section 8.8; ANSI/SIA A92.6, Section 8.8
6.	<p>During use of boom-supported elevating platforms, personal fall protection shall be worn, with proper attachment of a lanyard to an approved anchorage point on the equipment at the platform position.</p> <p>NOTE: <i>Fall restraint is the preferred method of protection. Refer to manufacturer instructions to determine if designed anchorage specifications will support a force imposed by a fall arrest event.</i></p>	I	ANSI/SIA A92.5, Section 8.8

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2.4 Additional Requirements for Vehicle-Mounted Elevating and Rotating Aerial Devices

NOTE: *Such aerial lifts include extensible boom and articulating boom platforms.*

1.	The aerial device selected for performing work on or near energized conductors or equipment shall be designed and tested to provide the level of protection needed for the voltages to be encountered.	I	29 CFR 1926.453, 29 CFR 1910.67, Sections (c)(3)
2.	The equipment model of approved design shall be selected when planning aerial work under mobile operation.	I	29 CFR 1926.453, 29 CFR 1910.67, Sections (c)(2)(viii)
3.	The need to employ equipment outriggers for vehicle stabilization during use shall be determined. Firm footing/foundation for equipment use is established, with outrigger pads utilized when necessary.	I	29 CFR 1926.453, 29 CFR 1910.67, Sections (c)(2)(vii)
4.	The vehicle parking brake shall be engaged when the boom section is elevated, except during mobile operation.	I	29 CFR 1926.453, 29 CFR 1910.67, Sections (c)(2)(vii)
5.	<p>Personal fall protection shall be worn during use, with proper attachment of a lanyard to an approved anchorage point on the equipment at the platform position.</p> <p>NOTE 1: <i>Fall restraint is the preferred method of protection. Refer to manufacturer instructions to determine if designed anchorage specifications will support a force imposed by a fall arrest event.</i></p> <p>NOTE 2: <i>The typical aerial lift is designed so that personnel tie off to the bucket while they are in the bucket. Tying off to a lift bucket while working on an adjacent structure (e.g., a roof) constitutes usage "other than intended by the manufacturer" - which requires certification in writing by the manufacturer.</i></p>	I	29 CFR 1926.453, 29 CFR 1910.67, Sections (c)(2)(v)

3.0 REFERENCES

3.1 Source References

Title 10, Code of Federal Regulations, Part 830 (10 CFR 830), Nuclear Safety Management

29 CFR 1910.67, *Vehicle-Mounted Elevating and Rotating Work Platforms*

29 CFR 1910.68, *Manlifts*

29 CFR 1910.333, (Electrical) *Safety-Related Work Practices, Selection and Use of Work Practices*

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29 CFR 1926.453, *Aerial Lifts*
 29 CFR 1926.502, *Fall Protection Systems Criteria and Practices*
 29 CFR 1926.552, *Material Hoists, Personnel Hoists, and Elevators*

ANSI/SIA A92.2-1990, *Vehicle-Mounted Elevating and Rotating Aerial Devices*
 ANSI/SIA A92.3-1990, *Manually Propelled Elevating Aerial Platforms*
 ANSI/SIA A92.5-1992, *Boom-Supported Elevating Work Platforms*
 ANSI/SIA A92.6-1990, *Self-Propelled Elevating Work Platforms*

3.2 Working References

[MSC-RD-8801](#), *Fall Protection*
[MSC-RD-11827](#), *Hanford Electrical Safety Program Requirements*
[MSC-RD-28954](#), *Equipment Operation Near Overhead Electrical Lines*

4.0 RECORDS

All records are generated, received, processed, and maintained by MSC in accordance with [MSC-PRO-10588](#), *Records Management Processes*.

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
OJE form A-6001-995, "Instructional Evaluation – OJT/OJE"	Qualified Evaluator	Using Organization
Periodic equipment inspections/tests, maintenance, repair, and modification activity documentation (with written records) Completed inspection checklists	Inspector/Maintenance	Equipment Owner (maintained as a part of equipment history file)