OSHA Fixed Ladder Evaluations

	Evaluated by:	**Location description:**
	Building #:	**Ladder ID#:**
	Height of Ladder (feet):	**Date:**

☐ Roof Access ☐ Roof Access with cage ☐ Equipment Access (including cranes) ☐ Roof Level Change ☐ Other: _____	☐ External Ladder ☐ Internal Ladder ☐ Manhole Ladder/rungs ☐ Hinged ladder guard present ☐ Key plan marked up with location ☐ Deficiencies photographed	FINAL STATUS OF LADDER ☐ Compliant (GREEN) ☐ Non-Compliant - CAUTION (YELLOW) ☐ Non-Compliant - OUT OF SERVICE (RED)

Note: Cleats serving manholes can use deviations from OSHA 1910.27 found in ASTM C478-12 (an accepted OSHA consensus standard) as long as all ASTM conditions are present. Elevator pit ladders can use ANSI 17.1 -10 (an accepted OSHA consensus standard) deviations as long as all ANSI conditions are present.

	Item	OSHA Ref.	Sat.	Unsat	N/A	Comments
1	**Ladder/Manhole Access Design:**					
1a.	Mechanically sound and in good condition - for components required for stability are secure and not broken.	1910.27(a)				
1b.	Fasteners are an integral part of fixed ladder design.	1910.27(b)(3)				
1c.	All splices and connections have smooth transition with original members and with no sharp or extensive projections.	1910.27(b)(4)				
1d.	Dissimilar metals are protected from electrolytic action where such metals are joined.	1910.27(b)(5) ASTM C478-12 16.3.2.1				
1e.	Side rails (on ladders) which might be used as a climbing aid are of such cross sections to allow adequate gripping surface without sharp edges, splinters, or burrs. For "C" Channel Side Rails, hand grip spans should not exceed 3" (palm side) by 1-3/8" **(finger reach). L channels are not acceptable by OSHA interpretation.**	1910.27(b)(2) ASTM C478-12 16.3.2.2				
1f.	**For Manholes:** Steps in base section, riser and conical top sections shall be aligned in each section so as to form a continuous ladder with rungs equally spaced vertically in the assembled manhole. (The **vertical** spacing and **vertical** alignment between adjacent manhole steps may vary 1 inch from the design dimension. See below for maximum manhole rung spacing)	ASTM C478-12 16.4.1; 16.5.5				

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2	**Rungs and cleats:**					
2a.	Ladder minimum diameter 3/4 inch (round metal rungs) or 1 1/8 inch diameter (round wood rungs). **Note:** if it is a flat hollow or "C" channel construction > 1.5 inches, is acceptable, otherwise it must be evaluated by an engineer for load concentrations.	1910.27(b)(1)(i)				Enter dimension:
2b.	Individual metal rungs embedded in concrete (pits) minimum 1 inch diameter where corrosion potential exists, otherwise 3/4 inch minimum diameter rungs that are protected from corrosion or where no corrosion potential exists.	1910.27(b)(7)(i) ASTM C478-12 16.5.1				Enter dimension:
2c.1	**For Ladders**: The distance between rungs, cleats, and steps does not exceed 12 inches and is uniform throughout the length of the ladder. **Note:** the first rung is permitted to be maximum 14 inches from base surface per ANSI A14.3 Sect 5.1.1.	ASTM C478-12 16.5.1				Enter spacing:
2.c.2	**For Manholes:** The distance between rungs, cleats, and steps does not exceed 16 inches and is uniform throughout the length of the ladder. (Note: The vertical spacing and vertical alignment between adjacent manhole steps may vary 1 inch from the design dimension. The first rung is permitted to be maximum 14 inches from base surface per ANSI A14.3 Sect 5.1.1.	ASTM C478-12 16.4.1				Enter spacing:
2d.1	**For Ladders:** Minimum clear width of rungs or cleats is 16 inches**.**	1910.27(b)(1)(iii)				Enter clear rung width:
2d.2	**For Manholes:** Minimum clear width of rungs or cleats is 10 inches**.**	ASTM C478-12 16.5.2				Enter clear rung width:
2e.	Rungs, cleats, and steps are free of splinters, sharp edges, burrs, or projections which may be a hazard.	1910.27(b)(1)(iv) ASTM C478-12 16.3.2.2				
2f.	Are rungs designed so that the foot cannot slide off the end. See figure D-1 for reference.	1910.27(b)(1)(v)				
3	**Protection from deterioration**					
3a.	Metal ladders and appurtenances are painted or otherwise treated to resist corrosion and rusting.	1910.27(b)(7)(i)				
3b.	Wood ladders, when used under conditions where decay may occur, are treated with a nonirritating preservative, and the accumulation of water on wood parts is minimized. (Note: the use of wood is prohibited from manhole access systems)	1910.27(b)(7)(ii)				
3c.	If different materials are used, are they compatible?	1910.27(b)(7)(iii)				

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4	**Clearance**					
4a.	**For Ladders:** The perpendicular distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder is 36 inches for a for a pitch of 76 degrees, and 30 inches for a pitch of 90 degrees (Figure D-2).	1910.27(c)(1)				Enter distance if not satisfactory:
4b.	A clear width of at least 15 inches is provided each way from the centerline of the ladder in the climbing space. (Does not apply when cages or wells are necessary).	1910.27(c)(2)				Enter distance if not satisfactory:
4c.1	**For Ladders:** Minimum 7 inches clearance from the centerline of rungs, cleats, or steps to the nearest permanent object in back of the ladder (Figure D-3). Note 1: Using ASTM C478-12 as guidance for ladders with restricted access for use, mark ladder out of service (Red) if less than 4 inches & mark caution (Yellow if at least 4 inches but less than 7 inches). Note 2: Using OSHA 1910.27 exemption, if object is within permitted area in Figure D-3, then caution tag ladder (Yellow).	1910.27(c)(4)				Enter distance & describe if not satisfactory:
4c.2	**For Manholes:** The rung or cleat shall project a uniform clear distance of 3 3/4 inches (minimum) to 6 1/4 inches (maximum for round) or 7 inches (maximum for retangular) from the wall of the base, riser, or conical top section measured from the point of embedment to the embedment side of the rung. (Mark rungs less than 3 3/4 inches as red, over 6 1/4 inches for round or 7 inches for retangular to 9 inches as yellow and over 9 inches as red). NOTE—Embedment point is considered the junction of the centerline of the step leg and the wall of the base, riser or conical top section.	ASTM C478-12 16.5.3				Enter distance & describe if not satisfactory:
4c.3	**For Elevator Pits:** 4.5 in. dimension behind the ladder complies with OSHA 1925.1053(a)(13) and ANSI 17.1-10. (See Diagram on ANSI 17.1 Elevator Pit Ladders). Note: If object is within permitted area for fixed ladders then caution tag the ladder (Yellow). Otherwise mark the ladder Red.	1925.27c; ANSI 17.1-10, 2.2.4				Enter distance & describe if not satisfactory:
4d.	When grab bars are provided for ladders: Minimum 4 inches clearance from the centerline of the grab bar to the nearest permanent object in back of the grab bars.	1910.27(c)(5)				
4e.	When grab bars are provided for ladders: Grab bars do not protrude on the climbing side beyond the ladder rungs.	1910.27(c)(5)				
4f.	The step-across distance from the nearest edge of ladder to the nearest edge of equipment or structure is between 2 1/2 and 12 inches for forward step through motion (fig. D-4) and 15" to 20" for side step to a platform from center of the rung. Note: Ladder out of service if greater than 12 inches (or 20 inches side) or if edge projects beyond rungs. Less than 2 1/2 inches is "Yellow" criteria for forward motion step offs.	1910.27(c)(6)				
4g.	Counterweighted hatch covers open a minimum of 60 degrees from the horizontal (Figure D-6).	1910.27(c)(7)				

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4h.1	**For Ladders:** The distance from the centerline of rungs or cleats to the edge of the hatch opening on the climbing side is at least 24 inches for offset wells or 30 inches for straight wells. Note: Mark ladder out of service (Red) if less than 18 inches. Mark caution (Yellow) if at least 18 inches but less than the above prescribed clearance.	1910.27(c)(7)				
4h.2	**For Manholes**: The minimum clear distance between the rung or cleat and the opposite wall of the base, riser, or conical top shall be 18 in. measured at the center face of the rung or cleat. (Note: The horizontal distance from the inside wall to the centerline of a manhole step may vary 1 inch from the design dimension.	ASTM C478-12 16.5.4; 16.5.5				
4i.	**For Ladders**: No protruding potential hazards within 24 inches of the centerline of rungs or cleats.	1910.27(c)(7)				
4j.	Deflector plates installed when protrusions within 30 inches of the centerline of the rungs or cleats (Figure D-5).	1910.27(c)(7)				
5	**Cages or wells**					
5a.	Cages, wells or a ladder safety system is provided on ladders of more than 24 feet (ANSI A14.3 4.1.1). See the dimensions shown in figures D-7, D-8, and D-9.	1910.27(d)(1)(ii)				
5b.	Cages extend a minimum of 42 inches above the top of landing, unless other acceptable protection is provided.	1910.27(d)(1)(iii)				
5c.	Cages extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder.	1910.27(d)(1)(iv)				
5d.	Cage bottom flared at least 4 inches, or portion of cage opposite ladder extends to the base.	1910.27(d)(1)(iv)				
5e.	Cage is minimum 27 inches in width.	1910.27(d)(1)(v)				
5f.	Cages extend between 27 and 28 inches from the centerline of the rungs of the ladder.	1910.27(d)(1)(v)				
5g.	The inside of the cage or well is clear of projections.	1910.27(d)(1)(v)				
5h.	Maximum spacing of vertical bars approximately 9 1/2 inches, center to center (40 degrees).	1910.27(d)(1)(v)				
5i.	Ladder wells have a clear width of at least 15 inches measured each way from the centerline of the ladder.	1910.27(d)(1)(vi)				
5j.	Smooth-walled wells are a minimum of 27 inches from the centerline of rungs to the well wall on the climbing side of the ladder. If other obstructions on the climbing side of the ladder exist, a minimum of 30 inches from the centerline of the rungs is required.	1910.27(d)(1)(vi)				

6	Landing Platforms & Extensions					
6a.	Is ladderway floor opening or platform guarded by a standard railing with standard toeboard on all exposed sides (does not apply to roof hatches, elevator pits and manholes?	1910.23(a)(2)				
6b.	Is passage through the railing protected with a swinging gate or so offset (such as a compliant raised landing) that a person cannot walk directly into the opening? (Note: If chains are found on existing ladders with posting to ensure they are closed when not in use, the ladder is in compliance based on OSHA Proposed Rule changes, but note in comment section for replacement when funds become available)	1910.23(a)(2) (OSHA Proposed Rule 68:23527-23568)				
6c.	For ladders over 20 feet, landing platforms (are) provided.	1910.27(d)(2)				
6d.	On ladders with landing platforms, sections are offset **(Note: applies to multiple landings only)**.	1910.27(d)(2)				
6e.	Landings provided at each offset ladder.	1910.27(d)(2)				
6f.	Landing platforms provided every 30 feet when cage is present.	1910.27(d)(2)				
6g.	Landing platform (intermediate) step off distance 12 inches or less from the centerline of the rung of a ladder to the nearest edge of structure or equipment (for through step off) and no greater than 20 inches from center of the rung to landing platform (for side-step ladders).	1910.27(d)(2)(i) and ANSI 14.3 Figure 6				
6h.	Landing platform step off distance is minimum 2 1/2 inches from the centerline of the rung of a ladder to the nearest edge of structure or equipment.	1910.27(d)(2)(i) and ANSI 14.3				
6i.	Is the top of a step or rung of a ladder shall be level with the top of the access/egress level or landing platform served by the ladder. (does not apply to roof hatches, elevator pits and manholes).	1910.27(d)(2)(i) and ANSI 14.3				
6j.	Landing platforms are equipped with standard railings and toeboards.	1910.27(d)(2)(ii)				
6k.	Platforms minimum 24 inches in width and 30 inches in length.	1910.27(d)(2)(ii)				
6l.	At intermediate platforms, one rung of any section of ladder is 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 must be used from the landing platform to the first rung below the landing.	1910.27(d)(2)(ii)				
6m.1	The side rails of through or side-step ladder extensions (are provided on ladders and) extend 3 1/2 feet (42 inches) above parapets and landings. (Note: does not apply to manholes, roof hatches; See below for elevator pits).	1910.27(d)(3)				
6m.2	**For Elevator Pits:** The ladder rails or hand grips extends a minimum of 48 inches above the landing sill. See ANSI 17.2 Figure 2.2.4.2A	ANSI 17.1-10, Figure 2.2.4.2A				

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6n.	Width of through ladder extensions (does not apply to roof hatches, elevator pits and manholes): • Between 24 and 30 inches wide (ANSI 14.3 and OSHA proposed rule) Acceptable **(GREEN)**. • Between 18 and 24 inches (current OSHA 1910.27(d)(3) requirement) **YELLOW** due to recognized safety hazard as indicated by OSHA proposed rule and current ANSI Standard. • Less than 18 inches or greater than 30 inches, **RED** -OUT OF SERVICE.	1910.27(d)(3) and ANSI 14.3				**Record width between extensions:**
6o.	For side-step or offset fixed ladder sections, at landings, the side rails and rungs are carried to the next regular rung beyond or above the 3 1/2 feet minimum (42 inches) (Figure D-10).	1910.27(d)(3)				
6p.	When provided in place of ladder side rails, grab bars are spaced as a continuation of the rung spacing when they are located in the horizontal position.	1910.27(d)(4)				
6q.	When provided in place of ladder side rails, vertical grab bars have the same spacing as the ladder side rails.	1910.27(d)(4)				
6r.	When provided in place of ladder side rails, grab-bar diameters are the same as the round-rung diameters.	1910.27(d)(4)				
6s.	The preferred pitch of fixed ladders is considered to be in the range of 75 degrees and 90 degrees with the horizontal (fig. D-11).	1910.27(e)(1)				Record pitch of ladder:
6t.	Is pitch greater than 90 degrees? Ladders having a pitch in excess of 90 degrees with the horizontal are prohibited.	1910.27(e)(4)				

Summary list of needed actions:

Return completed forms to Ed Murphy, with photographs and locations denoted on key plans.