Safety Talk: Ladder Safety Guidelines

Injury statistics show that there are many hazards that can be associated with ladder use. These hazards include:

- Falls from ladders
- Being struck by falling ladders or materials falling from ladders, or by persons carrying ladders
- Tripping over ladders
- Lifting heavy ladders
- Contact with electrical equipment

Know the hazards and take precautions to prevent a fall!

Ladder Selection

When selecting a ladder, it is important to choose the right ladder for the job (step stool, stepladder, extension ladder). There are many types, materials, and lengths to be considered.

All ladders shall be: properly suited for the task, have non-slip feet, and CSA-approved.

Consider the Duty Rating of the ladder, which is located on the side rail of the ladder. Selecting the appropriate ladder rating will ensure the work can be done safely – reference the CSA standard below.

CSA Standard for Portable Ladders – CAN3-Z11-M81

SECTOR	CSA LOAD RATING	GRADE TYPE	WEIGHT LIMIT
Construction Industrial Utilities	Extra Heavy Duty (ANSI) Heavy Duty	1A 1	300 lbs 250 lbs
Light Maintenance Office Tradesman	Medium Duty	2	225 lbs
Household	Light Duty	3	200 lbs

Ladder Material

Ladders are constructed from a variety of materials:

Fiberglass / Resin

-strong and durable

-safe for work with or near electricity, when dry

-resists corrosion

-resists physical damage

-resists heat and cold conduction

-approved and recommended for use at the University

Wood

-not safe near electricity if it has metal reinforcing or is damp

-can rot or be damaged by moisture or chemicals

-resists heat and cold conduction

-not recommended for use at the University

Aluminum

-lightweight and strong

-not safe to use near electricity

-resists most types of corrosion

-easily physically damaged

-readily conducts heat and cold

-not recommended for use at the University in locations with a potential electrical hazard

Steel

-heavy and not easily portable

-susceptible to rust and corrosion

-conductive and not safe to use around energized equipment

-not recommended for use at the University

Length of Ladder: Whether it be a step or extension ladder, ensure it is the proper length. The maximum length of a ladder measured along its side rail must not exceed:

› 6 m (20 ft) for a stepladder
› 9 m (30 ft) for a single/straight ladder
› 15 m (50 ft) for an extension ladder with 2 sections
› 20 m (65 ft) for an extension ladder with more than 2 sections

Work Area Assessment

When planning the work to be done, consider using one of the following preferred methods:

• Lowering the work
• Scaffolding
• Using elevated platforms

If a ladder is to be used, implement the following controls:

- Use the best type of equipment for the job
- Ensure the ladder is set up properly and secured
- Ensure the ladder is inspected and maintained
- Ensure personnel are trained to use the equipment that is required.

When setting up the ladder, it is important to check the area for other hazards such as:

- Traffic / pedestrians
- Electrical wires or other overhead hazards
- Uneven surfaces
- Obstructions at the top or bottom of the ladder

Use barricades and/or warning signs to prevent pedestrians or traffic from accidentally bumping into the ladder. If the planned work on the ladder can create hazards to pedestrians below, is in a passageway or doorway, or where traffic or other activities can occur, ensure the work area is barricaded / blocked off appropriately.

Consider the appropriate Personal Protective Equipment (PPE) for the planned work:

- Ensure soles and treads of footwear are clean and made of a non-slip material
- Wear a hard hat if there are overhead hazards present
- Other PPE required for the job and hazards present

Pre-Use Inspection

- Always conduct a visual inspection of the ladder before climbing
- Never use a ladder with defective parts. Tag the ladder and remove it from service immediately.
- Document the ladder inspection, using the University's *Ladder Inspection Checklist*

Safe Ladder Use

When using a ladder:

- Set up the ladder on a stable, dry and even surface.
- Secure the ladder and make sure it will not be accidentally moved while you are using it.
- Maintain a clear access at both top and bottom landing areas without any obstructions.
- Place the ladder at a 75 degree angle with the ground. This is a 4:1 ratio. This means the ladder's base is back by 1 foot for every four feet up. The distance from the bottom of the ladder to the surface it leans against should be ¼ of the height of the ladder's position.
- Allow for the top of the ladder to extend at least one meter above the step-off point (roof top landing).
- Have a spotter watch for hazards while the work is being done, and use warning signs/barricades if needed. If the ladder is not securely fastened or it is likely to be endangered by traffic, a spotter must hold the ladder in place while being used.
- Only one person at a time on a ladder.
- Carry tools in a tool belt when climbing, or use a rope with a spotter to raise them up to the work area.
- Always face the ladder while climbing.
- Always maintain 3 points of contact (1 hand with 2 feet, or 2 hands with 1 foot) with a firm grip when climbing up and down and while working.
- Don't overreach – keep your belt buckle between the side rails of the ladder.
- Get help when moving or positioning long or heavy ladders.

Test the 4:1 Set-Up Angle

By standing at the base of the ladder with toes touching the rails, extend your arms forward. If your fingertips touch the ladder rung nearest to your shoulder level, the set-up angle has a 4:1 ratio.

Stepladders: Before using a stepladder, check to make sure:

- The rungs and rails are straight and tight
- The legs are fully open
- Spreaders are locked
- The ladder is secured on a firm, flat surface
- Never to step on the top two steps or pail shelf

Portable Ladders / Extension Ladders: Before using an extension ladder, check to make sure:

- The rungs and rails are straight and tight
- It is positioned in the 4:1 ratio for angle set up
- The ladder is set on a firm, flat surface
- Never to step on the top three rungs

If a ladder is used as a means of access between levels, it shall extend at least 3 feet above the landing/floor.

Fixed Ladders: Before using a fixed ladder, ensure:

- There is a safety cage if the ladder is longer than 5 m (16.4 feet)
- There is a fall restricting system if the ladder is 16 feet or longer
- Anchors, rungs and side rails are in good condition without distortion, dents, looseness or corrosion

Dangerous Practices

Be aware of dangerous practices such as:

- Over-reaching, resulting in loss of balance
- Setting up ladder on top of boxes, steps, or uneven surfaces, resulting in the ladder tipping over
- Climbing the ladder with wet or slippery shoes, resulting in slips and falls
- Removing the ladder's safety feet
- Leaning the ladder against unstable support
- Using a ladder near a floor opening / fall from heights
- Using a ladder near a doorway that could open and strike the ladder
- Leaving ladders out in the workplace, which become potential trip hazards
- Using ladders in poor weather conditions or on slippery surfaces

These ladder practices are unsafe and are prohibited at the University of Windsor.

Storage and Maintenance

Ladders need to be stored in a location that provides protection from:

- Moisture
- Cold, heat, or direct sunlight
- Chemicals, oils, grease

Ladders should be kept clean from mud, chemicals and debris that can cause them to degrade or that might hide any defects.

When transporting a ladder by vehicle, ensure it is secured to the vehicle so movement or vibration cannot damage it.

Ladders need to be stored securely in appropriate positions. Stepladders need to be closed and vertical while single ladders need to be stored horizontally and securely in racks to prevent bends or distortion. Unused ladders may become unsafe and must be inspected for defects. The unsafe ladder must be removed from storage immediately, and tagged until it can be repaired or replaced. If repair is not possible, it must be disposed of.