In this issue of the Environmental Health and Safety (EHS) Listserv, November 15, 2010:

1. NEW! Web-based Training (Portable Ladder Safety, Mobile Aerial Lift) & Pyrophorics video
2. Portable Ladder Safety
3. Mobile Aerial Lift Training
4. Revised Biosafety Guidelines Program

-------------------------------------

1. New Web-based Training and Pyrophorics Colloquium Video

Check it out! Following are recent additions to the web-based training offerings available through the EHS web site:

- **Portable Ladder Safety.** This training is recommended for any employee who uses a ladder at UNL and may be useful to all employees. It is estimated that 165,000 Americans seek medical treatment for ladder-related injuries every year. Most of these injuries occur in the home. Nationally, 120 occupational fatalities resulted from falls from ladders in 2009.

- **Mobile Aerial Lift Training.** This training should be taken by UNL employees who operate any type of mobile aerial platform/lift at UNL, prior to hands-on instruction for the particular machine(s) to be operated.

The recent EHS and the Office of Research & Economic Development Laboratory Safety Colloquium, “Pyrophoric (Air-Sensitive) Chemical Safety,” is now available for online viewing.

Resources:
- EHS web-based Training  http://ehs.unl.edu/onlinetraining/ (scroll to select course)
- EHS Laboratory Safety Colloquium Series  http://ehs.unl.edu/training/Colloquium/
- Office of Research & Economic Development  http://research.unl.edu/lsi_9-06.shtml

2. Portable Ladder Safety

Portable ladders are used daily by employees at UNL and regularly in homes. Often users are not aware of the safety considerations for portable ladder use. The main hazard associated with the use of portable ladders is falls. Falls occur for a number of reasons, including the following:

- The ladder is in poor condition or is improper for the task at hand.
- The ladder is poorly located and/or incorrectly positioned.
- The surface on which the ladder is located is slippery or uneven.
- Proper techniques are not observed when using the ladder.

Key factors to consider when selecting a ladder that is appropriate for the task are:

- **Type –** There are three types of portable ladder: step ladder; straight/single ladder; and extension ladder. Each type is appropriate for certain tasks and not for others.
- **Length –** When determining the length of ladder necessary, remember that the entire height of a ladder is NOT available for use. The highest standing level for a stepladder is generally slightly more than two feet from the top of the ladder, and is specified on the manufacturer’s label found on a side rail. For extension and straight ladders, the highest standing level is generally four rungs down from the top but is specified on the manufacturer’s label on the ladder.
• Duty (load) Rating – Ladder manufacturers establish duty ratings and post that information on the rail of the ladder. The duty rating is the maximum weight the ladder is designed to support. Weight includes the body weight of the worker, PLUS any tools or other items the worker may carry onto the ladder.
• Material of Construction – Wood, aluminum and fiberglass all have their advantages and disadvantage, based on the task at hand.

The overall determination of which ladder to select considers all the factors above, evaluated in terms of intended use. Assuming the correct ladder is chosen, there are some general safety tips applicable to all ladder use:
• Make sure the ladder is in good condition. Inspect before every use.
• Do not attempt to transport a ladder by yourself if it is too heavy or large for you to safely maneuver.
• Make sure there are no overhead hazards. There should be no electrical wires within a minimum of 10 feet of the ladder (more for higher voltage).
• If using a ladder near a door, lock it or have someone stand watch. Use warning signs/barriers in this situation or if working in a traffic-way where vehicles or pedestrians could strike the ladder.
• Make sure the ladder is positioned properly for the type, and the surface it rests upon is stable.
• Make sure you adhere to manufacturer’s labels affixed to the ladder.
• Make sure you do not create a hazardous situation by working on a ladder when you are physically impaired, wearing shoes that are not slip-resistant, overreaching (body not centered, while climbing/working on a ladder, or not maintaining three points of contact.

In addition to resources available through EHS, the American Ladder Institute offers free online instructional videos and fact sheets. Users need to register for online access, but there is no charge for the materials available.

Depending on the task at hand, an aerial lift or other device may be the better choice. For example, a portable ladder is not a good choice when it is necessary for a person to carry heavy loads or shift their center of gravity while on the ladder; the resting point for the top of the ladder is weak or marginally secure (e.g., guttering); three points of contact cannot be maintained (two feet and one hand); the foundation/surface upon which the ladder will be placed is uneven, slippery, angled, or will otherwise make the ladder unstable; etc. The next section provides an overview of mobile aerial lift safety.

Resources:
➢ Ladder Safety Safe Operating Procedure (SOP)  http://ehs.unl.edu/sop/s-ladder.pdf
➢ American Ladder Institute  www.laddersafetytraining.org/

3. Mobile Aerial Lift Training

Last month a new Safe Operating Procedure, Aerial Lift Safety, became available through the EHS web site. This month Mobile Aerial Lift Training became available as a web-based course. This training is specific to mobile aerial platforms used to position personnel so that they can conduct work at elevated heights. This first level of training provides a general overview of hazards associated with aerial lifts and the actions to take to mitigate such hazards both prior to and during use.
Nationally, one of the most common and deadly hazards associated with aerial lifts is electrocution from contact with electrical wires and conductors. To avoid electrocution:

- Maintain safe distances from electrical lines based on line voltage, at a minimum 10 feet. If safe distances cannot be achieved, do NOT use the equipment.
- If welding while on an aerial lift, do NOT use the platform or any part of the machine for grounding.
- If using electrified tools while on an aerial lift, use only tools that are double insulated or have a grounding plug.
- If using an electromechanical model lift, ensure that the proper gauge of extension cord wire is used and that it is in good condition and equipped with a grounding plug.
- Do not operate the machine outdoors if there is threat of lightening. In fact, do not operate during any type of inclement weather, including windy conditions, since fall and tip-over hazards are exaggerated in these conditions.
- Personnel on the ground are prohibited from operating the ground controls when an aerial lift is in contact with a live electrical source until such time as the electrical source is de-energized.

The recent death of a Notre Dame University student using a scissors lift highlights the seriousness of tip over/collapse as a hazard of aerial lift use. According to the U.S. Bureau of Labor’s fatality statistics, 75 percent of scissor lifts that tipped over resulted in fall deaths. This hazard may be mitigated by observing the following:

- Do not operate a lift during windy conditions. Each lift’s operator’s manual gives guidelines on maximum wind speed for safe operation.
- Do not exceed the model’s load capacity. The manufacturer’s capacity rating includes the weight of the person using the lift and all tools/supplies/equipment that will be on the platform.
- Make sure the surface under the lift is relatively level and firm. Manufacturers specify a maximum slope which must never be exceeded. Within the recommendations, use wheel chocks and brakes.
- NEVER position or tie off the lift or platform against a wall, structure, or other surface. This increases the potential for tip over.
- If stabilized by outriggers, NEVER attempt to move the machine or adjust the outriggers while the platform is raised.
- NEVER move a machine that is designed to be used in a stationary mode while the platform is raised.
- Maintain the center of gravity. NEVER attempt to increase the surface area of platform with planks, boards, etc. Do not hang tools or equipment off the sides or rails of the platform.
- Do not have more than one person in a lift unless it is specifically designed for that purpose.
- Avoid pushing off/pulling toward any surface, structure, or object outside the platform.

The potential for falling from a lift is a hazard that must be recognized and steps taken to mitigate the risk. Use the following precautions:

- Keep both feet firmly on the floor of the platform. Do not sit, stand climb on the guardrails. Do not lean on or over the rails.
- Do not try to gain additional reach by using ladders, etc. on the platform.
- Restrict quantity of materials and equipment on the platform. Position equipment so the weight is evenly distributed and so that it does not present a trip hazard.
- Keep platform, shoes, and your hands clean. Ensure your shoes have an anti-slip tread.
- Enter and exit the platform ONLY when it is fully lowered.
• If applicable, wear and properly use a personal fall arrest system. Fall protection is required on all lifts except scissor-like lifts.

NOTE: Workers intending to use aerial lifts of any type must complete hands-on instruction by a competent, experienced individual, with training specific to the machine(s) the worker will use. The worker must demonstrate competency BEFORE being authorized to operate any aerial lift.

Resources:
- Aerial Lift Safety SOP  http://ehs.unl.edu/sop/s-aerial_lift_safety.pdf
- Fall Arrest Systems SOP  http://ehs.unl.edu/sop/s-fall_arrest_systems.pdf

4. Revised Program

The UNL Biosafety Guidelines were recently updated to establish policies and procedures for Institutional Biosafety Committee (IBC) protocol maintenance. Protocol amendments, which can be submitted at any time after a protocol is approved, containing major changes to the protocol will be reviewed by the full IBC committee, while minor changes (e.g. personnel, grant, facility, etc) can be reviewed and approved by the UNL Biosafety Officer on behalf of the IBC.

Additionally, annual update forms are required for all protocols to maintain approval. These forms are reviewed by the EHS Biosafety Officer and will be used to determine if an amendment is necessary. Annual update forms must be completed even if an amendment form was recently submitted. For more details see the full text of the UNL Biosafety Guidelines at:  http://ehs.unl.edu/documents/Biosafety_Guidelines.pdf

Remember...SAFETY IS AN ATTITUDE!