University of Central Missouri  
Ladder Program

1. Introduction

The University of Central Missouri’s (UCM) Ladder Program is designed to minimize risk to our campus community, which includes faculty, staff, students, visitors, and contractors. As UCM moves forward, we are basing our Environmental, Health and Safety programs on state and federal regulations, best practices, and manufacturer’s recommendations. Currently, UCM is exempt from Occupational Health and Safety Administration (OSHA) standards; however, OSHA regulations are considered industry standards minimums. Our goal is to create and maintain a safe, healthy working and learning environment for our campus community.

For additional information, please refer to regulations, best practices, recommendations, and any of the following:

- OSHA Regulations (Standards - 29 CFR), Ladders. – 1926.1053
- OSHA Regulations (Standards – 29 CFR), Fixed ladders. – 1910.27
- OSHA Regulations (Standards – 29 CFR), Portable metal ladders. – 1910.26
- Louisville Ladder CLIMB Academy
  o http://louisvilleladder.us.com/climb-academy.html
- Werner Ladder Safety Tips

2. Responsibilities

Environmental, Health, and Safety (EHS) Department
- Will create safety, health, and environmental programs and will make revisions as necessary
- Will help coordinate training as necessary to ensure the competence of all effected persons
- Will perform periodic work site inspections

Qualified Inspector
- Will receive training on basic ladder safety, and additional “train-the-trainer” training in order to perform annual ladder inspections
- Will have the authority to take defective equipment out of service
- Will have working knowledge of UCM’s Ladder Safety Program
• The qualified inspector is expected to complete thorough inspections of all UCM ladders and record the necessary data on the designated UCM Annual Ladder Inspection List (see Appendix A)

Supervisors
• Will have working knowledge of UCM’s Ladder Safety Program
• Will report all unsafe conditions and potential safety hazards to appropriate UCM management
• Will make sure the ladder safety program is being followed by all employees
• Will ensure all ladders are in good working condition

Employees
• UCM employees are responsible for following UCM’s Ladder Safety Program.
• Any effected employee will be provided the necessary training
• Employees are expected to use safe work practices and report all unsafe conditions and potential safety hazards to their supervisor immediately

3. Definitions

Extension Ladder
An extension ladder is a non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails

Homemade Ladders
A ladder constructed at the site and is not commercially manufactured. Not allowed on UCM campus property

Ladder
A ladder is a tool usually consisting of two side rails joined at regular intervals by cross-pieces called steps, rungs, or cleats, on which a person may step in ascending or descending.

Manufactured Ladders
Ladders commercially manufactured and safe to use on UCM campus property

Rungs, Steps, or Cleats
Rungs, steps, or cleats are ladder cross-pieces of circular or oval cross-section on which a person may step in ascending or descending.

Step – Ladder
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.
Weight Rating
Also referred to as Duty Rating. The maximum intended load, being the total of all loads including the weight of the person, materials, equipment, and platform.

Working Load
Load imposed by a person, materials, tools and/or equipment.

4. Ladder Safety

When doing work that involves the use of a ladder, follow the steps below to be safe.

**DO:**

✓ Choose the right ladder style, ladder material, and ladder weight capacity for the job
✓ Make sure combined weight of worker and tools is less than recommended duty rating on sticker
✓ **ALWAYS** inspect ladder before use
✓ Inspect work surroundings before setting up ladder
✓ Make sure ladder is on stable ground
✓ Make sure ground is free from slick spots
✓ Barricade work area from pedestrian or vehicle traffic
✓ Climb ladder facing rungs
✓ Maintain 3 points of contact (1 hand + 2 feet or 2 hands + 1 foot)
✓ Use sharpie to write on ladder, do **not** use paint
✓ Carry ladder with 2 people if needed

**DON’T**

× Do not use a metal or aluminum ladder for electrical work
× Do not move ladder while a person is on it
× Do not overreach while working on a ladder
× Do not stand at or above the 2nd step from the top on a stepladder

5. Personal Protective Equipment

Fall Protection
- If working on a ladder for a short duration of time (15 minutes or less) fall hazard protection is not required due to the hazards presented when repeatedly climbing the ladder to:
  - Locate the tie off point
  - Hook up to the tie off point
  - Remove the tie off point
- If needed, assess the worksite to determine if a man lift would be a more appropriate choice.
Based on OSHA regulations, fall protection is used in construction at 6 feet above standing height and used in general industry at 4 feet above standing height.

6. **Ladder Inspection**

Before **EVERY** use, it is important to inspect the ladder to make sure it is safe.

- Manufacturer’s safety labels are present
- No cracks, splits, or wear on the frame
- No bent pieces
- No pieces poking out
- No loose, cracked, bent, or missing steps
- No rust or corrosion
- Spreaders are stable
- Feet are not broken, loose, or missing
- Rivets are tightened
- Steps are free from slip hazards
- Top of extension ladder is not damaged
- If it is an extension ladder, pulley and rope system is there
- Rivets have not been replaced with bolts

Do **NOT** use a ladder if it is unsafe. If the ladder or working environment could be dangerous, immediately tell your supervisor. Then follow these steps:

- Put a red tag on the ladder
- Tell your supervisor
- Move the ladder away from the storage location of ladders in use

7. **Ladder Hazards**

When working from heights, the following hazards need to be considered:

- **Environment**

- **Weather**
  
  Do not use a ladder outside when there are bad weather conditions (ice, snow, lightning, or thunderstorm)

- **Electrical Work**
  
  o Be careful of overhead power lines
  o Maintain a clearance of 10 feet
  o Do not use a metal or aluminum ladder for electrical work

- **Working at Heights**

8. **Types of Ladders Used at UCM**

   Always choose the right ladder for the job!
• **Portable Metal Ladders**
  o Do not use when working near electricity or overhead power lines
  o Check that ladder is free of sharp edges and is structurally sound
  o Ensure weight rating

• **Fiberglass Ladders**
  o Use when working near electricity or overhead power lines
  o Check for discoloration or cracks

• **Aluminum Extension Ladders**
  o Do not use when working near electricity or overhead power lines
  o Check for working rope and pulley
  o Use a 1:4 ratio
    (Place the ladder so its base is one foot away from what it leans against for every 4 feet in height to the point where the ladder rests)
  o 3 feet extra over roof or edge line

**NOTE:**
UCM’s EHS Department strongly recommends using at least a 300lb Fiberglass Type 1A (minimum) ladder.

**UCM prohibits the use of homemade and wooden ladders.**
Appendix A: Sample UCM Annual Ladder Inspection List

This is only a sample inspection checklist. Please use an inspection checklist.

## University of Central Missouri

### Ladder Inspection Checklist

<table>
<thead>
<tr>
<th>INSPECTION</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Inspection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of Inspector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department/Shop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ladder I.D. #</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Ladder: Extension ( ) Step ( ) Fixed ( )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction of Ladder: Aluminum ( ) Metal ( ) Fiberglass ( )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ANNUAL INSPECTION

1. Are rungs, cleats, or steps intact and free from damage?  | YES | NO |
2. Are rails free from cracks or splitting?               | YES | NO |
3. Is the ladder free from the accumulation of oil, grease, or other material that may create a slipping hazard? | YES | NO |
4. Is the ladder free from protruding objects that could cause injury? | YES | NO |
5. If ladder is equipped with safety device, is it secured and operating properly? | YES | NO |
6. If ladder is equipped with a locking device, is the service intact and working? | YES | NO |
7. If fixed ladder is equipped with cage, is cage free of broken welds? | YES | NO |
8. Is the ladder free from any other defects that may impair its safe usage? | YES | NO |
9. Does the ladder have appropriate safety and duty rating labels? | YES | NO |
10. If it is an extension ladder, is it equipped with ropes and pulleys? | YES | NO |
11. If extension ladder is equipped with ropes and pulleys, are they intact and working? | YES | NO |
12. Have rivets been replaced with bolts? | YES | NO |
13. Did ladder pass annual inspection? | YES | NO |

### COMMENTS

Date UCM authorized repairs:
APPENDIX B: Ladder Weight Capacity Chart

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight Limit</th>
<th>Recommended Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAA</td>
<td>375 lbs</td>
<td>Extra Heavy Duty</td>
</tr>
<tr>
<td>IA</td>
<td>300 lbs</td>
<td>Extra Heavy Duty</td>
</tr>
<tr>
<td>I</td>
<td>250 lbs</td>
<td>Heavy Duty</td>
</tr>
<tr>
<td>II</td>
<td>225 lbs</td>
<td>Medium Duty</td>
</tr>
<tr>
<td>III</td>
<td>200 lbs</td>
<td>Light Duty</td>
</tr>
</tbody>
</table>

APPENDIX C: Minimum Power Line Clearance Distances

<table>
<thead>
<tr>
<th>Voltage (nominal, kV, alternating current)</th>
<th>Minimum clearance distance (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50</td>
<td>10</td>
</tr>
<tr>
<td>Over 50 to 200</td>
<td>15</td>
</tr>
<tr>
<td>Over 200 to 350</td>
<td>20</td>
</tr>
<tr>
<td>Over 350 to 500</td>
<td>25</td>
</tr>
<tr>
<td>Over 500 - 750</td>
<td>35</td>
</tr>
<tr>
<td>Over 750 - 1,000</td>
<td>45</td>
</tr>
<tr>
<td>Over 1,000</td>
<td>As established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution</td>
</tr>
</tbody>
</table>

Note: The value that follows “to” is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.
APPENDIX D: 1:4 Ratio

APPENDIX E: 3ft above edge line