



# Ladder Awareness

Federal & Provincial  
*(Ontario)* Requirements

Workshop Edition



**The Safety Cat**

*Due Diligence*



# Injury Types

What kind of injuries could you suffer from a fall?

- Cuts
- Bruises
- Sprain/Strain (*twists*)
- Broken Bones
- Concussion
- Puncture
- Fatality





# Legislation

Canada OH&S Regulations

CSA Z11-2018 Portable Ladders

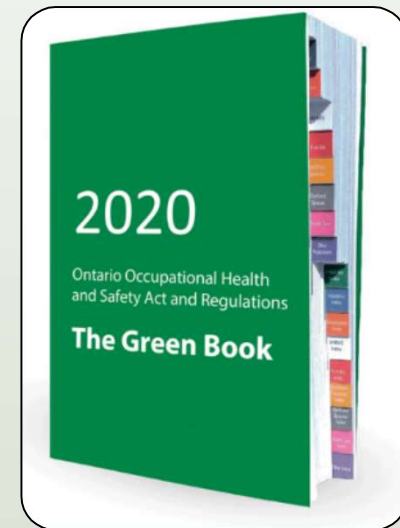
Ont Reg. 851 Industrial Establishments

Ont Reg. 213/91 Construction Projects

Ont Reg. 67/93 Health Care & Residential

Ont Reg. 859 Window Cleaning

Ont Reg. 854 Mines & Mining Plants

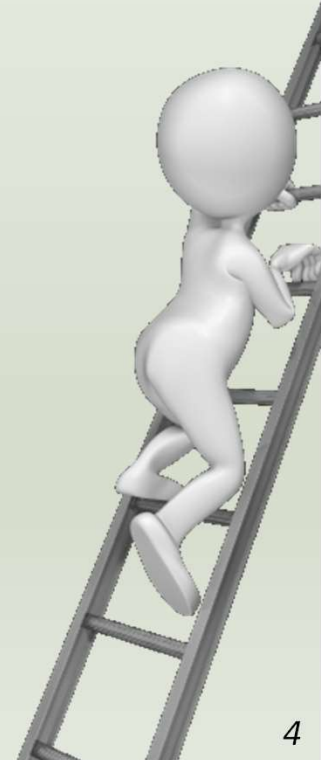




# Types of Ladders

There are 11 different types of ladders:

- Step-Stool
- Step
- Platform
- Trestle & Extension-Trestle (*like Step*)
- Single/Straight
- Extension
- Combination / Articulating
- Rolling (*like a Staircase*)
- Fixed (*with/without a cage*)
- Rope (*typically for Bldg exit*)



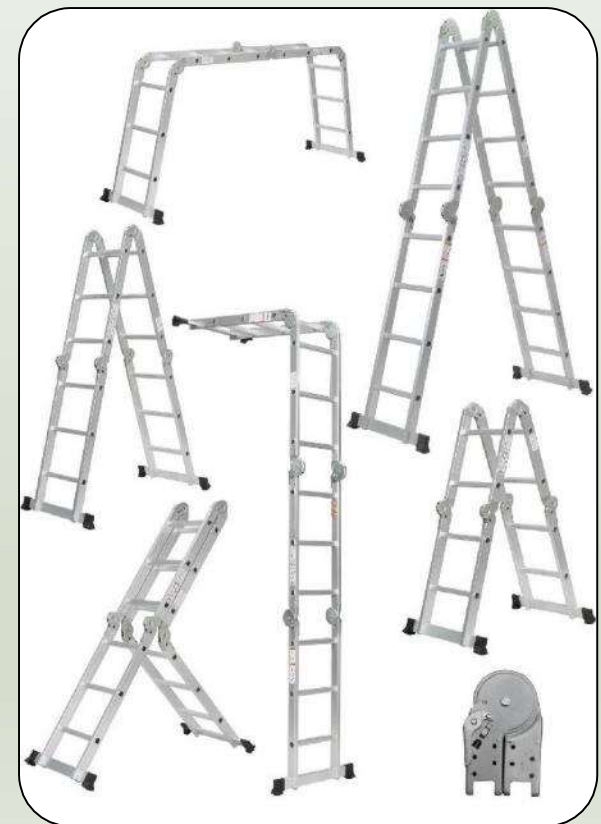


# Combination / Articulating Ladder

A portable ladder capable of being used as **Step**, a **Single** or **Extension Ladder**

It may also be capable of being used as a **Trestle** or **Stairwell Ladder**

It is important that the user become familiar with the proper operation of the locking mechanism & make sure all joints are locked before using the ladder





# Ladder Grades

There are 5 different Grades of ladders:

- 1AA - up-to 170Kg (375Lb) in total weight
- 1A - up-to 136Kg (300Lb) "
- 1 - up-to 113Kg (250Lb) "
- 2 - up-to 102Kg (225Lb) "
- 3 - up-to 90Kg (200Lb) "



*\*Note: Grade 2 & 3 are not allowed on Construction sites*



# Ladder Materials

There are 4 different materials Ladders are made of:

- **Steel**
  - Conducts heat & electricity, heavy & will rust
- **Aluminum**
  - Conducts heat & electricity, very light & doesn't rust
- **Fibreglass**
  - May melt, does not conduct electricity, medium weight & may fracture
- **Wood**
  - Will burn, does not conduct electricity (*dry*), medium weight & may splinter





# Ladder Inspection

All through legislation there is a requirement for “*equipment*” to be inspected before it’s used, ladders are equipment used to elevate Workers

Inspection must be documented to prove it was done

Inspections should be done:

- Before each use
- When a new ladder is brought in
- When Legislation changes
- If/when a ladder is damaged







# Inspection Items

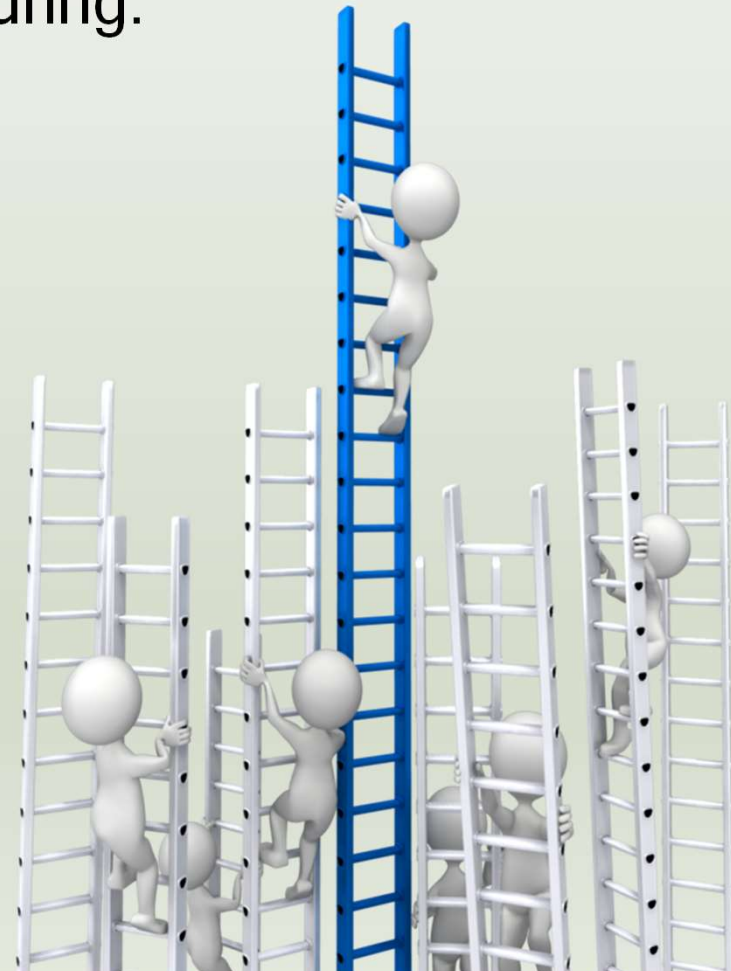
- Side rails should not be cracked, split, dented, have sharp edges or be otherwise damaged
- Rungs should be straight & free from cracks, significant wear or distortion
- Spreader arms should move freely & lock properly
- Rubber feet must be in good condition
- All rivets & joints, nuts & bolts, feet, steps & rungs are secure & tight
- Extension ladder-locks should move freely & function
- All movable parts should operate without binding
- All surfaces should be clean & free of grease, oil, paint or other foreign matter



# Ladder Hazards

Ladder hazards can be present during:

- Storage
- Retrieval / Transportation
- Inspection
- Set-Up
- Use
- Destruction when damaged





# Hazards During Use

Hazards during ladder use include:

- Selecting the wrong ladder: height, materials, etc...
- Poor location of the ladder: doors, traffic, etc...
- Using a ladder in poor condition
- Over-reaching above/beside the ladder
- Carrying items in your hands
- Slippery surfaces
- Unfavorable weather conditions
- Failure to tie-off the ladder
- Contact with electrical/heat sources, etc...

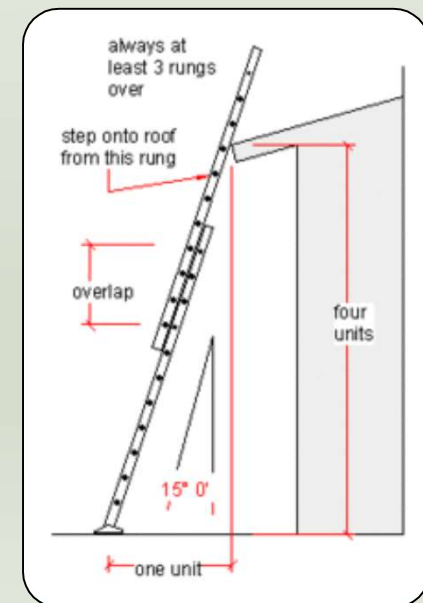




# Ladder Set-Up

Once the proper ladder has been chosen & inspected, setting it up properly will help to ensure the job is completed efficiently & without incident

Without proper set up, you may be putting yourself at risk for a fall or someone else being hurt by the ladder, materials or you falling





# Personal Protective Equipment

PPE requirements may include:

- Head, a hard-hat or bump-cap with a chin-strap is recommended
- Foot, correct protective footwear: CSA approved
- Hand / Skin, gloves, long pants/sleeves, apron, etc... as appropriate
- Respiratory, dust mask up-to respirator or SCBA (*self-contained breathing apparatus*)
- Eye, safety glasses with side-shields or goggles
- Noise / Ear, in-ear, on-ear or over-ear
- Fall, travel restraint, fall restrict or fall arrest

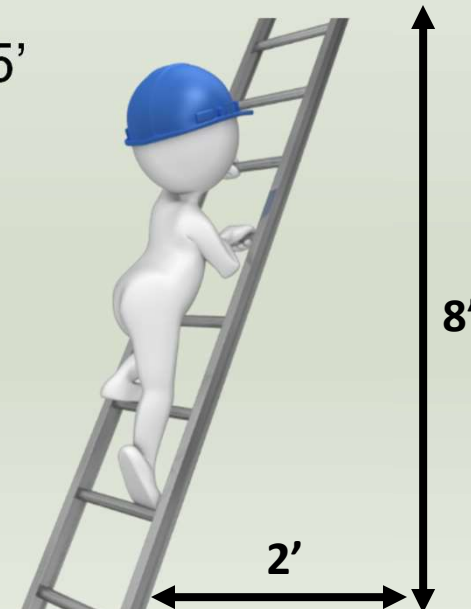


# Ladder Securement: Angle

Setting up a ladder correctly will help protect the Worker:

## Straight (Single) & Extension ladders:

- These ladders must be set-up at what referred-to as a 4:1 (1:4) angle (*3:1 is acceptable for shorter ladders*)
- For every 4' up, you angle-out 1' (*also called 75°*)
  - A 20' long ladder would be angled-out 5'
  - Formula = Ladder length  $\div$  4





# Ladder Spreader-Bars

Setting up a ladder correctly will help protect the Worker:

## Step, Platform & Trestle ladders:

- These ladders must be properly opened, with the spreader-bar engaged/locked in-place
- Do not leave these ladders closed, lean them up against a wall/surface & climb them
- All 4-feet must be touching the ground so as not to “*twist*” the ladder-frame





# Ladder Securement: Tied-Off

Setting up a ladder correctly will help protect the Worker:

## Portable ladders:

- Canada Health & Safety Regulations, *...secured in such a manner that it cannot be dislodged accidentally from its position*
- Ontario Construction Regulations, *portable ladders must be secured top & bottom*
- Ontario Industrial & Health Care Regulations, *securely fastened if above 6m (20')*
- Ontario Window Cleaning Regulations, *securely fastened if above 9m (30')*





# Working Environment

Environmental factors that should be considered when working on ladders Indoors &/or Outdoors:

- **Weather:**
  - Wind, rain, hail, snow, lightning, etc...
- **Temperature:**
  - Hot, cold, humid
- **Noise:**
  - Can be hard to concentrate
  - Sudden noises may startle/scare Worker
- **Vibration:**
  - Can be hard on the body
  - Cause ladder to shift
- **Intimidating environment:**
  - Violence & Harassment





# Ladder Use

Now you've set-up your ladder properly & you're aware of all the actual & potential hazards, you need to use the ladder safely:

- Secure the area
- Climbing: ascending & descending
- Reaching & Body Position
- Observing
- Clothing & PPE

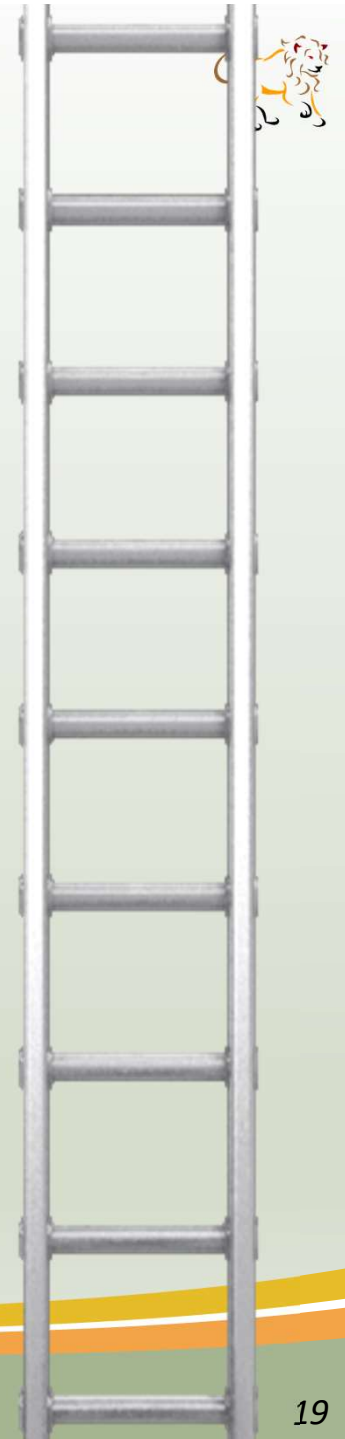


# Climbing A Ladder

When ascending or descending (*climbing*) a ladder, you must maintain 3-points of contact at all times

- 2 hands & 1 foot - or - 2 feet & 1 hand
- You must always face the ladder (*unlike stairs*)
- Climb slowly at an even-rate
- You cannot carry items in your hand/s
  - Another Worker hands the materials back & forth
  - Rope & bucket
  - Backpack or toolbelt
  - Over your shoulder
  - Lifting device, etc...

***\*Note: remember total-weight!***





# Ladder Care

Proper care of ladders is essential to their safe use & longevity of the ladder

- Daily/Per-Use inspections
- Periodic/Annual inspections
- Housekeeping (*kept clean*)
- Avoid exposure to hazardous materials
- Don't abuse the ladder





# Ladder Storage

In storage, ladders could easily fall resulting in damage to the ladder or property &/or injury to a person

- Ladders should be stood on their own feet & secured
- Ladders should only be hung from the side-rails at intervals of 1.8m (6'), they should not be hung from the rungs
- Store away from hazardous materials &/or environmental exposure

