

# **Portable and Fixed Ladders**

**MSC-RD-24243**

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**Topic: Safety and Health**

Approved for Public Release;  
Further Dissemination Unlimited

## Portable and Fixed Ladders

### CHANGE SUMMARY

#### Rev. 4

##### **Description of Change:**

Added requirement to fixed ladder section 3.2.2, Fixed Ladder Use, for maintaining 3-points of contact while climbing fixed ladders. This requirement already exists in the portable ladder section.

#### Rev. 5

##### **Description of Change:**

Revised “purpose and scope” to align with document requirements. Separated requirements to fixed ladders into section 3.2.3, Fixed Ladder Inspection, adding additional exception verbiage for infrequently used fixed ladders. Amended verbiage in Appendix A section 4.1 regarding side clearances. Deleted “inspector name” requirement in Appendix A section 4.4 for fixed ladder inspection tags. Defined fixed dates for implementation of document requirements. Added additional applicable references.

#### Rev. 6

##### **Description of Change:**

Added suggested methods of maintaining stability when working from portable ladders to section 3.1.6.22. Revised section 3.2 Fixed ladders to encompass design and clearances criteria as specified in applicable regulations and standards. Revised section 3.2 Fixed Ladders to encompass fixed ladder use, inspection, and training requirements.

#### Rev. 7

##### **Description of Change:**

Added reference to 7-GN-184, MSA Crane & Rigging Services, *Periodic Condition Inspection of Fixed Ladders* to section 3.2.3.2.

#### Rev. 8

##### **Description of Change:**

Added note to section 3.2.3.2 regarding scheduling and coordination of fixed ladder inspections. Also included references in sections 3.2.2.12 and 3.2.3.2 to the fixed ladder inventory section of the Safety & Health Reference Information (SHRI) database.

#### Rev. 9

##### **Description of Change:**

Extended MSA fixed ladder inspection date from October 5, 2013 to November 15, 2013, to ensure proper integration of fixed ladder inspections into MSA work processes.

#### Rev. 10

##### **Description of Change:**

Added Table of Contents. Added verbiage to Purpose and Scope section excepting vehicle access ladders. Modified Fixed Ladder Use and Fixed Ladder Inspection sections to clarify MSA use of OHC fixed ladders. Added rung specifications for manhole fixed ladders.

#### Rev. 11

##### **Description of Change:**

Added applicable requirements for mobile ladder stands found in 29 CFR 1910.29 (a) and (f).

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### **Rev. 12**

#### **Description of Change:**

Revised section 3.1.6.15 to reflect the increased usage of platform or “pulpit” step ladders.

Revised section 3.1.6.22 to clarify the conditions, precautions, and suggested methods of working from portable ladders.

Revised Appendix A, section 4.4.1 to require that stickers attached to portable ladders shall have the expiration date of the inspection.

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## Portable and Fixed Ladders

### 1.0 PURPOSE AND SCOPE

This Level 2 Requirements Document establishes the minimum requirements for purchasing, selection for use, inspection, and field use of portable ladders, and the design, inspection, and use of fixed ladders and mobile ladder stands. Additional material regarding portable ladder, fixed ladder, and mobile ladder stand (“rolling” ladders/platform) inspections is included in [Appendix A](#) of this document. This document does not cover fall hazards when working from ladders, which are addressed in [DOE-0346, Hanford Site Fall Protection Program \(HSFPP\)](#).

A portable ladder may be either self-supporting or non self-supporting, and can readily be moved or carried, usually consisting of side rails joined at intervals by step, rungs, cleats, or rear braces. This document primarily addresses the most common types/styles used in our industry to include straight, step, extension, and single. For the selection, inspection, and use criteria for other, less common types of ladders (such as trestle, sectional, tripod, and special purpose (articulated or combination), consult with a manufacturer representative and/or product safety literature. A fixed ladder is a ladder that is permanently attached to a structure, building, or equipment.

The requirements in this document are based principally on 29 CFR 1910.25, 1910.26, 1910.27, 1910.29, and 29 CFR 1926 Subpart X, and are applicable to Mission Support Alliance, LLC (MSA) employees and MSA subcontractors as specified in their subcontract scope of work or approved safety plan. This document partially implements the ISMS Core Functions #1, Define Scope of Work, #2, Identify and Analyze the Hazards, #3, Develop and Implement Hazard and Environmental Controls; and Guiding Principles #5, Identification of Safety and Environmental Standards and Requirements, #6, Hazard Controls Tailored to Work Being Performed.

The requirements herein do not apply to Hanford Fire Department ground and truck ladders (reference National Fire Protection Agency (NFPA) Standards 1914 and 1932), stage platforms, step stools (with a top step less than or equal to 32” in height), and attached scaffold access ladders. At a minimum these items must still be inspected prior to use and in accordance with manufacturer’s recommendations. The requirements herein do not apply to permanently mounted ladders on vehicles. The requirements herein do not apply to fixed ladders on site tower structures (communication, meteorological, security, etc.) covered by other documented inspection processes, and do not apply to fixed ladders in leased facilities and/or GSA facilities.

### 2.0 IMPLEMENTATION

The requirements for the documentation of inspection dates on inspection tags for portable ladders requiring the expiration date of the inspection are due one year after publication of this procedure, all other requirements of this procedure are effective upon publication. (Appendix A section 4.4.1)

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### 3.0 REQUIREMENTS

#### 3.1 Portable Ladders

##### 3.1.1 Portable Ladder Purchase/Procurement

**NOTE:** 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.	Manufactured ladders purchased for use shall meet the applicable requirements of American National Standards Institute (ANSI) A14, and bear a label to validate such approval.	I	29 CFR 1926.1053(a)(1)(i); 29 CFR 1926.1053 (a)(1)(ii)
2.	Only ladders with a duty rating of Type IAA, Type IA, or Type I shall be purchased for use at Hanford.  <b>NOTE 1:</b> ANSI Type IA ladders are recommended; however, a minimum rating of ANSI Type I is required. Ladders rated less than ANSI Type I are not used.  <b>NOTE 2:</b> Special ANSI-rated ladders are necessary when access/use is required by personnel whose total weight (body weight, plus weight of tools/equipment being carried on the person) exceeds 300 pounds (113 kilograms). Type IA ladders are rated <b>up to</b> 300 pounds.	I	10 CFR 851.10(a)(1)
3.	Ladders shall have steps/rungs that are slip resistant, parallel, fixed to prevent turning, and uniformly spaced.	I	29 CFR 1926.1053(a)(2); 29 CFR 1910.26(a)(5)
4.	Ladders shall have components with smooth surfaces to prevent punctures and lacerations and to prevent snagging clothing.	I	29 CFR 1926.1053(a)(11)
5.	Have metal spreaders or locking devices on stepladders to hold the ladder in an open position during use.	I	29 CFR 1926.1053(a)(8)
6.	Ladders shall be equipped with non-slip bases (feet) to prevent accidental displacement (slipping).	I	29 CFR 1926.1053(b)(7)

##### 3.1.2 Portable Ladder Competent Person Inspection

**NOTE:** As used in this section, a Competent Person is one who by way of training, skill, and practical experience is capable of identifying existing and predictable hazards relating to

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portable ladders in the work environment and has authorization to take prompt corrective measures to eliminate such hazards.

1.	<p>Competent Persons (defined in 29CFR1926.32[f]) shall be designated and assigned to perform and complete portable ladder inspections as follows, applying the inspection criteria located in <a href="#">Appendix A</a>:</p> <ul style="list-style-type: none"> <li>• On an annual basis,</li> <li>• Before initial (first) use of a newly purchased ladder, and</li> <li>• After any occurrence which could affect safe usage.</li> </ul>	I	29 CFR 1926.1053(b)(15)
2.	<p>Portable ladders found to be defective, with an expired annual inspection, or otherwise in substandard condition shall be immediately removed from service for repair (tagged-out per MSC-PRO-23749, <i>Miscellaneous Facility Tags</i>, if needed), or destroyed.</p> <p><b>NOTE:</b> <i>Only the most recent inspection sticker/tape shall remain on the ladder.</i></p>	I	29 CFR 1926.1053(b)(16)

### 3.1.3 Portable Ladder Storage and Transportation

1.	<p>Ladders shall be transported and stored in a manner that provides for stability, prevents damage, and permits safe access.</p> <p><b>NOTE:</b> <i>Refer to manufacturer technical guidelines for recommended storage practices.</i></p>	I	29 CFR 1910.25(d)(1); 29 CFR 1910.26(c)(1); 29 CFR 1910.26 (c)(2)
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### 3.1.4 Portable Ladder Selection for Use

1.	<p>The scope of work assignment and duration of task(s) to be performed shall be considered when determining the appropriateness of selecting a ladder as a suitable surface from which to perform elevated work.</p> <p><b>NOTE 1:</b> <i>Work expected to require continuous ladder use on one step longer than 15 minutes or where work may involve pushing, pulling, sudden transfer of weight, dynamic body movement or leverage, operation of power tools that produce a high level of torque, or other motion that might generate a sideways force significant enough to destabilize the ladder, should consider use of scaffolding, elevated work platform, or aerial lift access as an alternative.</i></p> <p><b>NOTE 2:</b> <i>The use of a ladder limits access to the working zone to arm's length on either side of the ladder, and prevents use of</i></p>	I	10 CFR 851.10(a)(1)
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	<i>dynamic body motions; extended periods of continuous use may hasten the onset of lower body fatigue. Consider using a scaffold or elevating work platform to provide a more substantial working surface and reduce the risk of a fall accident.</i>		
2.	<p>A ladder of sufficient duty rating (e.g., safe working load capacity) shall be selected for the task(s) to be performed from one of the following three classifications:</p> <ul style="list-style-type: none"> <li>• Special Duty (Type IAA) = 375 lb. capacity,</li> <li>• Extra Heavy Duty (Type IA) = 300 lb. capacity,</li> <li>• Heavy Duty (Type I) = 250 lb. capacity</li> </ul> <p><b>NOTE:</b> <i>The duty rating, which is not to be exceeded, reflects the combined weight of the individual plus any tools/material to be handled. Ladders designed for work from either side or for two workers will have a duty rating for each side. Each side of a two sided step ladder is rated individually or has a maximum weight per side.</i></p>	I	<p>29 CFR 1926.1053(a)(1)(i); 29 CFR 1926.1053(a)(1)(ii); 29 CFR 1926.1053(b)(3)</p>
3.	<p>When a ladder is selected for use, it shall be of proper size (length), style (self-supporting or non self-supporting), and composition (with preference to fiberglass construction) to provide the safest application for the scope of work to be performed.</p> <p><b>NOTE:</b> <i>Instability on portable ladders increases/occurs when the user extends too far over the rails or extends the torso above the top step. To reduce or eliminate stability situations, the users should select a ladder that allows work to be accomplished from the mid-section of the ladder rather than the top. Standing on the top-most approved step for use should be avoided if this creates a stability hazard. Use the longest appropriate ladder for that task.</i></p>	I	<p>29 CFR 1926.1053(b)(13)</p>
4.	Unless designed for such application, ladders shall not be tied or fastened together to increase their length.	I	<p>29 CFR 1926.1053(a)(7)</p>

### 3.1.5 Portable Ladder Pre-Use Inspection

1.	A ladder User shall verify the safe condition of a ladder before use by ensuring that all bolts, rivets, and fasteners are tight; side rails and rungs are free of slippery substances and not bent or damaged; the ladder operates correctly and with stability; and the overall condition is satisfactory. This	I	<p>29 CFR 1926.1053(b)(15)</p>
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	inspection shall be done before use each time the ladder is set-up.		
2.	Ladders found to be defective, with an expired annual inspection, or otherwise in substandard condition shall be immediately removed from service for repair (tagged-out, if needed), or destroyed.	I	29 CFR 1926.1053(b)(16)

### 3.1.6 Portable Ladder Set-Up and Use

1.	<p>When working from a portable ladder where a fall hazard exists, refer to and follow the requirements of <a href="#">DOE-0346, Hanford Site Fall Protection Program (HSFPP)</a> before the task begins, including completion of a DOE-0346 required Fall Protection Work Permit (<a href="#">site form A-6004-286</a>).</p> <p><b>NOTE:</b> <i>This requirement does not apply when the work is determined by the responsible person to be emergency in nature and immediately necessary to ensure worker safety or to protect the environment, site systems, services, or structures or to situations where an OSHA-compliant ladder less than 24 feet in height is used solely for access purposes (ascending and/or descending).</i></p>	I	29 CFR 1926.1051(b)
2.	The supporting legs of ladders shall be positioned on firm, level, and slip resistant surfaces, with the area around the base and top (where applicable) landing maintained clear of tools, material, and debris.	I	29 CFR 1926.1053(b)(6); 29 CFR 1926.1053(b)(9)
3.	<p>Non self-supporting ladders shall be positioned to prevent accidental tipping or displacement during use, with lashing used to provide positive means of securing at the top, wherever feasible.</p> <p><b>NOTE 1:</b> <i>It is recommended that the ladder be secured at both the top (both rails) <u>and</u> the bottom. A ladder may be "held in place" to prevent slippage at the base only when such action will achieve the stabilization needed.</i></p> <p><b>NOTE 2:</b> <i>Non-slip bases are not a substitute for care in safely placing, lashing, or holding a ladder on oily, metal, concrete, or slippery surfaces.</i></p>	I	29 CFR 1926.1053(b)(1); 29 CFR 1926.1053 (b)(7)
4.	Non self-supporting ladders planned for use as an access to an upper landing surface shall be extended a minimum of 3 feet past the top support point, unless the ladder is lashed at the top and a stable grasping device (e.g., grab rail – to assist in mounting and dismounting) is provided.	I	29 CFR 1926.1053(b)(1)

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5.	The tops of non self-supporting ladders shall be placed so both rails are fully and equally supported on a solid surface.  <b>NOTE:</b> <i>The support area should be at least 12 inches wide on both sides.</i>	I	29 CFR 1926.1053(b)(10)
6.	The “4 to 1” rule shall be employed when setting up a non self-supporting ladder.  <b>NOTE:</b> <i>The rule means to place the ladder at an angle where the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder.</i>	I	29 CFR 1926.1053(b)(5)(i)
7.	Step ladders shall be positioned fully “open” when in use, with spreader devices (braces) firmly locked.	I	29 CFR 1926.1053(a)(8)
8.	Ladders shall be positioned so that employee “reach” into the work zone is minimized, to prevent inadvertent over-reaching or leaning.	I	10 CFR 851.22(b)
9.	The shifting, repositioning, or extending of ladders shall be accomplished only when the ladder is unoccupied.	I	29 CFR 1926.1053(b)(11)
10.	In setting up an extension ladder, ensure that the upper section overlaps the bottom section in accordance with manufacturer instructions, and with the locking clips (stops) securely in place.  <b>NOTE:</b> <i>Get help for a large or heavy ladder that is too awkward for one person to set-up and balance.</i>	I	29 CFR 1910.25(d)(2)(xiii); 29 CFR 1910.26(a)(2)(iii)
11.	A ladder set up in any location where it can be displaced (e.g., doorway, passageway) shall be secured to prevent accidental displacement, or other means provided to keep activities or traffic away from the area (e.g., barricade, signal person).	I	29 CFR 1926.1053(b)(8)
12.	Employees shall be physically and mentally able to use ladders or perform ladder tasks without undue risk to their own or to others’ safety.	I	10 CFR 851.10(a)(1)
13.	The ladder shall be used only after it has been determined by pre-use inspection to be in good condition, and current within its annual inspection schedule.	I	29 CFR 1926.1053(b)(15)
14.	Ladders shall be used in accordance with manufacturer-prescribed instructions, and used only for the purpose for which they are designed.	I	29 CFR 1926.1053(b)(4)

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15.	<p>When performing work from a ladder, employees <u>shall not</u> stand above the highest safe standing level. These levels are:</p> <ul style="list-style-type: none"> <li>• The second rung from the top of a stepladder,</li> <li>• The fourth rung from the top of a single or extension ladder.</li> </ul> <p><b>NOTE 1:</b> <i>Some portable stepladders are designed with a working platform at the top. These platform or pulpit ladders may be used while standing at any accessible level.</i></p> <p><b>NOTE 2:</b> <i>Stability can be maintained by centering one's body weight between the ladder's side rails, positioning both feet on the same step facing forward, and avoiding such motions as over-reaching, pushing, or pulling.</i></p>	I	<p>29 CFR 1926.1053(b)(3); 29 CFR 1926.1053 (b)(4); 29 CFR 1926.1053(b)(13)</p>
16.	<p>Metal ladders shall be used <u>only</u> in work locations where there is no potential exposure to energized electrical equipment or conductors.</p>	I	<p>29 CFR 1926.1053(b)(12)</p>
17.	<p>The ladder shall not be used during inclement weather, as defined in the current revision of MSC-PRO-28034, Adverse Weather, where such exposure may affect safe usage.</p>	I	<p>10 CFR 851.10(a)(1)</p>
18.	<p>Shoes and hands, as well as ladder steps/rungs shall be free of oil, grease, mud or other substance (which may present a slipping hazard), prior to use.</p>	I	<p>29 CFR 1926.1053(b)(2)</p>
19.	<p>Employees shall ascend and descend ladders only with the free use of both hands to properly grasp the ladder (maintain 3-point contact of hands and feet at all times).</p> <p><b>NOTE 1:</b> <i>For climbing, grasping the rungs of the ladder – not the side rails - is a recommended practice; rungs are easier to hold onto in case of foot slippage.</i></p> <p><b>NOTE 2:</b> <i>When climbing from the top of a ladder to a work surface, the User should carefully step sideways onto the surface with both hands firmly on the ladder rails until most of your weight is supported by the work surface. Reverse the process for descending.</i></p> <p><b>NOTE 3:</b> <i>Hand lines or tool belts shall be used when materials or tools are needed while working off of ladders; do not use hands for carrying items up/down a ladder.</i></p>	I	<p>29 CFR 1926.1053(b)(21); 29 CFR 1926.1053(b)(22)</p>
20.	<p>Employees shall face the ladder when climbing, and stay centered between the side rails when ascending or descending.</p>	I	<p>29 CFR 1926.1053(b)(20)</p>

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21.	<p>Slip-resistant footwear, preferably with a defined heel, shall be worn to maintain balance and stability during ladder use.</p> <p><b>NOTE:</b> <i>Avoid use of smooth soles, and presence of loose/dangling laces.</i></p>	I	10 CFR 851.10(a)(1)
22.	<p>Employees working from a ladder shall ensure:</p> <ul style="list-style-type: none"> <li>• The ladder shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer’s rated capacity.</li> <li>• The ladders shall be used only for the purpose for which they were designed.</li> <li>• The top or top step of stepladder shall not be used as a step except on ladders designed to allow such use such as a platform or pulpit ladder.</li> </ul> <p><b>NOTE:</b> <i>Do not use a portable ladder where work may involve pushing, pulling, sudden transfer of weight, dynamic body movement or leverage, operation of power tools that produce a high level of torque, or other motion that might generate a sideways force significant enough to destabilize the ladder. Some possible methods of maintaining stability that may be used include (but are not limited to):</i></p> <ul style="list-style-type: none"> <li>• <i>3-Points contact maintained during performance of task</i></li> <li>• <i>Ladder secured to a fixed object</i></li> <li>• <i>Co-worker hold ladder while user is on ladder</i></li> <li>• <i>Maintain belt within ladder rails – do not overreach or lean to the side of the ladder.</i></li> </ul> <p><i>If these methods are inadequate due to the forces involved then the use of scaffolding, elevated work platforms, or aerial lifts should be used in these situations in accordance with their applicable procedures.</i></p>	I	10 CFR 851.10(a)(1)
23.	<p>To maintain stability and prevent overload, only one person at a time is permitted to be positioned on ladder steps/rungs.</p> <p><b>EXCEPTION:</b> <i>Ladders designed for use by 2 people.</i></p>	I	29 CFR 1926.1053(b)(3); 29 CFR 1926.1053(b)(4)
24.	<p>Material loads that may impact safe weight bearing capacity shall not be suspended or otherwise rested upon a ladder.</p>	I	29 CFR 1926.1053(b)(3)

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### 3.1.7 Portable Ladder Accessories

1.	Ladder accessories (e.g., stabilizers, surface protectors, extensions, levelers) shall be installed in accordance with manufacturer instructions, and be compatible with the make and model of the ladder to which the accessory is to be attached and approved by the manufacture of the ladder.	I	10 CFR 851.10(a)(1)
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### 3.1.8 Portable Ladders - Repair/Disposition of Defective Ladders

1.	Field maintenance and repair of ladders shall be completed in accordance with manufacturer specifications.	I	29 CFR 1926.1053(b)(18)
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### 3.1.9 Portable Ladder Training

1.	Employees who use ladders in the course of their work assignments, or perform annual portable ladder inspections, shall complete initial training via the established MSA Computer-Based Training Course. <b>Portable Ladder Safety Training Course # 044391</b>	I	29 CFR 1926.1060(a)
2.	Employees who perform annual portable ladder inspections shall also complete the Competent Person Ladder Inspection-CBT. <b>Competent Person Ladder Inspection Course # 044392</b>	I	29 CFR 1926.1060(a)
3.	Employees who use ladders in the course of their work assignments shall be retrained if it is determined that their hazard recognition skill level relating to proper selection, use, care, or handling practices is diminishing.	I	29 CFR 1926.1060(b)

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### 3.2 Fixed Ladders

#### 3.2.1 Fixed Ladder Design

1.	<p>Loads:</p> <p>All ladders, appurtenances, and fastenings shall be designed to meet the following load requirements:</p> <ul style="list-style-type: none"> <li>• The minimum design live load shall be a single concentrated load of 200 pounds.</li> <li>• The number and position of additional concentrated live-load units of 200 pounds each, as determined from anticipated usage of the ladder, shall be considered in the design.</li> <li>• The live loads imposed by persons occupying the ladder shall be considered to be concentrated at such points as will cause the maximum stress in the structural member being considered.</li> <li>• The weight of the ladder and attached appurtenances together with the live load shall be considered in the design of rails and fastenings.</li> </ul>	V	29 CFR 1910.27(a)(1)(i-iv)
2.	<p>Metal ladders:</p> <ul style="list-style-type: none"> <li>• Metal ladders and appurtenances shall be painted or otherwise treated to resist corrosion and rusting when location demands, such as ladders located in pits and other areas under floors with an atmosphere that causes corrosion and rusting.</li> <li>• All rungs shall have a minimum diameter of three-fourths inch for metal ladders, except: <ul style="list-style-type: none"> <li>○ Ladders formed by individual metal rungs imbedded in concrete, which serve as access to pits and to other areas under floors, are frequently located in an atmosphere that causes corrosion and rusting. To increase rung life in such atmosphere, individual metal rungs shall have a minimum diameter of 1 inch or shall be painted or otherwise treated to resist corrosion and rusting.</li> </ul> </li> </ul>	I	29 CFR 1910.27(b)(1)(i); 29 CFR 1910.27(b)(7)(i)

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3.	<p>Wood ladders:</p> <ul style="list-style-type: none"> <li>All rungs shall have a minimum diameter of 1 1/8 inches for wood ladders.</li> <li>Wood ladders, when used under conditions where decay may occur, shall be treated with a nonirritating preservative, to prevent or minimize the accumulation of water on wood parts.</li> </ul>	I	<p>29 CFR 1910.27(b)(1)(i); 29 CFR 1910.27(b)(7)(ii)</p>
4.	<p>Fiberglass ladders:</p> <ul style="list-style-type: none"> <li>Materials such as fiberglass or plastic composites may be used for fixed ladders provided the design, fabrication, and erection are in accordance with recognized design practice and meet live loads requirements as specified, 3.2.1.1 and additional design requirements as found in Section 3.2.1.5 through Section 3.2.1.11 of this document.</li> </ul>		<p>ANSI A14.3-2008(4.3.4)</p>
5.	<p>Rungs, cleats, and steps:</p> <ul style="list-style-type: none"> <li>The distance between rungs, cleats, and steps shall not exceed 12 inches and shall be uniform throughout the length of the ladder.</li> <li>The minimum clear length of rungs or cleats shall be 16 inches.</li> </ul> <p><b>Exception:</b> <i>Manhole steps require a minimum rung width of 10 inches.</i></p> <ul style="list-style-type: none"> <li>The distance from the centerline of rungs, cleats, or steps to the nearest permanent object in back of the fixed ladder shall be not less than 7 inches, except that when unavoidable obstructions are encountered refer to the following minimum clearances: <ul style="list-style-type: none"> <li>1 and 1/2 inches minimum below centerline of rung to unavoidable obstruction behind ladder</li> <li>4 and 1/2 inches minimum above centerline of rung to unavoidable obstruction behind ladder.</li> </ul> </li> </ul> <p><b>Exception:</b> <i>Manhole steps shall have a minimum toe clearance of 4.5 inches at the center of the rung.</i></p>	I	<p>29 CFR 1910.27(b)(1)(i-v) 29 CFR 1910.27(c)(4); 29 CFR 1926.1053(a)(2); 29 CFR 1926.1053(a)(13); OSHA Letter of Interpretation to Charles Culver, 02/13/2004, "What OSHA will enforce as the minimum toe clearance when workers are using manhole rungs during construction work?"; ASTM C478-13</p>

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	<ul style="list-style-type: none"> <li>Rungs, cleats, and steps shall be free of splinters, sharp edges, burrs, or projections which may be a hazard.</li> <li>The rungs of an individual-rung ladder shall be so designed that the foot cannot slide off the end.</li> </ul>		
6.	<p>Side rails:</p> <ul style="list-style-type: none"> <li>Side rails which might be used as a climbing aid shall be of such cross sections as to afford adequate gripping surface without sharp edges, splinters, or burrs.</li> <li>For side rails that might be used as a climbing aid, a back clearance of not less than 2 and 1/2 inches, and a side clearance not less than 4 inches, from the ladder side rail to the nearest permanent object shall be maintained, excepting ladder anchorages, appurtenances, and unavoidable obstructions behind the ladder. <ul style="list-style-type: none"> <li>1 and 1/2 inches minimum clearance shall be maintained behind centerline of side rail to unavoidable obstruction behind ladder.</li> </ul> </li> <li>The side rails of through or side-step ladder extensions shall extend 3 1/2 feet above parapets and landings.</li> <li>For side-step or offset fixed ladder sections, at landings, the side rails and rungs shall be carried to the next regular rung beyond or above the 3 1/2 feet minimum.</li> <li>For through ladder extensions, the rungs shall be omitted from the extension and shall have not less than 18 or more than 24 inches clearance between rails.</li> <li>Side rails shall be designed considering the applicable load requirements as listed in Section 3.2.1.1.</li> </ul>	I	<p>29 CFR 1910.27(b)(2); 10 CFR 851.21(a)(4)</p>
7.	<p>Splices, fasteners, and welds:</p> <ul style="list-style-type: none"> <li>All splices made by whatever means and fasteners shall meet design requirements for live loads imposed by persons anticipated to be occupying the ladder, and those listed in Section 3.2.1.1.</li> </ul>	I	<p>29 CFR 1910.27(b)(3-6)</p>

## Portable and Fixed Ladders

	<ul style="list-style-type: none"> <li>All splices and connections shall have smooth transition with original members and with no sharp or extensive projections.</li> <li>Fastenings shall be an integral part of fixed ladder design.</li> <li>All welding shall, at a minimum, meet requirements in the "<i>Code for Welding in Building Construction</i>" (AWSD1.0-1966).</li> <li>Adequate means shall be employed to protect dissimilar metals from electrolytic action when such metals are joined.</li> </ul>		
8.	<p>Grab bars:</p> <ul style="list-style-type: none"> <li>Grab bars shall be spaced by a continuation of the rung spacing when they are located in the horizontal position.</li> <li>Vertical grab bars shall have the same spacing as the ladder side rails.</li> <li>Grab-bar diameters shall be the equivalent of the round-rung diameters.</li> <li>The distance from the centerline of the grab bar to the nearest permanent object in back of the grab bars shall be not less than 4 inches.</li> <li>Grab bars shall not protrude on the climbing side beyond the rungs of the ladder which they serve.</li> </ul>	I	<p>29 CFR 1910.27(c)(5); 29 CFR 1910.27(d)(4)</p>
9.	<p>Climbing space clearances:</p> <ul style="list-style-type: none"> <li>For ladders without cages or baskets, the perpendicular distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be 30 inches for a pitch of 90 degrees and 36 inches for a pitch of 76 degrees, with minimum clearances for intermediate pitches varying between these two limits in proportion to the slope of the ladder, with the following exception (typically applied to hatches): <ul style="list-style-type: none"> <li>There shall be no protruding potential hazards within 24 inches perpendicular to the centerline</li> </ul> </li> </ul>	I	<p>29 CFR 1910.27(c)(1); 29 CFR 1910.27(c)(7)</p>

## Portable and Fixed Ladders

	<p>of rungs or cleats; any such hazards within 30 inches of the centerline of the rungs or cleats shall be fitted with deflector plates placed at an angle of 60 degrees from the horizontal.</p> <ul style="list-style-type: none"> <li>Ladders without cages or wells shall have a clear width of at least 15 inches provided each way from the centerline of the ladder in the climbing space.</li> </ul>		
<p>10.</p>	<p>Cages or wells:</p> <ul style="list-style-type: none"> <li>Cages or wells shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet.</li> <li>Cages shall extend a minimum of 42 inches above the top of landing, unless other acceptable protection is provided.</li> <li>Cages shall extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder, with bottom flared not less than 4 inches, or portion of cage opposite ladder shall be carried to the base.</li> <li>Cages shall not extend less than 27 nor more than 28 inches from the centerline of the rungs of the ladder.</li> <li>Cage shall not be less than 27 inches in width.</li> <li>The inside of cages shall be clear of projections.</li> <li>Vertical bars shall be located at a maximum spacing of 40 degrees around the circumference of the cage; this will give a maximum spacing of approximately 9 1/2 inches, center to center.</li> <li>Ladder wells shall have a clear width of at least 15 inches measured each way from the centerline of the ladder.</li> <li>Smooth-walled wells shall be a minimum of 27 inches from the centerline of rungs to the well wall on the climbing side of the ladder.</li> </ul>	<p>I</p>	<p>29 CFR 1910.27(d)(1)(i-vi)</p>

## Portable and Fixed Ladders

	<ul style="list-style-type: none"> <li>• Where other obstructions on the climbing side of the ladder with a well exist, there shall be a minimum of 30 inches from the centerline of the rungs.</li> <li>• Ladder safety devices may be used on tower, water tank, and chimney ladders over 20 feet in unbroken length in lieu of cage protection. No landing platform is required in these cases. All ladder safety devices such as those that incorporate lifelines, friction brakes, and sliding attachments shall meet the design requirements of the ladders which they serve.</li> </ul>		
11.	<p>Landing platforms and hatches:</p> <ul style="list-style-type: none"> <li>• Where an individual has to step a distance greater than 12 inches from the centerline of the rung of a ladder to the nearest edge of structure or equipment, a landing platform shall be provided. The minimum step-across distance shall be 2 1/2 inches.</li> <li>• When ladders are used to ascend to heights exceeding 20 feet, landing platforms shall be provided for each 30 feet of height or fraction thereof, except that, where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof. Each ladder section shall be offset from adjacent sections. Where installation conditions (even for a short, unbroken length) require that adjacent sections be offset, landing platforms shall be provided at each offset.</li> <li>• All landing platforms shall be equipped with standard railings and toe boards, so arranged as to give safe access to the ladder.</li> <li>• Platforms shall not be less than 24 inches in width and 30 inches in length.</li> <li>• One rung of any section of ladder shall be located at the level of the landing laterally served by the ladder. Where access to the landing is through the ladder, the same rung spacing as used on the ladder shall be used from the landing platform to the first rung below the landing.</li> </ul>	I	<p>29 CFR 1910.27(d)(2); 29 CFR 1910.27(d)(2)(i-iii)</p>

## Portable and Fixed Ladders

	<ul style="list-style-type: none"> <li>Counterweighted hatch covers shall open a minimum of 60 degrees from the horizontal.</li> <li>The distance from the centerline of rungs or cleats to the edge of the hatch opening on the climbing side shall be not less than 24 inches for offset wells or 30 inches for straight wells. There shall be no protruding potential hazards within 24 inches of the centerline of rungs or cleats; any such hazards within 30 inches of the centerline of the rungs or cleats shall be fitted with deflector plates placed at an angle of 60 degrees from the horizontal.</li> </ul>		
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### 3.2.2 Fixed Ladder Use

<p>1.</p>	<p>A fixed ladder shall be used only after it has been determined by inspection to be in good condition and current within its inspection schedule. Before using any fixed ladder in any facility, MSA personnel shall verify that the fixed ladder has a current inspection per the owning Contractor’s ladder inspection procedure, and shall follow the owning Contractor’s process for fixed ladder use.</p> <p>For MSA facility fixed ladders, if a fixed ladder is found to have one or more 29 CFR 1910.27 design criteria non-compliances, the fixed ladder may be demarcated, evaluated for use, and used provided the following minimum requirements are met:</p> <ul style="list-style-type: none"> <li>All MSA design non-compliant fixed ladders require indication (tag, signage, and/or rung caps) at ladder access points indicating “Contact Facility Management Prior to Ladder Use.”</li> <li>All MSA design non-compliant fixed ladder use requires completion of a Fall Protection Work Permit (FPWP), <a href="#">site form A-6004-286</a>, which at a minimum shall include:             <ul style="list-style-type: none"> <li>All design non-compliances noted for the fixed ladder;</li> <li>Anticipated ladder use frequency;</li> <li>Ladder use requirements as listed in Sections 3.2.2.3 through 3.2.2.10 of this document for review by the ladder user(s) prior to ladder use;</li> </ul> </li> </ul>	<p>I</p>	<p>29 CFR 1910.27(f); 29 CFR 1910.6(e)(9); ANSI A14.3-56</p>
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## Portable and Fixed Ladders

	<ul style="list-style-type: none"> <li>○ Facility retention of a copy of the FPWP for reference, for future uses of the fixed ladder. The facility may maintain an electronic copy of the FPWP in the Safety &amp; Health Reference Information (SHRI) database.</li> </ul> <p>The brass inspection tag applied to the MSA design non-compliant fixed ladder shall be stamped “Contact Facility Management Prior to Ladder Use”.</p>		
2.	<p>When working from a fixed ladder where a fall hazard exists, refer to and follow the requirements of <a href="#">DOE-0346, Hanford Site Fall Protection Program (HSFPP)</a> before the task begins, including completion of a DOE-0346 required Fall Protection Work Permit (<a href="#">site form A-6004-286</a>).</p> <p><b>NOTE 1:</b> <i>This requirement does not apply when the work is determined by the responsible person to be emergency in nature and immediately necessary to ensure worker safety or to protect the environment, site systems, services, or structures or to situations where an OSHA compliant ladder is used solely for access purposes (ascending and/or descending) less than 24 feet in height.</i></p>	I	DOE-0346
3.	<p>When ascending/descending a ladder, face the ladder and maintain a three-point contact at all times. Three-point contact consists of two feet and one hand or two hands and one foot which is safely supporting the users weight when ascending/descending a ladder.</p> <p><b>NOTE 1:</b> <i>For climbing, grasping the rungs of the ladder – not the side rails - is a recommended practice; rungs are easier to hold onto in case of foot slippage.</i></p> <p><b>NOTE 2:</b> <i>When climbing from the top of a ladder to a work surface, the User should carefully step onto the surface with both hands firmly on the ladder rails until most of your weight is supported by the work surface. Reverse the process for descending.</i></p>	I	29 CFR 1926.1053 (b)(21) & (b)(22), ANSI A14.3- 2008(9.2)
4.	<p>Do not carry tools or equipment while ascending/descending a ladder. Both hands and arms are to remain free for climbing. Carry hand tools in a pouch holster, tool belt, or otherwise secure, to help avoid creating a hazard. Use alternative methods, other than being carried by the ladder user, to handle materials/supplies, such as hand lines.</p>	I	ANSI A14.3- 2008(9.2)

## Portable and Fixed Ladders

5.	Never jump or slide down from a ladder or climb more than one rung/step at one time.	I	ANSI A14.3-2008(9.2)
6.	Wear slip-resistant/non-slip footwear, preferably with a defined heel, when climbing a ladder.	I	ANSI A14.3-2008(9.2)
7.	Avoid using greasy or slippery hands or gloves while ascending/descending a ladder.	I	ANSI-A14.3-2008(9.2)
8.	Keep ladder free from oil, grease, or slippery materials on platforms, rungs and gripping surfaces. Footwear should be kept clean.	I	ANSI A14.3-2008(9.2)
9.	Avoid ascending/descending a ladder during high winds, storms, or when ice/frost or snow covers the ladder.	I	ANSI A14.3-2008(9.2)
10.	Employees shall be physically and mentally able to use ladders or perform ladder tasks without undue risk to their own or to others' safety. Persons who tire easily, or who have physical or other limitations which prevent a person from safely climbing a ladder, are not be permitted to use fixed ladders.	I	ANSI A14.3-2008(9.2)
11.	Fixed ladder hatches or covers shall remain in place unless being used for access. If the hatch or cover must remain open it shall be protected by the use of the measures described in DOE-0346.	I	DOE-0346

### 3.2.3 Fixed Ladder Inspection

**NOTE:** *As used in this section, a Competent Person is one who by way of training, skill, and practical experience is capable of identifying existing and predictable hazards relating to fixed ladders in the work environment and has authorization to take prompt corrective measures to eliminate such hazards.*

1.	<p>All fixed ladders shall be maintained in a safe condition. All MSA fixed ladders shall be inspected regularly by competent person(s) from the bargaining unit craft responsible for such inspections (see <a href="#">Appendix A</a> for fixed ladder inspection criteria.)</p> <ul style="list-style-type: none"> <li>The intervals between inspections shall be determined by fixed ladder use and exposure.</li> </ul>	I	<p>29 CFR 1910.27(f); 29 CFR 1926.1053(b)(15); 29 CFR 1926.1053 (b)(17)</p>
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## Portable and Fixed Ladders

	<ul style="list-style-type: none"> <li>The scheduled inspection of fixed ladders shall not exceed a period of 5 years.</li> <li>All fixed ladders covered by this procedure are to have an initial inspection by November 15, 2013, unless they meet one of the following exceptions:   <b>Exception 1:</b> <i>Ladders deemed infrequently used (example, used less than once a year) are exempted from the November 15, 2013, initial inspection date, provided these ladders are inspected before use. MSA ladders not tagged by November 15th are not to be used until they have been properly inspected and tagged. Means of identification include access point signage, "do not use" tagging, marking as defective, blocking, or other control of use (e.g., for a ladder in a permit-required confined space, identification of the before-use inspection requirement for the ladder in the confined space database.)</i>   <b>Exception 2:</b> <i>The scheduled inspection of fixed ladders is not intended to apply to fixed ladders no longer intended for use, such as fixed ladders in deactivated facilities and fixed ladders subject to a facility long-term stewardship program. MSA ladders not tagged by November 15th are not to be used until they have been properly inspected and tagged.</i> </li> </ul>		
2.	<p>MSA fixed ladders shall be inspected for design criteria and condition criteria (see <a href="#">Appendix A</a>). Design criteria inspection shall be to requirements found in 29 CFR 1910.27, <i>Fixed Ladders</i>.</p> <p><b>NOTE 1:</b> <i>MSA Crane &amp; Rigging Services inspects MSA fixed ladders per maintenance procedure 7-GN-184, Periodic Condition Inspection of Fixed Ladders, with inspection criteria based on 1910.27.</i></p> <p><b>NOTE 2:</b> <i>The Building Manager or their Representative will establish fixed ladder inspection schedules along with work management preparation of ladder inspection work packages. Inspections will be coordinated with MSA Crane &amp; Rigging. A fixed ladder inventory including inspection information shall be maintained in the Safety &amp; Health Reference Information (SHRI) database.</i></p>	I	29 CFR 1910.27(f)
3.	<p>MSA fixed ladders passing design/condition inspection shall be identified as such with visible marking such as a brass tag (see <a href="#">Appendix A</a>). The facility shall be notified by the inspectors of each fixed ladder not passing design/criteria</p>	I	10 CFR 851.21(a)

## Portable and Fixed Ladders

	<p>inspection, and of the inspection criteria not compliant. Fixed ladders found to be defective, with an expired inspection, or otherwise in substandard condition shall be:</p> <ul style="list-style-type: none"> <li>• Immediately removed from service for repair by the facility (tagged-out per MSC-PRO-23749, <i>Miscellaneous Facility Tags</i>, if needed). Ladders to be removed from service until repaired include ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, -or-</li> <li>• In the case of 29 CFR 1910.27 design criteria non-compliant fixed ladders in MSA facilities, other than ladders with structural defects (such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, or corroded components) the facility may elect to demarcate each design non-compliant fixed ladder with access point signage and/or access point rung caps indicating “Contact Facility Management before using this ladder”. The Facility may then elect to follow the process outlined in Section 3.2.2.1 for use of the design non-compliant fixed ladder.</li> </ul> <p><b>NOTE 1:</b> <i>Only the most recent inspection tag shall remain on the ladder.</i></p> <p><b>NOTE 2:</b> <i>See Section 3.2.2.1 Fixed Ladder Use for requirements for use of design non-compliant fixed ladders.</i></p>		
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### 3.2.4 Fixed Ladder Training

1.	<p>Employees who use ladders in the course of their work assignments, or perform annual fixed ladder inspections, shall complete initial training via the established MSA Computer-Based Training Course. <b>Portable Ladder Safety Training Course # 044391</b></p>	I	29 CFR 1926.1060 (a)
2.	<p>Employees who perform annual fixed ladder inspections shall also complete the Competent Person Ladder Inspection-CBT. <b>Competent Person Fixed Ladder Inspection Course #044393</b></p>	I	29 CFR 1926.1060 (a)

## Portable and Fixed Ladders

### 3.3 Mobile Ladder Stands

#### 3.3.1 Mobile Ladder Stand Design

1.	<p>Loads:</p> <ul style="list-style-type: none"> <li>The design working load of ladder stands shall be calculated on the basis of one or more 200-pound persons together with 50 pounds of equipment each. The load shall be applied uniformly to a 3 1/2 inches wide area front to back at the center of the width span with a safety factor of four (4).</li> <li>All ladder stands shall be capable of supporting at least four times the design working load.</li> </ul>	I	<p>29 CFR 1910.29(a)(2)(ii)(a); 29 CFR 1910.29(a)(2)(ii)(b); 29 CFR 1910.29(f)(5)</p>
2.	<p>Surfaces:</p> <ul style="list-style-type: none"> <li>The ladder stand material shall be protected against corrosion or deterioration.</li> <li>All exposed surfaces shall be free from sharp edges, burrs or other safety hazards.</li> </ul>	I	<p>29 CFR 1910.29(a)(2)(ii); 29 CFR 1910.29(a)(2)(v);</p>
3.	<p>Steps and Handrails:</p> <ul style="list-style-type: none"> <li>Ladder stands shall have a minimum step width of 16 inches.</li> <li>The steps of ladder stands shall be fabricated from slip resistant treads.</li> <li>Steps shall be uniformly spaced, and sloped, with a rise of not less than nine (9) inches, nor more than ten (10) inches, and a depth of not less seven (7) inches. The slope of the steps section shall be a minimum of fifty-five (55) degrees and a maximum of sixty (60) degrees measured from the horizontal.</li> <li>Units having more than five (5) steps or 60 inches vertical height to the top step shall be equipped with handrails.</li> <li>Handrails shall be a minimum of 29 inches high. Measurements shall be taken vertically from the center of the step.</li> </ul>	I	<p>29 CFR 1910.29(a)(3)(ii); 29 CFR 1910.29(a)(3)(iv); 29 CFR 1910.29(f)(3); 29 CFR 1910.29(f)(4)(i); 29 CFR 1910.29(f)(4)(ii)</p>

## Portable and Fixed Ladders

<p>4.</p>	<p>Work Levels/Platforms:</p> <ul style="list-style-type: none"> <li>• The maximum work level height shall not exceed four (4) times the minimum or least base dimensions of any mobile ladder stand.</li> </ul> <p><b>NOTE:</b> <i>Where the basic mobile unit does not meet this requirement, suitable outrigger frames shall be employed to achieve this least base dimension, or provisions shall be made to guy or brace the unit against tipping.</i></p> <ul style="list-style-type: none"> <li>• The supporting structure for the work level shall be rigidly braced, using adequate cross bracing or diagonal bracing with rigid platforms at each work level.</li> <li>• All mobile ladder stand work levels 10 feet or higher above the ground or floor shall have a guardrail (protecting non-access sides) installed no less than 36 inches or more than 42 inches above the walking/working level, and as required (as provided by the manufacturer) a mid-rail installed mid-way between the top edge of the guardrail system and the walking/working level.</li> </ul>	<p>I</p>	<p>29 CFR 1910.29(a)(3)(i); 29 CFR 1910.29(a)(3)(iii); 29 CFR 1910.29(a)(3)(vii); DOE-0346, Section 5.1</p>
	<p>Base and Wheels/Casters:</p> <ul style="list-style-type: none"> <li>• The minimum base width of a mobile ladder stand shall not be less than ¼ the maximum work level height.</li> <li>• The maximum length of the base section shall be the total length of combined steps and top assembly, measured horizontally, plus five-eighths (5/8) inch per step of rise.</li> <li>• Wheels or casters shall be properly designed for strength and dimensions to support four (4) times the design working load.</li> <li>• At least two (2) of the four (4) casters on mobile ladder stands shall be provided with a positive wheel and swivel lock to prevent movement.</li> </ul>	<p>I</p>	<p>29 CFR 1910.29(f)(2); 29 CFR 1910.29(a)(4)(i); 29 CFR 1910.29(a)(4)(ii)</p>

## Portable and Fixed Ladders

### 3.3.2 Mobile Ladder Stand Use

1.	A mobile ladder stand User shall verify the safe condition of a mobile ladder stand before use by ensuring that all bolts, rivets, and fasteners are tight; side rails and steps are free of slippery substances and not bent or damaged; the ladder operates correctly and with stability; and the overall condition is satisfactory. This inspection shall be done before each use.	I	29 CFR 1926.1053(b)(15)
2.	Mobile ladder stands found to be defective, with an expired annual inspection, or otherwise in substandard condition shall be immediately removed from service for repair (tagged-out, if needed), or destroyed.	I	29 CFR 1926.1053(b)(16)
3.	Mobile ladder stands shall be used in accordance with manufacturer-prescribed instructions, and used only for the purpose for which they are designed.	I	29 CFR 1926.1053(b)(4)
4.	When ascending a ladder mobile ladder stand, face the ladder and maintain a three-point contact at all times. Three-point contact consists of two feet and one hand or two hands and one foot which are safely supporting the user's weight when ascending/descending a ladder.	I	29 CFR 1926.1053 (b)(21) & (b)(22), ANSI A14.3- 2008(9.2)
5.	Never jump or slide down from a ladder or climb more than one rung/step at one time.	I	ANSI A14.3- 2008(9.2)
6.	Wear slip-resistant/non-slip footwear when climbing a mobile ladder stand.	I	ANSI A14.3- 2008(9.2)
7.	Avoid using greasy or slippery hands or gloves while ascending/descending a mobile ladder stand.	I	ANSI-A14.3- 2008(9.2)
8.	Keep mobile ladder stand free from oil, grease, or slippery materials on platforms, rungs and gripping surfaces. Footwear should be kept clean.	I	ANSI A14.3- 2008(9.2)
9.	Avoid ascending/descending a mobile ladder stand during high winds, storms, or when ice/frost or snow covers the ladder stand.	I	ANSI A14.3- 2008(9.2)
10.	Employees shall be physically and mentally able to use ladders or perform ladder tasks without undue risk to their own or to others' safety. Persons who tire easily, or who have physical or other limitations which prevent a person from safely climbing a mobile ladder stand, are not be permitted to use mobile ladder stands.	I	ANSI A14.3- 2008(9.2)

## Portable and Fixed Ladders

11.	<p>When working from a mobile ladder stand where a fall hazard exists, refer to and follow the requirements of <a href="#">DOE-0346</a>, <a href="#">Hanford Site Fall Protection Program (HSFPP)</a> before the task begins, including completion of a DOE-0346 required Fall Protection Work Permit (<a href="#">site form A-6004-286</a>).</p> <p><b>NOTE:</b> <i>This requirement does not apply when the work is determined by the responsible person to be emergency in nature and immediately necessary to ensure worker safety or to protect the environment, site systems, services, or structures.</i></p>	I	DOE-0346
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### 3.3.3 Mobile Ladder Stand Inspection

**NOTE:** *As used in this section, a Competent Person is one who by way of training, skill, and practical experience is capable of identifying existing and predictable hazards relating to fixed ladders in the work environment and has authorization to take prompt corrective measures to eliminate such hazards.*

1.	<p>All mobile ladders stands shall be maintained in a safe condition. All MSA mobile ladder stands shall be inspected annually by competent person(s) from the bargaining unit craft responsible for such inspections (see <a href="#">Appendix A</a> for inspection criteria.)</p>	I	<p>29 CFR 1926.1053(b)(15); 29 CFR 1926.1053 (b)(17)</p>
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### 3.3.4 Mobile Ladder Stand Training

1.	<p>Employees who use ladders in the course of their work assignments, or perform annual mobile ladder stand inspections, shall complete initial training via the established MSA Computer-Based Training Course.</p> <p><b>Portable Ladder Safety Training Course # 044391</b></p>	I	<p>29 CFR 1926.1060(a)</p>
2.	<p>Employees who perform annual mobile ladder stand inspections shall also complete the Competent Person Ladder Inspection-CBT.</p> <p><b>Competent Person Ladder Inspection Course # 044392</b></p>	I	<p>29 CFR 1926.1060(a)</p>
3.	<p>Employees who use ladders in the course of their work assignments shall be retrained if it is determined that their hazard recognition skill level relating to proper selection, use, care, or handling practices is diminishing.</p>	I	<p>29 CFR 1926.1060(b)</p>

## Portable and Fixed Ladders

### 4.0 FORMS

Site Form [A-6004-286](#), *Fall Protection Work Permit*

### 5.0 RECORD IDENTIFICATION

All records are generated, processed, and maintained in accordance with MSC-PRO-10588, *Records Management Processes*.

**Records Capture Table**

<b>Name of Record</b>	<b>Submittal Responsibility</b>	<b>Retention Responsibility</b>
Work Record	Facility/Project Designated Personnel	Facility Work Management
Site Form A-6004-286, <i>Fall Protection Work Permit (FPWP)</i>	Facility/Project Designated Personnel	Work Planning Documentation / Work Record

### 6.0 REFERENCES

#### 6.1 Source References

29 CFR 1910, *Occupational Safety and Health Standards*  
29 CFR 1926, *Safety and Health Regulations for Construction*  
ANSI A14.3-56, *Safety Code for Fixed Ladders*  
ANSI A14.3-2008, *Ladders -Fixed- Safety Requirements*  
10 CFR 851, *Worker Safety & Health Program*  
DOE-0346, *Hanford Site Fall Protection Program (HSFPP)*  
OSHA Letter of Interpretation to Charles Culver, 02/13/2004, [What OSHA will enforce as the minimum toe clearance when workers are using manhole rungs during construction work?](#)  
ASTM C478-13, *Standard Specification for Precast Reinforced Concrete Manhole Sections*

#### 6.2 Working References

MSC-PRO-10588, *Records Management Processes*  
7-GN-184, MSA Crane & Rigging Services, *Periodic Condition Inspection of Fixed Ladders*

#### 6.3 Appendices

#### Appendix A Ladder Inspection

# Portable and Fixed Ladders

## APPENDIX A – Ladder Inspection

### 1.0 PURPOSE

This guidance is for inspection of permanently affixed (fixed) ladders, portable ladders, mobile ladder stands, and mobile ladder stand platforms to ensure conformance to the requirements of 29 CFR 1910 Subpart D. Article 1910 25-27 and 29, that requires:

- All ladders shall be maintained in a safe condition.
- All portable ladders and mobile ladder stands shall be inspected regularly, with the intervals between inspections being determined by use and exposure, at a minimum annually.
- All fixed ladders shall be inspected regularly, with the intervals between inspections being determined by use and exposure, at a minimum every five years. *\*\*Note: The scheduled inspection of fixed ladders is not intended to apply to fixed ladders no longer intended for use, such as fixed ladders in deactivated facilities and fixed ladders subject to a facility long-term stewardship program.*

This procedure does not address step stools (less than 32” in height), stage or scaffold platforms, or access ladders used on scaffolds, cranes or other mobile equipment.

### 2.0 PRECAUTIONS AND LIMITATIONS

- Exercise caution if/when working at elevated heights to inspect fixed ladders. Use personal fall protection where required (see DOE-0346, Hanford Site Fall Protection Program [HSFPP]).

### 3.0 PREREQUISITES

#### 3.1 Tools, Equipment, and Materials

- Set of open end wrenches
- Rags
- Approved cleaning solvent
- Measuring tape
- Flat file.

#### 3.2 Special Personnel Requirements

Designate competent persons from the bargaining unit/craft responsible for inspecting the type of ladder (fixed, portable, etc.) who by the way of training, skill, and practical experience is capable of identifying existing and predictable hazards relating to the type of ladder in the work environment and has authorization to take prompt corrective measures to eliminate such hazards.

## Portable and Fixed Ladders

### 4.0 PERFORMANCE

#### 4.1 Fixed Ladder Inspection

4.1.1 PERFORM inspections per the following checklist, as applicable, THEN GO TO section 4.4:

- Loose, worn or bent rungs or side rails;
- Loose screws, bolts or other metal parts;
- No damaged or cracked welds for braces, rungs or joints in side rails;
- Cracked, split or broken side rails, braces, or rungs;
- Metal slivers on side rails or rungs;
- Oily deposits on rungs or side rails;
- Damage to non-slip treads or coating on rungs;
- Splices and connections in side rails are smooth and secure;
- No excessive rusting, corrosion, or deterioration on outside ladders;
- Ladder cages are properly welded and are not bent to impair climbing envelope and have no physical protrusions through cage envelope;
- Ladder safety device is securely fastened to rungs and no deterioration is evident. Installed slide device moves easily in track and stops downward motion when sudden load applied. Ladder up safety device at top of ladder (if used) is easily tripped and is secured to ladder;
- Safety chains or safety swing gate at top is properly secured and in good working condition;
- Ladder design criteria and clearances as listed in MSC-RD-24243 are met.

*\* Note: When performing design criteria and clearances inspections, reference 29 CFR 1910.27, Fixed Ladders for minimum fixed ladder design criteria and clearances. MSA Crane & Rigging Services inspects MSA fixed ladders per maintenance procedure 7-GN-184, Periodic Condition Inspection of Fixed Ladders, with inspection criteria based on 1910.27.*

## Portable and Fixed Ladders

### 4.2 Portable Ladder Inspection

- PERFORM inspections and minor adjustments per the following checklist, as applicable, THEN GO TO section 4.4:
- Manufacturer Warning/Instruction Labeling is present & legible; Sticker which includes Duty Rating, Manufacturer Name and ladder Model Number will provide necessary structural capacity information of the ladder in case manufacture label is missing during normal use;
- Steps/Rungs are firmly attached and intact, and have slip resistant surfaces;
- Support braces, rivets, bolts, screws & other hardware/fittings securely in place;
- Steps, rungs, and side rails free of oil, grease, mud, or surface moisture;
- Extension Ladders- Adequate condition of rope and pulley assembly;
- Spreaders or other locking devices taut and functional;
- Splinters, Sharp Edges, and Burrs are not present;
- Non-slip safety feet are aligned, securely attached, and in good condition;
- Dents, bending or rusting of metal ladders to render the ladder unusable is not evident;
- Presence of shakes, warping, decay, cracks, corrosion, or other irregularities to render the ladder unusable is not evident.

## Portable and Fixed Ladders

### 4.3 Mobile Ladder Stand/Mobile Ladder Stand Platform Inspections

4.3.1 PERFORM inspections and minor repairs per the following list as applicable, THEN GO TO section 4.4:

- Are all exposed surfaces of mobile ladder stand/platform free from sharp edges, burrs, or other safety hazards?
- Is the maximum work level height less than or equal to four times the minimum or least base dimension of the mobile ladder stand/platform?

**NOTE 1:** *Suitable outrigger frames may be used to achieve the required base dimension or other means used to guy or brace the unit against tipping.*

- Is the minimum step width for ladder stands/platforms 16 inches?
- Are the steps of ladder stands/platforms fabricated from slip-resistant treads?
- Are at least two of the four casters equipped with a swivel lock to prevent movement?
- Are steps of mobile ladder stands/platforms uniformly spaced?
- Are steps of mobile ladder stands/platforms sloped, with a rise that is not less than 9 and not more than 10 inches, and a depth of at least 7 inches?

**NOTE 2:** *The slope of the steps section shall be a minimum of 55 degrees and a maximum of 60 degrees measured from the horizontal.*

- Are mobile ladder stands/platforms with more than five steps equipped with handrails?
- Are the handrails at least 29 inches high?

**NOTE 3:** *Measurements must be taken vertically from the center of the steps.*

- Are all ladder stands/platforms with a work level 10 feet or higher above the ground or floor equipped with a standard (4-inch nominal) toeboard?

## Portable and Fixed Ladders

### 4.4 Disposition

4.4.1 IF ladder/platform is acceptable upon inspection, THEN:

- For portable ladders and mobile ladder stands, APPLY signed and dated, PURPLE color-coded verification sticker/tape, in a conspicuous location of each ladder that successfully passes inspection, (at approximate eye level if possible), that includes at the minimum, the name of the inspector, expiration date of inspection (one year from date of inspection), manufacturer name, and stand/platform model number, as applicable.
- For fixed ladders, apply dated brass tags in a conspicuous location of each ladder that successfully passes inspection, (at approximate eye level if possible), that includes the date of inspection, and ladder location or unique ladder identifier, as applicable.

Note: brass tags on ladders in pits and holes shall be placed so the tag is visible from where one stands prior to first accessing the ladder.

- IF there are other ladders to inspect, THEN PROCEED to next ladder AND PERFORM [4.1](#), [4.2](#) or [4.3](#), as applicable.

4.4.2 IF ladder is unacceptable, THEN PERFORM section [4.5](#).

### 4.5 Adjustments, Repairs and/or Tag Out

4.5.1 PERFORM minor adjustments/repairs, such as tightening, filing, or cleaning, THEN LIST on the Work Record, the ladder/platform number and/or location and type of adjustment/repair performed.

4.5.2 IF adjustments/repairs are acceptable, THEN:

- DOCUMENT Status and Date Repair Made on the Work Record, AND RETURN to inspection step where problem was discovered.
- PROCEED to next ladder/platform AND PERFORM section [4.1](#), [4.2](#) or [4.3](#), as applicable.

4.5.3 IF minor repairs, as described in step 4.5.1 cannot be made during the inspection, THEN NOTIFY the Field Work Supervisor AND TAG the ladder “Out of Service” per MSC-PRO-23749, *Miscellaneous Facility Tags*.

- LOCATE tag on ladder per one of the following:
  - 1) TIE WIRE OR FASTEN tag in a conspicuous location;
  - 2) LOCATE tag at bottom of ladder if the only way to access the ladder is from the bottom;
  - 3) LOCATE tag at top of ladder if the only way to access the ladder is from the top.

## Portable and Fixed Ladders

- 4) LOCATE tags at top and bottom of ladder if alternate access paths are available.
- 4.5.4 IF repairs required are beyond the scope of these instructions, THEN LIST the ladder number or location AND NOTE problem(s) on the Work Record.
- 4.5.5 Field Work Supervisor PREPARE (IF NEEDED) a work document for repairs listing the ladder number(s) or location(s) and the repair(s) needed, THEN PROCEED to next ladder AND PERFORM section [4.1](#), [4.2](#) or [4.3](#) as applicable.