Portable Ladder Safety Program
April 30, 2014

1. INTRODUCTION
   1.1. Purpose
   Indiana University has developed the Portable Ladder Safety Program to safeguard employees that perform work with portable ladders. This program is intended to prevent ladder-related incidents and to promote compliance with the Occupational Safety and Health Administration (OSHA) Standards contained within 29 CFR 1910.25 and 1910.26.

   1.2. Scope
   The Portable Ladder Safety Program establishes training and standard procedures for all Indiana University employees that use portable ladders at work. This program pertains to the use of the following ladders: step ladders, straight ladders, extension ladders, and other variations of portable utility ladders. This program does not apply to step stools less than 3 feet in height.

2. AUTHORITY AND RESPONSIBILITY
   2.1. Environmental Health and Safety is responsible for:
   • Developing, updating, and promulgating training and guidelines;
   • Maintaining training records;
   • Validating program implementation; and
   • Revising and updating the program as necessary.

   2.2. Supervisors are responsible for:
   • Ensuring that applicable personnel have been trained;
   • Ensuring that applicable personnel comply with this program;
   • Removing defective, damaged, or prohibited ladders from service; and
   • Conducting periodic visual inspections of ladders to ensure integrity.

   2.3. Employees are responsible for:
   • Completing applicable training;
   • Complying with the requirements of this program;
   • Conducting visual inspections of ladders prior to use for defects and damage;
   • Ensuring safe conditions prior to use; and
   • Removing defective, damaged, or prohibited ladders from service.

3. PROGRAM ELEMENTS
   3.1. Ladder Types
   This program applies to four primary portable ladder types: step-ladders, straight ladders, extension ladders, and extension trestle ladders. A step-ladder is a self-supporting ladder, non-adjustable in length, having flat steps and a hinged back. A single straight ladder is nonadjustable in length, consisting of only one section, while an extension ladder is a portable ladder adjustable in length, consisting of multiple sections.

   3.2. Ladder Composition
The rails on a ladder are generally composed of wood, metal, or fiberglass. The following information outlines important details regarding the different properties of these materials as they apply to ladders. Although all three of these materials are discussed in this program, please refer to the campus-specific appendix (See Appendix A) for more details regarding use and application of these ladder compositions on each campus.

3.2.1. Wood Ladders
Wood ladders are electrically non-conductive and are the best natural insulator against heat. However, they can be electrically conductive if wet. Wood ladders are heavier than metal and susceptible to rotting and splitting in the absence of a protective finish.

3.2.2. Metal Ladders
Metal ladders are relatively strong and lightweight, but they are prone to dent, bend, and conduct heat. They must not be used when working on or near electrical wires or when working around energy sources. Metal ladders must be labeled with a “DANGER” sticker indicating an electrocution hazard.

3.2.3. Fiberglass Ladders
Fiberglass ladders are strong and electrically non-conductive, but they are generally heavier than metal ladders. Fiberglass may chip or crack upon impact, and when overloaded, fiberglass may crack to the point of failure.

3.3. Ladder Selection
The type and composition of a ladder necessary for a particular job shall be determined based upon the specific task and requirements outlined in the campus-specific appendix (See Appendix A). In addition, the American National Standards Institute (ANSI) requires that a duty rating sticker be placed on the side of each ladder. When selecting a ladder, ensure that the ladder has an adequate proper duty rating to support the combined weight of the user and the material. Materials include the weight of clothing, protective equipment, and supplies being carried or stored on the ladder. The ladder duty ratings are as follows:

- Type IAA (Extra Heavy Special Duty Industrial): for heavy duty, such as utilities, contractors, and industrial use. Load capacity not to exceed 375 pounds.
- Type 1A (Extra Heavy Duty Industrial): for heavy duty, such as utilities, contractors, and industrial use. Load capacity not to exceed 300 pounds.
- Type I (Industrial): for heavy duty, such as utilities, contractors, and industrial use. Load capacity not to exceed 250 pounds.
- Type II (Commercial): for medium duty, such as painters, offices, and light industrial use. Load capacity not to exceed 225 pounds.
- Type III (Household): for light duty, such as light household use. Load capacity not to exceed 200 pounds.

3.4. Ladder Inspection & Repairs
Each user shall inspect the ladder prior to use. The user performing the inspection shall visually inspect and confirm that applicable criteria are met within the "Portable Ladder Inspection Checklist" (See Appendix B-1). A user shall re-inspect the ladder immediately after events that could impact the integrity of the ladder (e.g. dropping the ladder or transporting the ladder). Ladders that do not meet the requirements of the "Portable Ladder Inspection Checklist" shall be tagged as “Dangerous, Do Not Use” and removed from service immediately. Improvised repairs shall not be made to ladders. Only repairs that restore the ladder to the manufacturer’s design specifications are permitted under this program. In addition, wood ladders shall not be painted with an opaque finish or coated with any material that may hide defects.

3.5. Ladder Storage & Transport
As a best practice, ladders should be stored in a location out of direct sunlight and away from chemicals or materials that may cause decay or damage. Materials shall never be stored on a ladder or hung from a ladder in storage. All ladders shall be secured during transport to prevent damage.

3.6. Ladder Setup & Securement

Employees shall ensure that the following “proper use” criteria are met prior to setup:

- Ladders shall be set-up on a flat, level surface;
- Ladders shall not be placed in front of a door opening unless the door is blocked open, locked, or guarded;
- Ladders shall not be used horizontally as a platform, a runway, or scaffold;
- Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height;
- The area around a ladder must remain clear from debris, equipment, etc;
- Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer’s rated capacity;
- Ladders shall not be setup or used outdoors during wind speeds exceeding 20 miles per hour;
- Ladders shall not be setup or used on slippery surfaces such as snow, ice, or oily deposits;
- Ladders shall not be used by more than one employee at a time;
- The maximum length of a step-ladder shall not exceed 20 feet, a single straight ladder shall not exceed 30 feet, and an extension ladder shall not exceed 36 feet. Aerial lifts or other means should be used for heights exceeding 36 feet;
- Shorter ladders shall not be spliced together to create longer sections; and
- Standing ladders shall not be left unattended.

Employees shall setup the ladder according to the following chronological steps depending on the type of ladder:

3.6.1. Step-Ladders

a) Lay the step-ladder on the ground, and extend and lock the metal spreaders in place.
b) Lift the ladder from the top and walk it up until the ladder is sitting on all four feet.
c) If the ladder is large or the task is too difficult alone, ask for help to setup the ladder. Using two people, raise the ladder like one would a straight ladder. Have one person on the front side rails and the other person on the back side rails. Separate the front from the back by walking in opposite directions. Ensure the spreader is engaged and the hinge is locked.
d) Once the ladder is in the upright position, the metal spreader shall be checked again to ensure that the spreader is locked prior to use. A step-ladder shall not be used in a folded position.

3.6.2. Straight and Extension Ladders

a) Lay the ladder on the ground with the base resting against the bottom of a wall and the top pointing away from the wall.
b) Starting at the top, lift the ladder over your head and walk under the ladder to the wall. Move hands from rung to rung as you go.
c) When the ladder is vertical and the top is against the wall, pull the base out so that the distance from the wall is one-fourth the height to the point of support.
d) If using an extension ladder, extend the ladder up as necessary from the ground only.
e) The minimum overlap for any two-sections on an extension ladder shall be at least three feet.
f) No ladder shall be used to gain access to another location unless the top of the ladder extends at least 3 feet above the point of support, at eave, gutter, or roofline.
g) When possible, each ladder shall be secured at the top and bottom to prevent movement. At a minimum, the bottom shall be securely blocked against a fixed object such as a cleat, tied to the base of the wall, or footed against another person.
3.7. Ladder Climbing and Standing
When climbing or standing on a ladder, the following safety precautions shall be followed:
- The top two steps of an stepladder and the top two rungs of a straight or extension ladder shall not be used for standing;
- Shoes and rungs shall be free of mud, soil, paint, ice, or other slippery materials;
- When ascending or descending, the user must face the ladder;
- At least one hand must be free to grasp the ladder at all times. Maintain at least three points of contact with the ladder (two feet and one hand or two hands and one foot) when climbing the ladder;
- The top rest for portable rung and cleat ladders shall be rigid and have strength to support the load;
- Do not stand on the pail shelf of a step-ladder,
- Do not stand on the back bracing of a step-ladder,
- Do not straddle the front and back of a step-ladder,
- Supplies or equipment shall not be hand carried by the worker on the ladder; instead, a rope, block, tool belt, or pulley system shall be used to carry tools or equipment;
- When working to the side of a ladder, the centerline of the body must be maintained between the side rails. Do not overreach or lean too far to one side;
- Do not move, shift, or extend ladders while in use;
- Never climb onto the back side of a ladder, slide down the rails of a ladder, or sit on ladder rails;
- If one feels sick or dizzy while climbing or standing on a ladder, do not try to climb down in a hurry. Drape your arms around the rungs and rest your head against the ladder until you feel better. Then climb down slowly; and
- If conditions such as wind change while working, work shall be abandoned on the ladder until work conditions improve.

3.8. Work Near Energized Circuits or Equipment
Safe work practices shall be maintained to prevent electrical shock or other injuries caused by contact with energized electrical equipment or circuits. These work practices shall be consistent with university programs and policies including but not limited to the “Electrical Safety Program” and the “Lock-Out Tag-Out Energy Control Program” based upon nature and extent of the hazards. Under no circumstances shall metal ladders be used where contact could occur with energized electrical equipment or circuits.

4. TRAINING & RECORDKEEPING
Employees shall be trained on the following topics prior to portable ladder setup or use:
- Ladder types, compositions, and parts;
- Ladder selection and inspection; and
- Ladder storage, setup, and use.

Employees shall be retrained after an incident or as necessary to maintain their understanding and knowledge regarding the safe use of ladders. Training records shall be retained by Environmental Health and Safety. Records shall contain the employee name, date of training, and the subject of the training.

5. REFERENCES
- 29 CFR 1910.25
- 29 CFR 1910.26
- ANSI A14.1,14.2,14.5 - 2007
• 29 CFR 1926.1053
• University Electrical Safety Program
• University Lock-Out Tag-Out Energy Control Program

6. REVISIONS
   New Document: April 30, 2014
APPENDIX A-1: Indiana University – IUPUI

Wood and metal ladders are not recommended for use by employees on the Indiana University – IUPUI campus. New ladders purchased at IUPUI shall be of fiberglass construction unless otherwise approved by EHS.
**APPENDIX B-1: Portable Ladder Inspection Checklist**

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<th>Name of Inspector:</th>
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**Ladder Identification:**

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<tr>
<th>Type of Ladder:</th>
<th>Step</th>
<th>Single</th>
<th>Extension</th>
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<tr>
<th>Construction of Ladder:</th>
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**General**

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- Are the joints between the steps/rungs and side rails tight?  
  - If NO, Tag Out.

- Are all hardware and fittings secure (nails, screws, bolts, rivets, hinges, etc.)?  
  - If NO, Tag Out.

- Are there any cracked, split, dented, decayed or broken rails, steps or rungs?  
  - If YES, Tag Out.

- Are there any sharp surfaces or burrs on rails, steps, rungs or spreaders?  
  - If YES, Tag Out.

- Are any steps, rungs, endcaps or shoes damaged or missing?  
  - If YES, Tag Out.

- Are the slip-resistant ladder surfaces (rails, steps and rungs) clean and free of debris?  
  - If NO, Tag Out.

- Do all movable parts operate freely without binding or undue play?  
  - If NO, Tag Out.

**Stepladders**

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- Does stepladder have slip resistant shoes, front and rear side rails, steps, top cap, spreaders or locking hinges, and instructions/warning label?  
  - If NO, Tag Out.

**Straight Ladders**

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- Does straight ladder have slip resistant shoes, side rails, rungs, endcaps, and instructions/warning label?  
  - If NO, Tag Out.

**Extension Ladders**

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- Does extension ladder have slip resistant shoes, side rails, rungs, endcaps, and instructions/warning label?  
  - If NO, Tag Out.

- Does extension ladder have guides or brackets, rung locks, and rope and pulley system for fly section(s)?  
  - If NO, Tag Out.

- Are there any loose, broken, missing, or defective (don’t seat properly) extension locks?  
  - If YES, Tag Out.

- Is the rope for the pulley system frayed or worn?  
  - If YES, Tag Out.

**Additional Comments**

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