



# Ladder Safety Basics

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# Preface

- This information session is meant to acclimate you to hazards posed while working at ***nominal heights*** in everyday work settings (e.g., offices, labs and light industrial), including on step ladders and step stools.
- It is ***not a fall prevention or working at heights*** course for work conducted at heights > 3m (10 ft.), on aerial work platforms or in construction workplaces.
  - [Working at Heights](#) training is available via the Office of Risk Management.

# ***Surprising number of Canadians injured putting up Christmas lights***

“We tend to be pretty flippant about it: ‘Oh, I’m just putting up some Christmas lights. In fact, we should be thinking ‘Wow, I’m going to be two or three storeys up, by myself and reaching beyond where I should. And if I fall, something serious might happen.’”\*

- Dr. Andrew McDonald, Toronto’s Sunnybrook Health Sciences Centre.

\*<http://www.ottawacitizen.com/health/yuletide+calamity+surprising+number+canadians+injured+putting/11502801/story.html>

Ottawa Citizen; December 3, 2015

# Definitions

- ***Ladder*** means a device incorporating steps, rungs or cleats on which a person may step to ascend or descend.
- ***Portable ladder*** means a ladder that can readily be moved or carried.
- ***Extension ladder*** means a non-self-supporting portable ladder consisting of two or more sections travelling in interlocking rails, guides or brackets, so arranged as to permit length adjustment.

## Definitions (cont.)

- **Step ladder** means a self-supporting portable ladder, non-adjustable in length, having flat steps and a hinged back. The back section consists of either a single ladder or some other supporting device.
- **Step stool** means a self-supporting, fixed or foldable, portable ladder non-adjustable in length, 800 mm (32 in) or less in overall size with flat steps and without a pail shelf. The ladder top cap is designed to be climbed on as well as all steps. The siderails may continue above the top cap.

# Legislative References

A portable ladder shall,

- a) be free from broken or loose members or other faults;
- b) have non-slip feet;
- c) be placed on a firm footing;
- d) where it,
  - i. exceeds six metres in length and is not securely fastened, or
  - ii. is likely to be endangered by traffic,be held in place by one or more workers while being used; and
- e) when not securely fastened, be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than  $\frac{1}{4}$  and not more than  $\frac{1}{3}$  of the length of the ladder

• Additional information is available at:

- [Regulation 851; s. 73](#)
- CSA Standard Z11 – Portable Ladders (available to consult via Office of Risk Management).

# Examples – Ladders



Step ladder



Platform ladder



Trestle ladder



Extension ladder

# Example – Step Stools



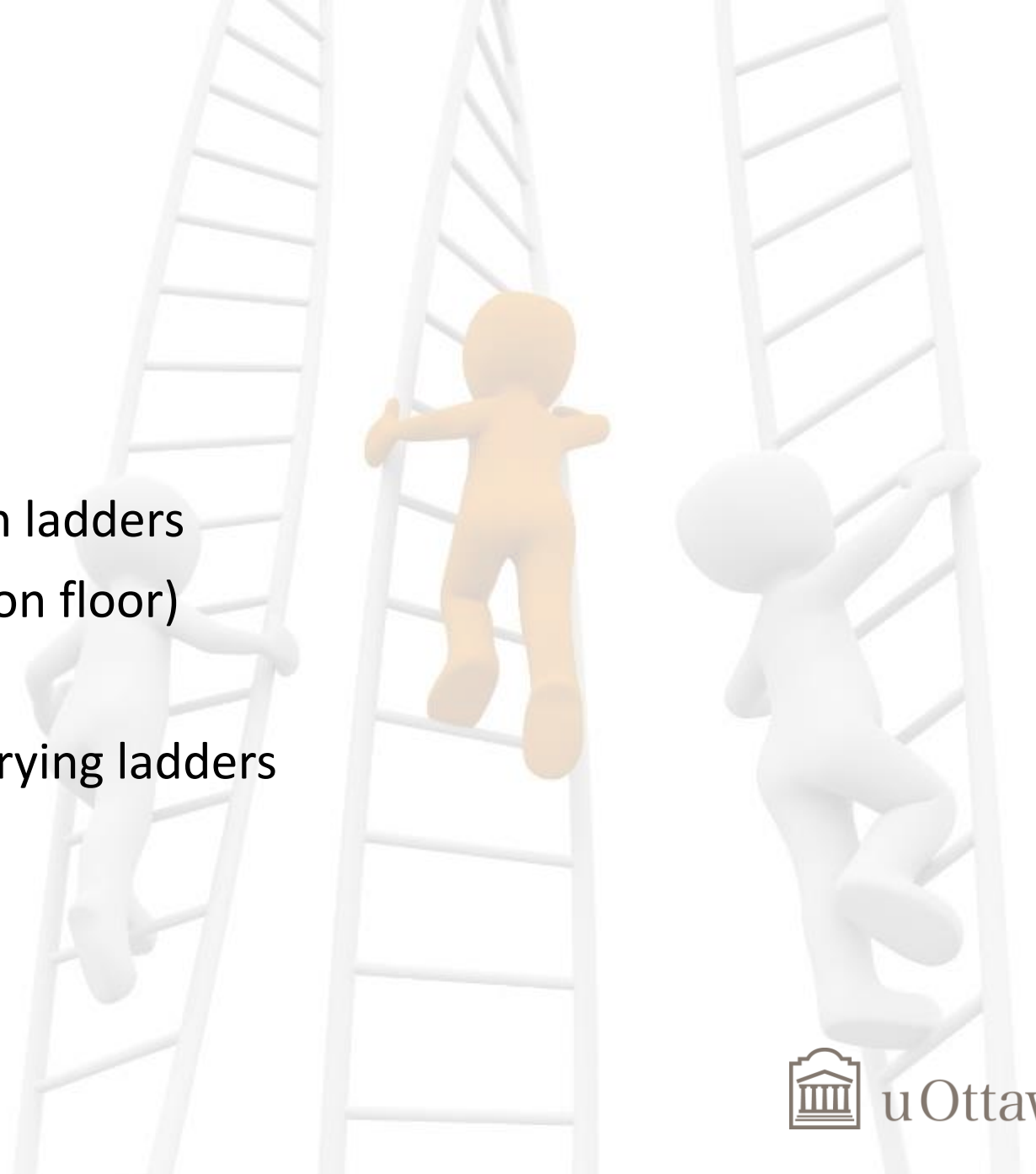


# Statistics

- Falls in general (not just from ladders) accounted for approx. 23%\* of all lost-time claims in Ontario in 2019.
  - Falls consistently represent the single greatest number of injury events at uOttawa.
- Falls have contributed to 115\* work-related deaths since 2011.
- Gravity doesn't discriminate. It affects everyone equally!

# Common Hazards

- Falls from ladders
- Being struck by a falling ladder
- Being struck by materials falling from ladders
- Tripping over ladders (erect or lying on floor)
- Lifting heavy ladders
- Striking persons or objects when carrying ladders
- Contact with electrical equipment



# Common Causes of Falls

- **Ladders** – Ladders used in situations where there is visible damage or “accepted damage” to accomplish a quick task, or improperly set up ladders (e.g., uneven surfaces).
- **Incorrect tool** – Using the wrong tool for the job (e.g., a step stool) and reaching beyond the centre of gravity.
- **Historical practices** – Work is performed using outdated, unsafe techniques that have been passed on from others.
- **Improper hazard identification** – Hazards aren’t identified, much like our Christmas lights example. Work proceeds without appropriate controls or mitigation measures.
- **Fitness for work** – Workers aren’t fit for duty because of impairments such as alcohol/drug use/abuse, physical or mental fatigue, or job-related/personal stress.

# Things to Consider

- Select the correct type and grade of ladder.
- Inspect your ladder prior to use.
- Set up your ladder on a level, firm surface.
- Ascend and descend your ladder while maintaining 3 points of contact.
- Properly store and care for your ladder.



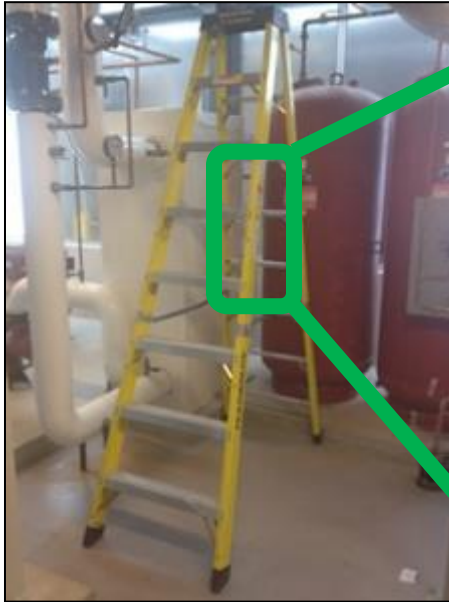
# Ladder Grades

Grade	Projected Use	Maximum Height	
		Single	Step
1	Construction and industrial	9m (30 ft.)	6m (20 ft.)
2	Tradespersons and farm	7.5m (24 ft.)	3.6m (12 ft.)
3	Household	5m (16 ft.)	2m (6.5 ft.)

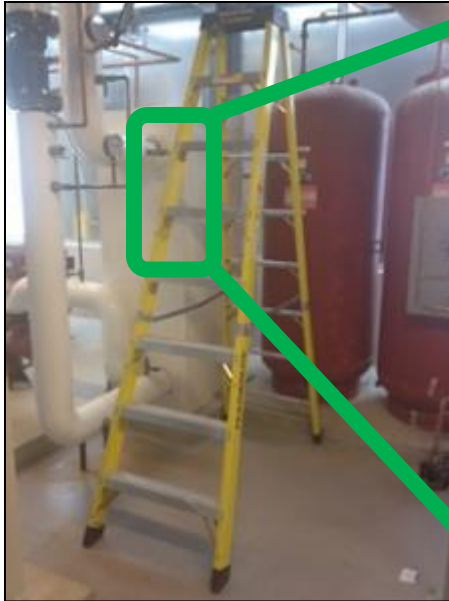
# Ladder Marking

- Ladders must be clearly, permanently and legibly marked in French and English with, at a minimum, the following:
  - Manufacturer's name or trademark
  - Date of manufacture
  - Nominal length
  - Maximum extended length (where applicable)
  - Grade, projected use and load rating
  - Safety precautions in words and symbols
- The following diagrams depict examples of the markings.

# Ladder Markings

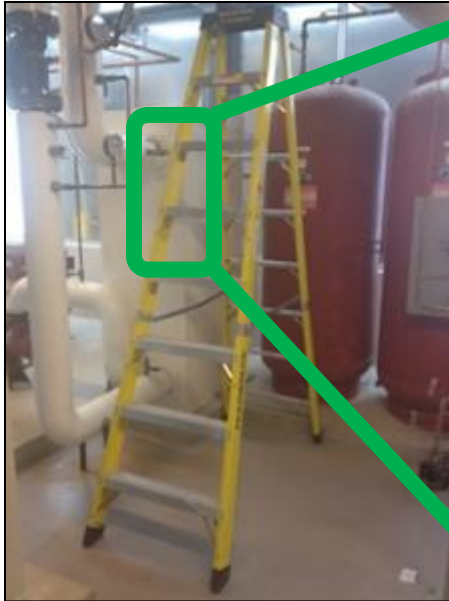


# Ladder Markings





# Ladder Markings



# Ladder Risk Assessment

A ladder must be:

- Suitable for the task (type, grade, load rating, length, etc.)
- Properly set up with a 1:4 ratio
- Properly maintained

Workers using the ladder must:

- Be trained
- Maintain 3 points of contact
- Safely use the ladder (e.g., ascending, descending, height)

# Inspecting Your Ladder

Inspect upon receipt and **before each use**.

- Your ladder may have been damaged between times *you've* used it. Ensure it's safe for *your* use.
- Ensure all arms, rivets, joints, nuts and bolts are tight and rungs are secure.
- Ensure extension locks and feet are functioning and that components are properly affixed and in good condition.

# Inspecting Your Ladder (cont.)

- Keep ladder clean, free from paint, mud, snow, grease, oil and other slippery materials. Keep shoes clean and don't use leather soles.
- Never temporarily repair a ladder. All parts must be in good working order.
- Never climb a damaged, bent or broken ladder.
- Document your inspection. Retain records.

# Ladder Inspection Log

- Assign the ladder an ID and include:
  - Physical location where the ladder is stored
  - Purchase date and records
  - Type of ladder (step, extension, platform, etc.)
  - Ladder length (e.g., the maximum height)
  - Ladder material (wood, metal, fibreglass, etc.)

	Dates of Inspection											
<input checked="" type="checkbox"/> Acceptable <input checked="" type="checkbox"/> Unacceptable												
Rungs (loose, moveable by hand)?												
Nails, screws, bolts or other metal parts (loose)?												
Uprights, braces, and rungs (in good condition)?												
Wooden parts (smooth, no splinters)?												
Non-slip safety feet (in proper condition)?												
Ladder (stable)?												
Hinge spreaders (tight, straight)?												
Hinge spreader stops (functioning correctly)?												
Hinges (tight)?												
Extension locks (in place, in good condition)?												
Rope (undamaged)?												
Identification marks (legible)?												
Ladder (stored properly when not in use)?												
Certification:												
Initials of person making inspection												
Notes:												

# Ladder Inspection Example



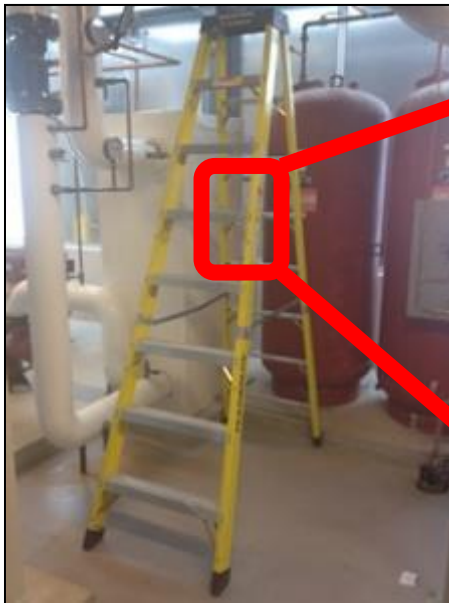
- Rivets are tight and bracing is secure and free from damage.

# Ladder Inspection Example



- Extension arms are locked and secured.

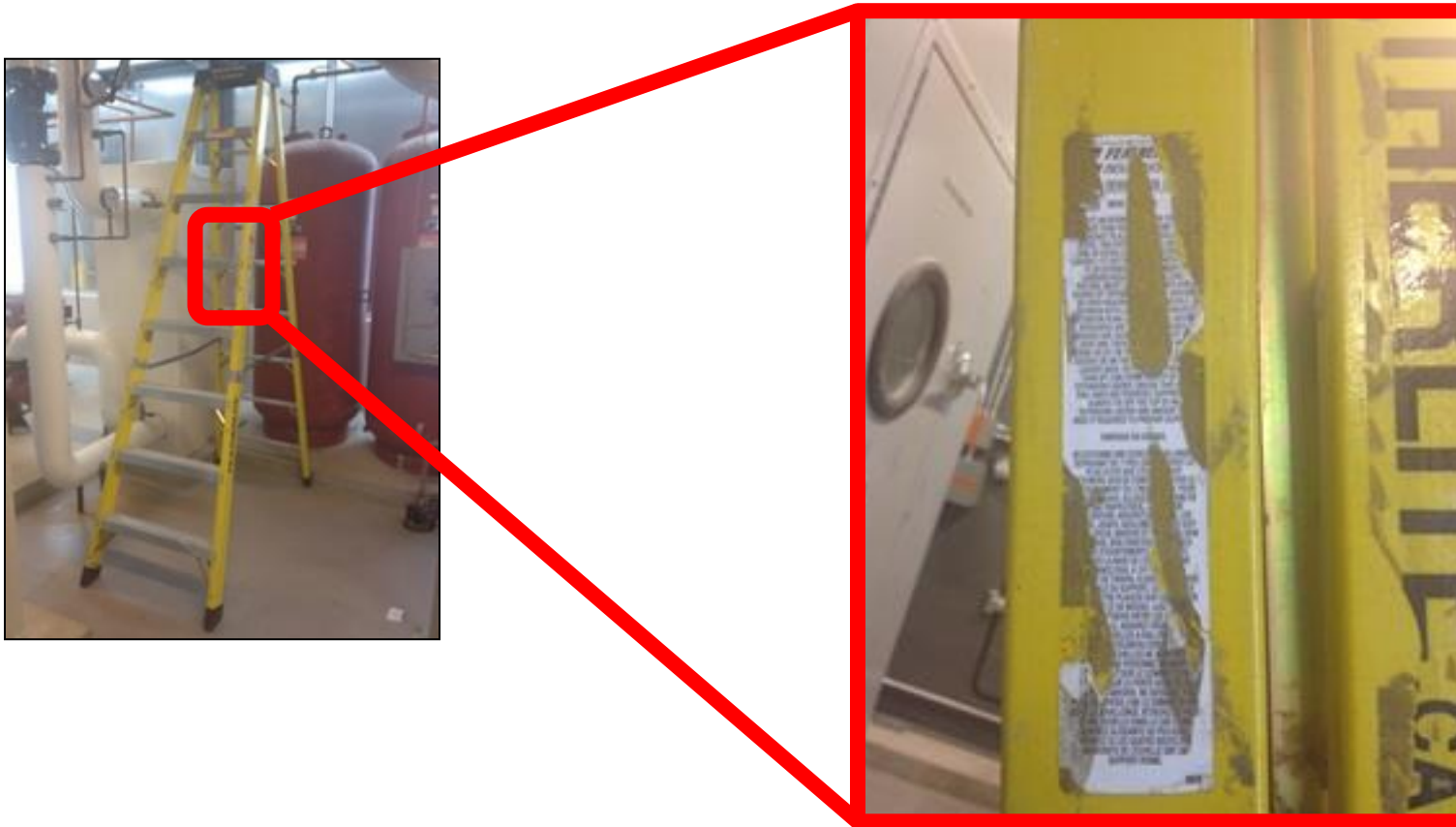
# Ladder Inspection Example



- Mandatory labelling is damaged and defaced.



# Ladder Inspection Example



- Mandatory labelling is damaged and defaced.

# Proper Setup

- Metal ladders conduct electricity. Look overhead for potential hazards not readily visible (lighting, wires, etc.).
- Secure base when raising. Never set up ladder when it's extended.
- When using single or extension ladders, create a 1:4 ratio.
- Set ladder on firm ground.

# Proper Setup

- Erect ladder with minimum of 1 m (3 ft) extending above the landing platform line. Tie ladder off.
- Extend top section only from ground, never by “bouncing” or from the roof.
- Maintain minimum prescribed overlap of extension ladder sections.
- Where possible, ask a co-worker to hold the ladder.

# Proper Climbing and Use

- Don't use if you tire easily, are subject to fainting spells, are using medicine or are otherwise impaired.
- Don't leave ladders set up and unattended. Lower and store.
- Securely engage ladder locks and arms before climbing.
- Check that top and bottom of ladder are firmly supported.

# Proper Climbing and Use

- Face ladder when climbing up or down. Don't overreach. Keep body centred between siderails.
- Maintain a firm, 3-point grip. Use both hands when climbing.
- Don't climb onto ladder from the side.
- Don't stand on or above the second rung from the top of the ladder.



# Proper Climbing and Use

- Don't use ladder in high winds.
- Use ladder for one person only.
- Keep ladder close to work area.
- Never drop or apply an impact load to ladder.
- Don't "walk" or "shift" ladder while standing on it.
- Never use ladder as a platform, plank or hoist. Don't use a ladder on a scaffold.



# Proper Care and Storage

- Properly secure ladder when transporting, especially if by vehicle.
- Never store materials on ladders.
- Return ladder to proper storage once work is complete or otherwise paused.
- Plastic reinforced ladders can be negatively affected by prolonged sunlight exposure. Consult the manufacturer about any serious problems.

# Proper Care and Storage

- Keep ladder clean and free of all foreign materials.  
**DESTROY** the ladder if broken, worn or exposed to fire or chemical corrosion.
- Report damage to your supervisor.





# Improper Ladder Setup and Care



- Unattended ladder

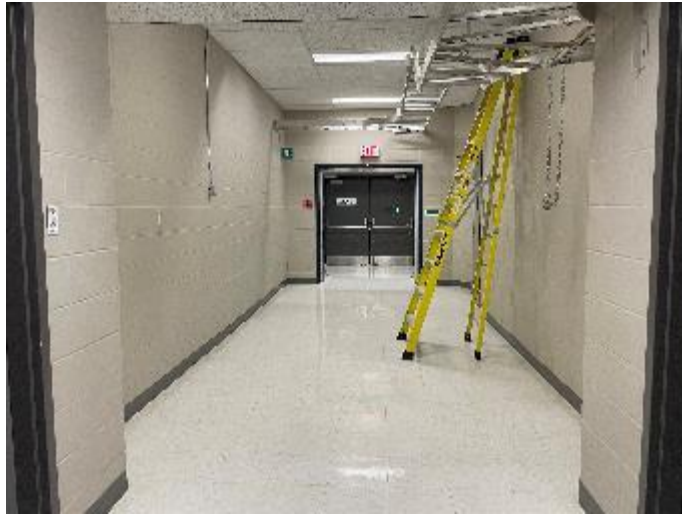


- Inappropriate setup in front of doorway



- Improper storage

# Improper Ladder Setup and Care (cont.)



- Unattended ladder with risk of falling



- Inappropriate setup in front of doorway

# Improper Ladder Use



- Using top rung of ladder



- Inappropriate setup: ladder on top of scaffold



- Improper ascension: no 3-point contact



- Leaning off ladder

# Incident Example

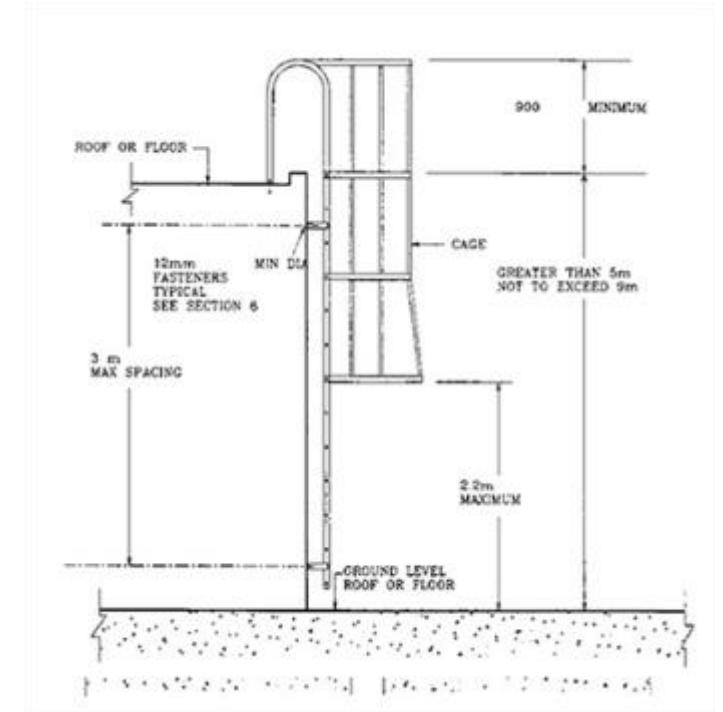
- Incidents can happen very fast and with little warning, like this incident from 2014. Fortunately, there were no major injuries.
- How would you have prevented this incident?



[https://www.youtube.com/watch?v=\\_3yLf05TUic](https://www.youtube.com/watch?v=_3yLf05TUic)

# Fixed Ladders

- Stationary ladders commonly found on roofs and building exteriors.
- May be additionally secured via ladder cover or barrier. Larger fixed ladders are equipped with a safety cage on the upper part of the ladder.
- Can be located on exterior of buildings, which adds hazards to their use (weather, slippery surfaces, etc.).



# What Can Happen?

- Injuries or death
- Regulatory orders to comply with
- Fines and/or prosecutions


  
**Court Bulletin**
  
**Aldershot Greenhouses Fined \$100,000 After Worker**
  
 February 29, 2016

**Injuries to Warehouse Workers Result in**

**Ministry of Labour - Safe At Work Ontario**
  
 Operations Division: Occupational Health and Safety

OHS Case ID: 02773N00546 Field Visit no: 02773N00547

**Field Visit Report**

Order/Requirement(s) Issued To:
 

To:	Original Role
UNIVERSITE D OTTAWA/UNIVERSITY OF OTTAWA	Primary Employer

Mailing Address: 550 CUMBERLAND, OTTAWA, ON, CA K1N 6N5

No.	Type	Code	Acting	Year	Sec.	Sub Clause	Text of Order/Requirement	Comply by Date
1	Time	02773N03648		1990	25	2	Pursuant to section 25(2)(h) of the OHS/90, to protect the workers from fall hazards, the employer shall ensure that the 2-step platform ladder in the Power Plant have non-slip feet. At the time of the visit the ladder was observed to be missing all non-slip feet.	2017-FEB-22
2	Time	02773N03649		1990	25	2	Pursuant to section 25(2)(h) of the OHS/90, to protect the workers from explosion and projectile hazards, the employer shall take the reasonable precaution of ensuring that the compressed bottles of Acetylene in the Recycling Area of the Power Plant be secured or removed from the workplace. At the time of the visit the bottle was not secured.	2017-FEB-22
3	Time	02773N03650		1990	25	2	Pursuant to section 25(2)(h) of the OHS/90, to protect workers from injury due to failure or collapse of the Pallet Mover #SPX DC71, the employer shall take the reasonable precaution of ensuring that it be thoroughly examined by a competent person to determine its capability of handling the maximum load as rated. At the time of the visit the last inspection had not been	2017-FEB-22

Inspector Name: [Redacted]
   
 Inspector Title: WILLIAM GIBBELL, OCCUPATIONAL HEALTH & SAFETY INSPECTOR

**Ministry of Labour - Safe At Work Ontario**
  
 Operations Division: Occupational Health and Safety

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No.	Type	Code	Acting	Year	Sec.	Sub Clause	Text of Order/Requirement	Comply by Date
4	Time	02773N02168		1990	25	2	Pursuant to section 25(2)(h) of the OHS/90, to protect the workers from fall hazards, the employer shall ensure that the Small Round Step Stool in Room 4561P have non-slip feet. At the time of the visit the stool was observed to be missing the non-slip feet.	2017-FEB-22
7	Time	02773N02169		1990	25	1	Pursuant to section 25(1)(b) of the OHS/90, the employer shall ensure that the Paper Cutter in Room #314S be maintained in good condition. At the time of the visit the paper cutter blade was observed to be missing the protective shield of the blade which could pose a cut hazard to a worker.	2017-FEB-22
8	Time	02773N02170		1990	890	10	Pursuant to section 10(1) of the WHMIS Regulations 840/90, the employer shall ensure that if a controlled product is transferred to another container, that the other container has a workplace label. At the time of the visit there was no workplace label on a container of product being discharged from the RPLC Machine in Room #4691.	2017-FEB-22

Inspector Name: WILLIAM GIBBELL, OCCUPATIONAL HEALTH & SAFETY INSPECTOR

**Ontario Field Visit Report**
  
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Ministry of Labour - Safe At Work Ontario

Operations Division: Occupational Health and Safety

OHS Case ID: 02773N00546 Field Visit no: 02773N00547

**Field Visit Report**

Order/Requirement(s) Issued To:
 

To:	Original Role
UNIVERSITE D OTTAWA/UNIVERSITY OF OTTAWA	Primary Employer

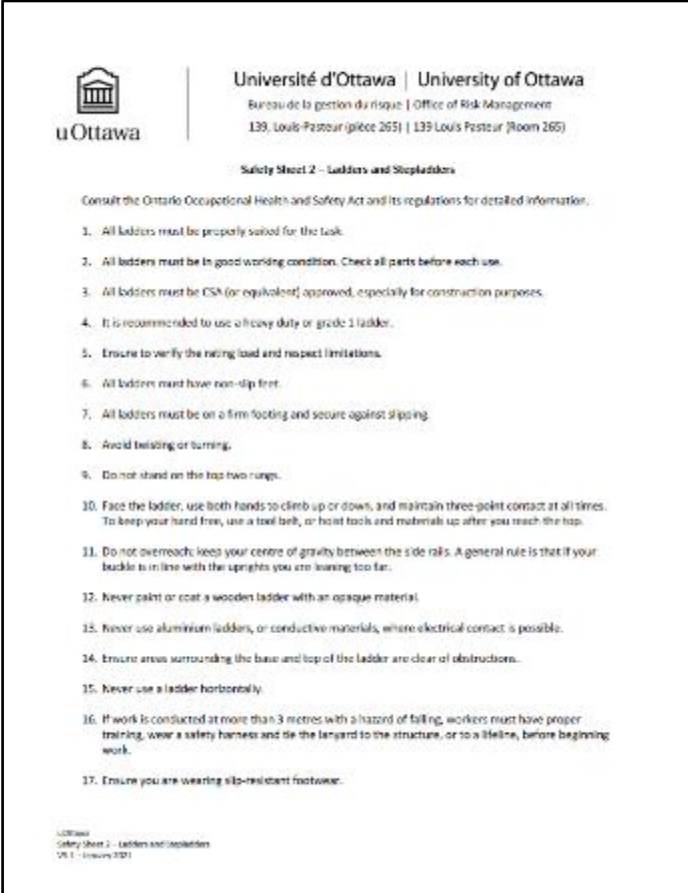
Mailing Address: 550 CUMBERLAND, OTTAWA, ON, CA K1N 6N5


No.	Type	Code	Acting	Year	Sec.	Sub Clause	Text of Order/Requirement	Comply by Date
5	Time	02773N00548		1990	25	2	Pursuant to section 28(1)(c) of the OHS/90, to protect workers from electrical shock the employer shall ensure electric Water Kettle in Room #1400SA that a ground plug be replaced or removed workplace. At the time of the visit the observed to be missing the ground plug.	2017-FEB-22
6	Time	02773N00549		1990	25	2	Pursuant to section 8(3) of the WHMIS Regulations the employer shall ensure that the label on the controlled products in the room of have become illegible be replaced workplace label. At the time of the visit the label was observed to be illegible.	2017-FEB-22
9	Time	02773N00550		1990	25	2	Pursuant to section 25(2)(h) of the OHS/90, to protect the workers from fall hazards, the employer shall ensure that the 2-step plastic step ladder in Room 332 have non-slip feet. At the time of the visit the ladder was observed to be missing a set of feet.	2017-FEB-22

Inspector Name: WILLIAM GIBBELL, OCCUPATIONAL HEALTH & SAFETY INSPECTOR

# Additional Resources

- [Workplace Safety and Prevention Services – Ladder Safety](#)
- [Ministry of Labour, Training and Skills Development – Ladder Ergonomics](#)
- [Ministry of Labour, Training and Skills Development – Ladder Safety in Construction](#)
- [Infrastructure Health and Safety Association – Ladders](#)
- [Office of Risk Management – Ladder Safety Sheet](#)



 Université d'Ottawa | University of Ottawa  
Bureau de la gestion du risque | Office of Risk Management  
139, Louis-Pasteur (pièce 265) | 139 Louis Pasteur (Room 265)

**Safety Sheet 2 – Ladders and Stepadders**

Consult the Ontario Occupational Health and Safety Act and its regulations for detailed information.

1. All ladders must be properly sized for the task.
2. All ladders must be in good working condition. Check all parts before each use.
3. All ladders must be CSA (or equivalent) approved, especially for construction purposes.
4. It is recommended to use a heavy duty or grade 1 ladder.
5. Ensure to verify the rating/load and respect limitations.
6. All ladders must have non-slip feet.
7. All ladders must be on a firm footing and secure against slipping.
8. Avoid twisting or turning.
9. Do not stand on the top two rungs.
10. Face the ladder, use both hands to climb up or down, and maintain three-point contact at all times. To keep your hands free, use a tool belt, or hoist tools and materials up after you reach the top.
11. Do not overreach: keep your centre of gravity between the side rails. A general rule is that if your buckle is in line with the uprights you are leaning too far.
12. Never paint or coat a wooden ladder with an opaque material.
13. Never use aluminium ladders, or conductive materials, where electrical contact is possible.
14. Ensure areas surrounding the base and top of the ladder are clear of obstructions.
15. Never use a ladder horizontally.
16. If work is conducted at more than 3 metres with a hazard of falling, workers must have proper training, wear a safety harness and tie the lanyard to the structure, or to a lifeline, before beginning work.
17. Ensure you are wearing slip-resistant footwear.

uOttawa  
Safety Sheet 2 – Ladders and Stepadders  
SR 1 – January 2021

# Questions

## Contact

- Your supervisor
- Faculty health, safety and risk managers (HSRMs)
- Office of Risk Management ([sst-ohs@uOttawa.ca](mailto:sst-ohs@uOttawa.ca))



# Information Session Acknowledgement

- I have [completed](#) this information session and feel comfortable applying its content to my individual workspace and operations.



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