Portable Ladders

MSC-PRAC-30481

Revision 0

Effective Date: December 16, 2009

Topic: Safety and Health

Portable Ladders

PURPOSE

This practice identifies a key aspect of the Safety and Health (S&H) program, and establishes the requirements and processes for purchasing, building, selecting, using, and inspecting portable ladders.

SCOPE

This practice includes the following major selections:

- General Requirements
- Selection and Use
- Inspection and Maintenance
- Training

The requirements of this practice are consistent with the requirements published in the Hanford Mission Support Contract (MSC) Safety and Health virtual manual.

APPLICATION

This practice applies to Mission Support Alliance (MSA) construction personnel.

GENERAL REQUIREMENTS

Records generated during the performance of this activity are to be included in the Construction Work Package and will be managed in accordance with MSC-PRAC-30374, *Construction Work Package* and MSC-PRAC-30376, *Construction Document Contro* .

Managers and supervisors ensure ladders meet the following requirements:

- Designed and constructed to meet American National Standards Institute (ANSI) standards for ladders:
  - ANSI A14.1, Portable Wood – Safety Requirements
  - ANSI A14.2, Portable Metal – Safety Requirements
  - ANSI A14.4, Safety Requirements for Job-Made Ladders
  - ANSI A14.5, Portable Reinforced Plastic – Safety Requirements

NOTE: *An ANSI-approved ladder has a label stating that it meets the standard.*

- Rated for either heavy duty or extra heavy-duty use (Type I or Type IA).

NOTE 1: *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.*

NOTE 2: *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* ***up to*** *300 pounds.*

- Have rungs and steps that are:
  - Slip resistant by design or coated with a skid-resistant material
  - Fixed to prevent turning or rolling when stepped on
  - Uniformly spaced as follows:
    - For portable ladders – 254 to 304 millimeters (10 to 12 inches)
    - For step stools – 163 to 304 millimeters (8 to 12 inches)
- Have safety feet equipped with nonslip bases to help prevent slipping.
- Have components with smooth surfaces to prevent punctures and lacerations and to prevent snagging clothing.
- Have metal spreaders or locking devices on stepladders to hold the ladder in an open position during use.
- Are handled with care and not subjected to unnecessary abuse or misuse.

Competent Persons (who train employees and perform annual ladder inspections) are designated according to the process described in practice MSC-PRAC-30452, *Program Policy and Requirements* .

Ladders found to have defects are withdrawn from service for repair or destruction, or tagged out of service [refer to practice MSC-PRAC-30460].

SELECTION AND USE

Managers and supervisors ensure that employees know how to select ladders in accordance with the following:

- The ladder is the right height for elevated work.
- The ladder has no limitations that would interfere with performance of the work.
- The ladder is specifically designed for the task to be done.

NOTE 1: *Stepladders less than 6 feet in length/height may create additional stability hazards in climbing or work positioning. Their selection is to be based on work task assignments where use of a 6-foot stepladder (or larger size) is not feasible due to the presence of unavoidable obstructions, limitations in working space, or accessibility to the work.*

NOTE 2: *If the ladder has attachments, such as braces to span windows or planks used for work platforms, the attachments must be designed for the particular type of ladder and purchased and used as 1 unit.*

Managers and supervisors ensure that ladders are inspected annually by a Competent Person, in accordance with Appendix A.

Employees observe the following practices in the handling and use of ladders:

- Ensure location or ownership markings are placed in a manner that avoids compromising the structural strength of the ladder.
- Use fall protection when working off of a ladder 1.8 meters (6 feet) or more above the work surface when appropriate [refer to practice MSC-PRAC-30472, *Fall Protection*]. [Does not apply when using a ladder (less than 24 feet in height) for access only.]

NOTE 1: *Document fall protection details in a prejob planning document if the employee has to use personal fall arrest systems while using a ladder [refer to practice MSC-PRAC-30472]*

NOTE 2: *Where it is determined that conventional methods of fall protection are not practical/feasible, a Fall Protection Permit for Portable Ladders (refer to Site Form Fall Protection Permit for Portable Ladders,* A-6003-949*) is completed and approved before the task begins and accessible during job performance. Such permit 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.*

- Handle ladders with care and do not subject them to abuse or misuse.

- Do not use metal ladders around electrical services or welding.

NOTE: *It is recommended that metal ladders not be allowed at all.*

- Attach a 12.7-millimeter (0.5-inch) diameter (minimum) rope to the top rung of stepladders or to the third rung from the top of straight and extension ladders to provide a tie-off rope (if feasible) when the ladder is set up (applies to ladders more than 1.8 meters in height).

- Do not overreach or use excess force while working at heights on a ladder.

- Place the ladder so the work is at chest level and horizontally positioned so the work is either centered or as near to the side rails as possible.

- Use ladders only for short-duration jobs with a limited work scope.

- Extend ladders used to access another work surface a minimum of 1 meter (3 feet) past the level you are accessing.

- Use ladders only on stable and level surfaces; do not place a ladder on items such as boxes or barrels to reach additional height.

- Do not use ladders for braces, skids, levers, runways, platforms, scaffolds, or any other uses for which they were not intended.

- Do not work with another employee on the same ladder unless the ladder is specifically designed for 2 people.

- Keep the area around the top and bottom of a ladder clear to prevent tripping or slipping while the ladder is in use.

- When a building or structure has 2 or more points of access between levels, keep at least 1 point of access clear to permit free passage.

- Set up ladders so the weight is evenly distributed between the vertical members. For extension ladders, evenly distribute the weight between the rails.

- Do not tie or fasten ladders together to provide longer sections, unless they are designed for this application.

- Face the ladder when ascending or descending and always keep 3 limbs in firm contact with the ladder. Carry tools or equipment in a work belt or fanny pack, or hoist them to the work area using a rope and bucket.

- Do not place ladders in a doorway unless the door is blocked open or locked, or the area is barricaded.

- Ensure that shoes, hands, gloves, and the ladder steps are free of grease, mud, or anything that could cause a person to slip while climbing.

Do not place ladders against any structure or equipment that is not strong and rigid enough to support the ladder, or that is not sufficiently anchored.

Straight/Extension Ladders

Employees observe the following practices when using straight or extension ladders:

- Place straight or extension ladders so that the horizontal distance from the support is equal to 1/4 of the height from the working surface to the top contact.

EXAMPLE: Place a 3.6-meter (12-foot) ladder so that the bottom is 1 meter from the object against which the top is leaning.

- Secure straight ladders of any kind by holding or lashing while in use. Nonslip bases are not a substitute for care in positioning, lashing, or holding the ladder.

- Before climbing an extension ladder, ensure locking clips (stops) are securely in place.

- Do not stand on the top 4 rungs of the ladder.
- Do not use straight ladders longer than 6 meters (20 feet).
- Do not use extension ladders longer than 9.1 meters (30 feet) when fully extended.

Stepladders

Employees observe the following practices when using stepladders:

- Tie off or have someone hold stepladders when working on unstable ground.

NOTE: *Observe the limits imposed on self-supporting ladders (stepladders and platform ladders) by the manufacturer, such as not using the top 2 steps or the top platform as a step and fully extending and locking the braces. Use stepladders on clean, level surfaces. Self-supporting ladders are more stable if you lean forward or back than if you lean to the side.*

- Use stepladders in the fully open position with the locking devices set.
- Do not use folded stepladders as a straight ladder or to access another work surface.
- Do not use the cross bracing on the rear section of stepladders for climbing unless the ladder is designed for such use (that is, has steps for climbing on both front and rear sections).
- Do not use step and platform ladders that are longer than 3.6 meters as determined by the front rail.

Employees

Employees observe the following practices, when inspecting and maintaining ladders:

- Maintain ladders so that they are in good condition.
- Inspect ladders before issuing and before each use.
- Do not paint wooden ladders except for the platform and top step, which should be painted to indicate that users are not to step there. Clear preservatives may be used so defects are not hidden.

- Ensure that an annual inspection has been performed and documented before issuing or using a ladder. Ladders that have not been inspected should be tagged with a "Danger – Do Not Use" tag and returned for required inspection and tagging in accordance with this practice.

- Inspect ladders for structural defects such as broken or missing rungs, cleats, or steps; bent, broken, or split side rails; corroded or missing components; worn bolts, rivets, and the holes in the ladder where the bolts or rivets pass through.

- Inspect mechanical features of the ladder to ensure that they are in good working order as follows:

  - Clean and lubricate moving parts such as hinge points, pins, or pulleys.
  - Ensure that feet operate effectively through their full range of motion.
  - Ensure that extension ladder latches or stepladder locking braces are not bent or damaged and operate correctly.
  - Make sure that ropes on the ladder are not frayed, worn, or weather-damaged.

- Immediately remove defective ladders from service and tag or label the ladder as defective. The tag or label should say "DANGER – DO NOT USE."

  - Destroy ladders destined for disposal.
  - Repair ladders to design conditions before returning them to service.
  - Repair according to manufacturer's directions.

- Store ladders where they are protected from damage.

Competent Person

A Competent Person performs a general inspection of ladders for visible defects at least annually, and following any occurrence that could affect the safe use. Ladders with no visible defect have a color-coded tag (or equivalent) prominently affixed according to Appendix A.

TRAINING

Employees are trained by a Competent Person in the following areas, as applicable:

- The nature of fall hazards in the work area
- The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used [refer to practice MSC-PRAC-30472].
- The proper construction, use, placement, care, and handling of ladders
- The maximum intended load-carrying capacities of ladders used
- The information in this practice

Retrain as necessary. Training must be documented.

FORMS

Fall Protection Permit for Portable Ladders, A-6003-949

RECORDS IDENTIFICATION

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
Fall Protection Permit for Portable Ladders, A-6003-949	Construction Engineer	Project Document Control

REFERENCES

MSC-PRAC-30374, *Construction Work Package*
MSC-PRAC-30376, *Construction Document Control*
MSC-PRAC-30390, *Qualification and Certification of Nondestructive Examination Personnel*
MSC-PRAC-30452, *Program Policy and Requirements*
MSC-PRAC-30460, *Safety and Health Compliance Inspection and Management Walkthroughs*
MSC-PRAC-30472, *Fall Protection*

American National Standards Institute (ANSI)
ANSI A 14.1, *Portable Wood – Safety Requirements*
ANSI A 14.2, *Portable Metal – Safety Requirements*
ANSI A 14.4, *Safety Requirements for Job-Made Ladders*
ANSI A 14.5, *Portable Reinforced Plastic – Safety Requirements*

APPENDICES

Appendix A, Annual Inspections

Appendix A
Annual Inspections

1. A Competent Person visually inspects all ladders annually.

2. The Competent Person ensures that the following attributes, at minimum, are inspected (as applicable):

   - ☐ Ladder is ANSI Type I or Type IA certified.
   - ☐ Ladder possesses proper hardware (braces, rivets, spreaders, nuts, bolts, feet).
   - ☐ There are no cracks in wood, metal, or fiberglass.
   - ☐ There is no evidence of rot.
   - ☐ Wood ladders have adequate (such as linseed oil) preservation treatment.
   - ☐ There are no splinters.
   - ☐ Condition of steps is adequate.
   - ☐ Hardware or metal rungs (interior/exterior) are not corroded.
   - ☐ There are no dents or bends.
   - ☐ Condition of extension ropes and pulleys is adequate.
   - ☐ Safety feet are adequate.
   - ☐ Tie-off ropes of the correct length/size are attached to all straight, extension, and step ladders.

   NOTE: *Bends, dents, cracks, loose or missing rivets, disconnected braces, and corrosion seriously weaken a ladder. Carefully inspect the area around rivet points on fiberglass ladders for hairline stress cracks.*

3. Inspections are documented by the following color coding and tagging.

   Color codes are used to indicate current status of annual inspection as follows:

Color	Period Covered
Orange	Even Numbered Years
Purple	Odd Numbered Years

   Inspection tags or labels are used to document annual inspections and contain the following information, at a minimum:

   - Equipment/component description or ID number
   - Inspector
   - Date of inspection

NOTE: *In lieu of color-coded inspection tags, colors may be applied with colored tywraps, paint (except on wooden ladders), or tape. However, an inspection tag containing the above information is still required.*

4. Ladders found to be defective during annual inspection are removed from service and destroyed or repaired in accordance with manufacturer's instructions.