

Ladder Inspections

Due to recent information, lessons learned, and accident reports from across the DOE complex, emphasis needs to be placed on the importance of inspecting ladders, both portable and fixed.

Portable ladders should be inspected prior to each use to ensure they are in good working order. Portable ladders can be damaged during use, handling, moving, and storage, which can render the ladder unsafe for use. Recent information from the DOE complex has shown unsafe conditions that may be found during proper pre-use ladder inspections. All portable ladders with any damage or defect must be removed from service. **(Photos 1 and 2)**

Attachment 1 is provided as a guideline for portable ladder inspections.

Fixed Ladders should be inspected on a routine basis, especially when installed (re-installed) or modified. Modifications include not only modifications/repairs to the ladder, but also any modifications/additions to the building where the ladder is connected, such as conduit runs, structural add-ons, and roofing upgrades. Fixed ladders have specific requirements for design and installation that must be met. In addition, environmental conditions can damage fixed ladders over time. A fixed ladder involved in a recent accident in the DOE complex had some design issues, some from the ladder design and installation and other from modifications to the building **(Photo 3)**.

Attachment 2 is provided as a guideline for fixed ladder inspections.

Note: Attachments 1 and 2 are provided as guidelines for inspections. The OSHA regulations have more details:

29 CFR 1910 “General Industry” at 1910.25 Portable Wood Ladders;
1910.26 Portable Metal Ladders; 1910.27 Fixed Ladders

29 CFR 1926 “Construction” at 1926.1053 Ladders



Photo 2 Bend ladder brace

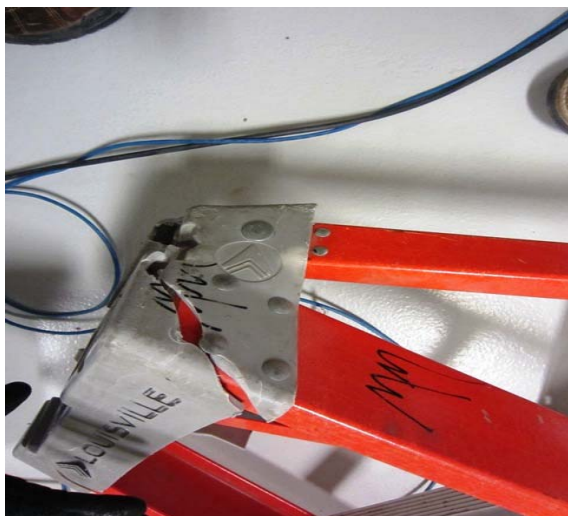


Photo 2: portable ladder with top section separated from uprights

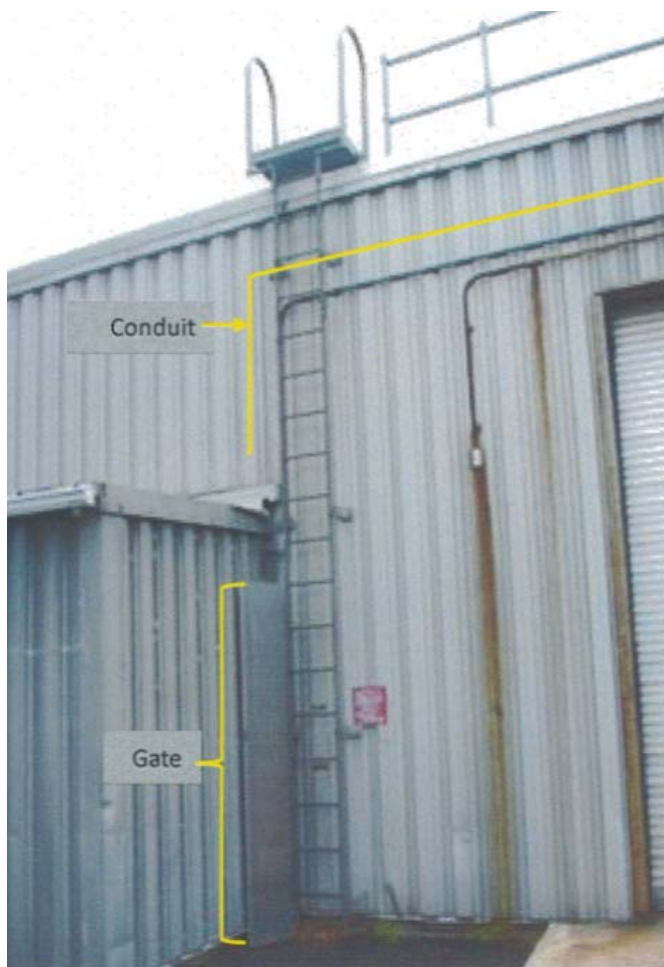


Photo 3: fixed ladder with improper clearances from the installed gate and the conduit addition to along the building
Note: The gate is installed to limit access to the ladder, but does not provide required clearance to the left side of the fixed ladder. The conduit runs behind and along the left side of the ladder and does not provide the required clearance behind the rung of the ladder

Attachment 1; Guideline for Portable Ladder Inspections

Portable Ladder Inspection Checklist

Date of Inspection:	Name of Inspector:
Ladder Identification:	
Type of Ladder: () Extension () Step	
Construction of Ladder () Wood () Metal () Fiberglass	

General	Serviceable	Defective*	Not Applicable
Loose steps or rungs (can be moved by hand)			
Loose Nails, screws, bolts, or other materials			
Cracked, split, or broken uprights, braces, steps, or rungs			
Slivers on uprights, rungs, or steps			
Rungs, cleats, and steps are uniformly spaced at 12" (+/-2")			
Rungs/steps missing			
Rungs/steps on metal ladders corrugated or knurled			
Free from grease, oil, or slippery materials			
Wooden parts free from splinters, cracks, decay			
Wooden ladders cannot have opaque coatings			
Joints between rungs and side rails tight (cannot be moved by hand)			
Movable parts operate freely			
Damaged or worn non-slip bases			
Rails free from cracks/splitting			
Loose nails/screws			
Stepladders			
Wobbly (from loose or worn parts when in the open position)			
Do not exceed 20 feet in length			
Loose or bent hinge spreaders			
Broken stop on hinge spreaders			
Sharp edges on spreaders			
Loose hinges			
Extension Ladders			
Loose, broken, or missing extension locks			
Defective locks that do not seat properly when ladder is extended			
Frayed or worn rope			
Single section ladders do not exceed 30 feet in length			
Two-section extension ladders do not exceed 48 feet in length (metal ladders) or 60 feet in length (wood ladders)			
Ladders with more than two sections do not exceed 60 feet in length			
Comments			

*Defective ladders should be removed from service.

Attachment 2: Compliance Guideline for Fixed Ladders

Topic	OSHA 1910.27	Status C=Compliant
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	Requirements	N=Non-Compliant
Rung Diameter	All rungs shall have a minimum diameter of three-fourths inch for metal ladders. [1910.27(b)(1)(i)]	
Distance between Rungs	The distance between rungs, cleats, and steps shall not exceed 12 inches and shall be uniform throughout the length of the ladder. [1910.27(b)(1)(ii)]	
Distance Between Ladder Rails	The minimum clear length of rungs or cleats shall be 16 inches. [1910.27(b)(1)(iii)]	
Gripping Surfaces Free of Burrs, Sharp Edges	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. [1910.27(b)(2)]	
Clear Width to the Vertical Center Line of the Fixed Ladder	A clear width of at least 15 inches shall be provided each way from the centerline of the ladder in the climbing space, except when cages or wells are necessary. [1910.27(c)(2)]	
Cages for fixed Ladders	Cages shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet. [1910.27(d)(1)(ii)]	
The distance, on the climbing side, from the rung to the nearest object	The perpendicular distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder....30 inches for a pitch of 90° [1910.27(c)(1)]	

Topic	OSHA 1910.27 Requirements	Status C=Compliant N=Non-Compliant
Permitted Clearance Behind the Fixed Ladder	The distance from the centerline rungs, cleats, or steps to the nearest permanent object in back of the ladder shall be not less than 7 inches. [1910.27(c)(4)]	
Step Across Distance Between Fixed Ladder Rung and Platform or Landing	The Step-across distance for the nearest edge of ladder to the nearest edge of equipment or structure shall not be more than 12 inches, or less than 2 ½ inches. [1910.27(c)(6)]	
Top rung of Ladder Flush with Landing, Platform or Parapet	The top rung flush with landing are illustrated in some of the drawings, but not discussed in the standard. Where a man 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 ½ inches. [1910.27(d)(2)(i)]	
Height and Width of Ladder Extension Rails	The side rails of the through ladder extensions shall extend 3 ½ feet above the parapets and landings. For through ladders extensions, the rungs shall be omitted from the extensions and shall have not less than 18 or more than 24 inches clearance between rails. [1910.27(e)(1)]	
Preferred Pitch of Fixed ladders	The preferred pitch of fixed ladders shall be considered to come in the range of 75° and 90° with the horizontal. [1910.27(e)(1)]	