

MAPP

CONSTRUCTION

Document Number: HSE26-001	May 1, 2014
LADDERS	
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<u>Rev Date</u>	<u>Rev #</u>	<u>Description</u>	<u>Revised By</u>
05/01/14	1	Reformat	A. Holland

I. PURPOSE AND SCOPE

- A.** The purpose of this standard is to ensure the safe use and proper construction, inspection, and maintenance of ladders at all MAPP work locations.
- B.** This policy applies to all persons who use, or may be required to use, a ladder as a part of their work.

II. RESPONSIBILITY

- A.** HSE policy implementation responsibilities are stated in HSE40-001, HSE Roles and Responsibilities. Additional management, employee, and subcontractor responsibilities are stated in the individual procedures that address responsibilities specific to the HSE topic.
- B.** The MAPP Superintendent is responsible for implementing and managing the MAPP Ladder HSE Policy on his/her project. They shall ensure that all personnel working on site have been made aware and it is available to all persons accessing the site.
- C.** The Subcontractor and its Foreman shall insure all workers have reviewed, understand, and comply with ladder safety requirements that meet or exceed this policy before assigning persons to work on any MAPP site.
- D.** Supervisors/Foreman are responsible for employees performing work covered by this HSE policy and must ensure that employees have been trained and can use ladders in a safe and proper manner.
- E.** All personnel are responsible for proper selection, inspection, use and transport of ladders according to this policy and industry best practices.

III. DEFINITIONS

- A.** Double-cleat ladder - A ladder similar in construction to a single-cleat ladder, but with a center rail to allow simultaneous two-way traffic for ascending or descending.
- B.** Extension ladder - A non-self-supporting, portable, adjustable ladder consisting of two or more sections, so arranged as to permit length adjustment.
- C.** Fixed-ladder - A ladder that cannot be readily moved or carried because it is an integral part of a building or structure.
- D.** Handrail - A rail used to provide a handhold for support.
- E.** Job-made ladder - A ladder that is fabricated at a job site that has not been commercially manufactured. This definition does not apply to any individual-rung/step ladders.
- F.** Portable ladder - A ladder that can be readily moved or carried.
- G.** Riser height - The vertical distance from the top of a tread to the top of the next higher tread or platform/landing or the distance from the top of a platform/landing to the top of the next higher tread or platform/landing.
- H.** Rung (cleat) - A ladder crosspiece on which a person steps while ascending or descending a ladder.
- I.** Stairs, stairway - A series of steps and landings having three or more risers constitutes stairs or stairway.
- J.** Single-cleat ladder - A ladder consisting of a pair of side rails, connected together by cleats, rungs, or steps.
- K.** Stair rail system - A vertical barrier erected along the unprotected sides and edges of a stairway to prevent employees from falling to lower levels. The top surface of a stair rail system may also be a "handrail."
- L.** Stepladder - A stepladder is a self-supporting portable ladder, nonadjustable in length, having flat steps and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side rails.
- M.** Straight ladder - A single ladder is a non-self-supporting portable ladder, nonadjustable in length, consisting of but one section.

N. Tread depth - The horizontal distance from front to back of a tread (excluding nosing, if any).

O. Unprotected sides and edges - Any side or edge, except at entrances or points of access, of a stairway where there is no stair rail system or wall 36 inches or more in height, and any side or edge (except at entrances to points of access) of a stairway landing, or ladder platform where there is no wall or guardrail system 39 inches or more in height.

IV. GENERAL LADDER USAGE SAFETY

A. The safest means of worker access for overhead work shall be considered (e.g., mechanical lifts, rolling/baker scaffolds, platform ladders, portable ladders, etc.) when planning a work task. The use of ladders to perform work shall only be done when other means are not feasible, and risks have been controlled as low as reasonably possible.

B. Inspection

1. Before each use, a ladder shall be inspected carefully by the user for defects such as:

- a) Missing, cracked, or heavily worn rungs
- b) Loose or unsecure fittings
- c) Missing or broken spreaders or other locking devices
- d) Illegible manufacturer rating marking or tag
- e) Damaged or missing side rails
- f) Damaged or missing slip resistant feet
- g) Test movable parts to see that they operate without binding or without too much free play.
- h) Other visible defects

2. At least quarterly, ladders shall be inspected by a competent person to identify signs of wear, misuse, abuse, deterioration, etc. Inspections shall be documented and all inspected ladders identified utilizing the MAPP Quarterly Tool Inspection program. Items to be inspected include the following.

- a) Rungs/Cleats
- b) Rails
- c) Hooks and latches
- d) Hinges
- e) Non-skid Feet
- f) Manufacturer Ratings (if applicable)
- g) Spreader bar
- h) Corrosion or other wear

3. Ensure that the quarterly inspection marking system remains legible between inspections. Ladders with illegible or missing markings will be considered unsafe and will be removed from service.

4. All ladders shall be inspected for any occurrence that could affect their safe use (e.g., ladder falls, damage by external forces, etc.).

5. The use of ladders with broken, defective, or missing parts is prohibited. Ladders with such defects shall be clearly tagged or identified and immediately removed service.

6. Deficiencies shall be repaired or the ladder destroyed as determined by the nature of the deficiency.

7. Ladders shall not be painted. They shall be treated only with a transparent nonconductive material and shall be kept free from dirt or materials that could conceal defects or manufacturer rating markings.

8. Keep ladders free of grease, oil, mud, and similar substances that can create hazards to users.

C. Setup

1. Read and follow instructions included in the manufacturer's use and care labels or booklet.

2. Portable ladders shall be placed on a substantial level base, and the area around the top and bottom of the ladder shall be kept clear.
3. Place portable ladders such that both side rails have secure footing. When working on soft ground, provide solid footing to prevent ladder from sinking.
4. Never lean a ladder against unsafe backing such as loose boxes or barrels.
5. Do not place ladders in walkways, doorways, passage ways, or any location where they may be displaced by other work activities, unless protected by barricades or guards.
6. If a ladder is to be placed where the opening of the door may displace it, the door shall be locked and signage placed, or otherwise guarded.

D. Use

1. A ladder (or stairway) is required if a worker is required to step up or down more than 19 inches.
2. Step ladders shall be used to provide an elevated work platform when other methods are not feasible and straight ladders to provide access to another work level.
3. Ladders must not be loaded beyond the maximum intended load for which they were built, or beyond the manufacturer's rated capacity.
4. Do not use ladders in a horizontal position or as a runway or scaffold.
5. Do not use ladders for skids, braces, workbenches, or any purpose other than climbing.
6. Only one employee shall climb or work from a ladder at a time unless designed and manufactured to be used as such.
7. While ascending or descending a ladder, person shall face the ladder and maintain three points of contact at all times, e. g., two feet and one hand.
8. Ladders must be equipped with non-skid safety feet.
9. Do not carry anything that will prevent holding on with both hands. Use a hand-line, ½ inch or greater in diameter, to raise or lower tools and equipment.
10. Do not reach further than arm's length from ladder while working. Worker should move ladder as work progresses.
11. Be sure that work shoes/boots are not greasy, muddy, or slippery before climbing.
12. Never slide down a ladder.
13. Do not leave ladders unattended unless properly secured. All ladders shall be lowered and stored properly when not in use.
14. Metal ladders or ladders with metal side rails shall not be used near electric equipment or lines, or for work involving welding or motor control centers. (Aluminum will conduct electricity.)
15. Employees shall not anchor (tie) personal fall protection to portable ladders. Structural components of fixed ladders may be utilized for personal fall protection only when determined by a competent person to meet the anchorage requirements described in HSE39-001, Fall Protection.
16. Portable ladders in use shall be tied, blocked, or otherwise secured at all times when possible to prevent displacement. It is recommended that all ladders be equipped with a 6-foot tie-off rope, which shall be affixed as soon as the ladder is positioned. If no suitable anchor point is available, it shall be evaluated if a second worker is necessary to steady the ladder during work.

V. STRAIGHT AND EXTENSION LADDERS

- A.** Employees shall not work higher than a third rung from top on straight or extension ladders.
- B.** Extend the side rails at least 3 feet (36 inches) above the landing, except in those instances where such an extension would in itself produce a hazard. When this is not practical, install grab rails at the landing elevation, which provide a secure grip.
- C.** The top section of straight ladders should always be securely tied off to something substantial.

- D. Ladders shall be placed so the distance from the foot of the ladder to the base of the wall or other support is one fourth the working length of the ladder. Or, stated differently: When setting up straight or extension ladders the feet of the ladder should be placed 1 foot from the base of the vertical support for every 4 feet of ladder height.
- E. Ensure the side rails have a secure footing. The resting point for the side rails should be rigid and have ample strength to support the applied load.
- F. After the extension section has been raised to desired height, check to see that safety dogs or latches are engaged and secure the extension rope to a rung on the base section of ladder.
- G. When using two section fiberglass extension ladders, the two sections must have a minimum overlap of 3 feet for working lengths up to 32 feet, and 4 feet for working lengths up to 36 feet. (All extension ladders must be overlapped a minimum of 3 rungs, refer to manufacturer guidelines)
- H. Extension ladders must not be taken apart in order to use the two sections separately. Short ladders must not be spliced together to make longer ladders.

VI. STEP LADDERS

- A. Employees shall not use the top step or the top cap/landing of a step ladder.
- B. Never climb or stand on the rear side of a stepladder, unless designed and manufactured for such.
- C. An A-frame ladders shall not be used as straight ladders. Always open step ladders fully, set ladder level on all four feet, and lock spreaders in place.
- D. Do not place tools or material on steps.

VII. JOB MADE LADDERS

- A. Job-built ladders must be constructed for intended use. If a ladder is to provide the only means of access or exit from a working area for 25 or more employees, or simultaneous two-way traffic is expected, a double-cleated ladder shall be installed.
- B. Double-cleated ladders must not exceed 24 feet in length.
- C. The width of single-cleat ladders will be at least 15 inches, but not more than 20 inches, between rails at the top.
- D. Side rails will be parallel or flared top to bottom by not more than $\frac{1}{4}$ inch for each 2 feet of length.
- E. It is preferable that side rails be continuous. If splicing is necessary to attain the required length, however, the splice must develop the full strength of a continuous side rail of the same length.
- F. Two-inch by 4-inch lumber will be used for side rails of single cleat ladders up to 16 feet long; 2-inch by 6 inch lumber will be used for single-cleat ladders from 16 feet to 30 in length.
- G. Two inch by 4-inch lumber will be used for side and middle rails of double-cleat ladders up to 12 feet in length; 2-inch by 6-inch lumber for double-cleat ladders from 12 to 24 feet in length.
- H. Wood cleats up to and including 20 inches wide will be $\frac{3}{4}$ inches in thickness and 3 inches in width. Wood cleats over 20 inches wide will be $\frac{3}{4}$ " in (1.9 cm) thickness and $3\frac{3}{4}$ inches in width.
- I. Inset cleats into the edges of the side rails $\frac{1}{2}$ inch or use filler blocks on the rails between the cleats. Secure the cleats to each rail with three 10d common wire nails or other fasteners of equivalent strength. Uniformly space cleats at 12 inches top-to-top.
- J. Additional information on job-built ladders is provided in Figure 1.

VIII. TRAINING

- A. All persons engaged in work, which require the use of a ladder must be properly trained on the contents of and in accordance with this HSE policy.

B. Safe ladder usage training is to be conducted upon hire, and at least annually after for each employee who may have occasion to use ladders.

IX. REFERENCE

- A.** 29 CFR 1926 Subpart X Ladders
- B.** 29 CFR 1910 Subpart D Ladders
- C.** MAPP HSE39-001, Fall Protection

FIGURE 1 – JOB MADE LADDERS



