Portable Ladder Safety

1. Purpose / Background
The purpose of this Standard Operating Procedure (SOP) is to minimize the risk of injuries due to the incorrect use of portable ladders by establishing requirements for safe use of portable ladders per the MIT Environmental, Health and Safety Policy “achieving and maintaining compliance with federal, state and local environmental, health and safety laws and good practices in all of our departments, laboratories, research centers, facilities and operations” and the Guiding Principles, in particular, #11 “standard operating procedures” and #14 “primary responsibility for EHS compliance”.

2. Scope
This SOP describes the requirements for the proper selection, use, and storage of portable ladders in MIT laboratories, buildings and facilities. There are two main types of portable ladders: stepladders (A-frame) or straight (extension) ladders. Both types can also be made out of different materials, including metal, wood, or fiberglass. This document does not cover other types of ladder systems including but not limited to: fixed ladders, scaffolds, or elevated work platforms.

3. Prerequisites
American National Standards Institute (ANSI) approved portable ladders shall be purchased and used at MIT.

4. Procedures
4.1. Purchase of Portable Ladders:
The Department Lab or Center (DLC) management shall ensure that all portable ladders purchased conform to ANSI Type IA, 1B, or II rating.

4.1.1. ANSI requires that a duty-rating sticker be placed on the side of every ladder so users can determine if they have the correct type of ladder for each task/job.

4.2. Selection of Ladder:
The user shall select the right ladder for the job based on the work task and include the following safety considerations:

4.2.1. Weight Load. Ensure the ladder is capable of supporting the load you intend on placing it under. Calculate the load by adding the user’s weight plus any tools/materials that will be used on the ladder. Choose a ladder able to withstand your calculated maximum load according to the maximum duty-rating label on the side of the ladder. ANSI Duty Ratings are defined as follows:

4.2.1.1. TYPE IA - portable ladder rated for 300lbs., recommended for extra heavy-duty construction and industrial use.

4.2.1.2. TYPE IB - portable ladder rated for 250 lbs., recommended for heavy-duty use.

4.2.1.3. TYPE II - portable ladder rated for 225 lbs., recommended for medium-duty use.

4.2.1.4. TYPE III - portable ladder rated for 200 lbs., recommended for light-duty use.
4.2.1.5 If the ladder is not labeled with a duty rating, obtain another ladder. Assume that unlabeled ladders are rated for less than 200 lbs of load.

4.2.2 **Electrical hazards.** Use dry wood or fiberglass ladders for tasks involving potential contact with energized electrical equipment/overhead lines. Never use metal ladders around energized electrical equipment.

4.2.3 **Ladder Length.** Choose a ladder of an appropriate length for the job task. Ensure straight ladders needed for roof or platform access extend 3 feet beyond the landing surface. Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height.

4.2.4 **Ladder Type.** Obtain the correct type of ladder for the job. Never use a stepladder as a straight ladder. Evaluate the need for scaffolding or other type of elevated work platform, especially when the job is long-term, requires side-to-side movements, or the use of tools with both hands.

4.3. **Use of Ladders- General:**
The user shall position and use the portable ladder in a safe manner including the following considerations:

4.3.1. Inspect ladder for defects such as broken or loose rungs, non-secure support braces and bolts, grease or oil on steps, splintered side rails, wobbly condition prior to use.

4.3.2. Remove defective ladders from service, including marking with a **Dangerous- Do Not Use** sign. Report the defective ladder to your supervisor so that it may be removed from the site.

4.3.3. Position ladder on a level, non-slippery, stable surface. If a leveled surface is unattainable, a ladder leveler/stabilizer device should be used.

4.3.4. Ensure the load on the ladder does not exceed its maximum ANSI duty rating.

4.3.5. Block, lock, or guard doors opening towards a ladder.

4.3.6. Use warning signs or barricades near doorways, passageways, and pedestrian aisles as necessary.

4.3.7. Face the ladder while climbing, descending, or working.

4.3.8. Keep both hands free for accessing the ladder while climbing and descending the ladder. Carry small items such as hammers, pliers, measuring tapes, nails, paintbrushes, and similar items in tool belts, pouches, holsters, or belt loops. For large or heavy objects use a handline to raise and lower the object.

4.3.9. Keep one hand on the ladder while working.

4.3.10. Avoid over-reaching or leaning to the extent that the belt buckle is outside the rails of the ladder. Over-reaching is a common cause of ladder falls.

4.3.11. Do not attempt to reposition a ladder while it is in use.

4.3.12. Do not leave tools/materials on top of ladders.

See Legal Disclaimer at: [http://ehs.mit.edu/site/content/legal-disclaimer](http://ehs.mit.edu/site/content/legal-disclaimer)
4.3.13. Ensure that ladder rungs are kept free from grease or other materials that can create a slip hazard.

4.4. Use of Ladders-Stepladders
4.4.1. Ensure that all four legs of the ladder are in contact with the footing support.
4.4.2. Ensure that the spreaders are locked in the fully open position.
4.4.3. Do not use the top two steps of a stepladder

4.5. Use of Ladders- Straight Ladders
4.5.1. Ensure straight ladders extend 3 feet beyond point of access roof/elevated platform.
4.5.2. Place straight ladders at the correct non-slip, safety, resting angle: the distance from the bottom of the ladder to the wall should be approximately one-fourth of the working height. In other words, if your access point is 16 ft high, than the base of the ladder should be placed 4 feet way from the structure. Please see illustration below for further clarification:

![Diagram of ladder placement](image)

4.5.3. Ladders shall be equipped with secure footing, or lashed in position.
4.5.4. Do not use the top four rungs of a straight ladder.

4.6. Transport and Storage of the Ladder:
When the ladder is no longer needed, the user shall ensure it is stored in a safe manner:
4.6.1. Obtain assistance in transporting a portable ladder when the area is congested and/or when the ladder is heavy.
4.6.2. Lift and move ladders in accordance with good practices in order to minimize the possibility of back injury or strain.
4.6.3. Slow down and warn others while transporting ladders around corners or blind spots.
4.6.4. Store ladders in areas that do not block passageways, which are also dry and ventilated. Straight ladders are best stored in flat racks or on wall brackets. Stepladders should be stored in the vertical closed position.

4.7. Formal Ladder Inspection:
At least annually, DLC’s using portable ladders shall conduct a formal inspection (see Appendix 1) and take defective ladders out of service as necessary.

5. Roles & Responsibilities

5.1. Ladder User
An individual whose job function or responsibility is reasonably expected to involve regular or intermittent use of a portable ladder is responsible for:

5.1.1. Attending training on the proper use of ladders;

5.1.2. Selecting the proper portable ladder based on the work task risks;

5.1.3. Using the ladder in a safe manner; and

5.1.4. Storing the ladder in an appropriate location at the end of the task.

5.2. DLC Management
Departments having ladders being used under their jurisdiction shall ensure that:

5.2.1. All ladders purchased conform to ANSI Type 1A, 1B, II rating;

5.2.2. EHS Training Needs is reviewed to ensure that individuals who would be considered “Ladder Users” attend appropriate training;

5.2.3. Ladder users know how to select, inspect, use and store portable ladders in a safe manner; and

5.2.4. Ladders in their department are inspected formally at least annually.

5.3. EHS Safety Program
The EHS Safety Program personnel shall:

5.3.1. Provide Ladder Use Training.

5.3.2. Periodically audit the effectiveness of the ladder safety program.

6. Training
If an employee’s work duties include fixed ladder use, scaffolding, lifts, staging, powered platforms, or other elevated work surfaces in addition to portable ladder use, an employee must attend Working from Heights: Fall Protection training, which will also cover portable ladder use training.

Ladder Use training and Working from Heights: Fall Protection training may be arranged by contacting the MIT EHS Office.

7. Monitoring Requirements
Ladders shall be inspected before each use and more formally on an annual basis.

8. Record Management
All training records will be stored in the central training records database.
Record Retention time is still being determined, but upon that determination all training records in the central training records database will be treated the same.

9. References

9.1. Standards
OSHA 1910.25- Portable Wood Ladders
OSHA 1910.26 Portable Metal Ladders
ANSI A14.2-1990

9.2. Appendices
Appendix A: MIT EHS Ladder Safety Checklist

10. Definitions

10.1. Duty Rating: A ladder’s duty rating gives you its maximum weight capacity. There are four categories of duty ratings:

10.1.1. TYPE IA - ANSI approved portable ladder rated for 300lbs., recommended for extra heavy-duty construction and industrial use.

10.1.2. TYPE IB- ANSI approved portable ladder rated for 250 lbs., recommended for heavy-duty use.

10.1.3. TYPE II- ANSI approved portable ladder rated for 225 lbs., recommended for medium-duty use.

10.1.4. TYPE III- ANSI approved portable ladder rated for 200 lbs., recommended for light-duty use.

10.2. Straight ladder/Extension Ladder:

10.3. Step Ladder:
# Appendix A: MIT Portable Ladder Safety Checklist

## MIT Portable Ladder Safety Checklist

<table>
<thead>
<tr>
<th>Department, Lab, or Center:</th>
<th>Building/Location:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department/Area Supervisor:</td>
<td>Inspection Conducted by:</td>
<td></td>
</tr>
</tbody>
</table>

### A. General Ladder Safety

<table>
<thead>
<tr>
<th></th>
<th>Repair Needed</th>
<th>Good Condition</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ladder is free of oil, grease or other slippery materials?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Any loose steps or rungs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Loose nails, screws, bolts, or other metal parts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Broken, cracked, or split uprights, braces, steps or rungs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Evidence of damaged or worn non-slip bases?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Is the ladder an ANSI Type IA, IB, or II Rated Ladder?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### B. Step Ladders

<table>
<thead>
<tr>
<th></th>
<th>Repair Needed</th>
<th>Good Condition</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>Is the ladder unstable or wobbly condition?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Are the spreaders in operable condition (loose, not bent)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Is the stop on the hinge spreaders operable?</td>
<td></td>
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</tbody>
</table>

### B. Straight Ladders

<table>
<thead>
<tr>
<th></th>
<th>Repair Needed</th>
<th>Good Condition</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>Does the ladder have defect-free safety legs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Any loose, broken, or missing extension locks?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>