

Ladder Safety

Operator – Selection – Inspection – Setup – Usage



Courtesy of Schools Insurance Authority

Identify Two Hazards



Live to Play Another Day

- Injury Prevention to Preserve:
 - Your Vitality & Life Energy
 - Your Happiness/Dreams/Goals/Quality of Life
 - Your Work Team/Family



Ladder Accident Information

- NIOSH
- OSHA
- CDC (Centers for Disease Control)
- BLS (Bureau of Labor Statistics)
- Accident Investigations
- Hospitals
- Loss Reports



Operator - Head In The Game

- 95% of All Accidents are Preventable
 - Most are caused by *distractions*
- Be Present, Grounded, Aware of Hazards
 - STAY ALERT STAY ALIVE!
- Most Ladder Accidents are a Direct Result of Operator Error “Failure” (NIOSH)



Avoid Using Ladders

- When Distracted by Sudden, Intense:
 - Anger, Frustration, Major Loss, Exhaustion
- Physical Impairments
 - Recurring dizziness
 - Epilepsy
 - Psychiatric conditions (including fear of heights)
 - Heart condition
 - Severe lung conditions
 - Alcohol and drug abuse
 - Significant impaired joint function
 - Medication that recommends you do not operate machinery could also be a problem
- During Storms or High Winds



Rule #1 - Don't Fall Off

- (6) Factors contributing to falls, including: haste, sudden movement, lack of attention, footwear, and user's physical condition.
 - California Code of Regulations, Title 8, Section 3276. Portable Ladders.



Identify Two Possible Causes



Common causes of falls from ladders

Common causes of falls from ladders include those where:	You can help prevent this type of fall if you:
The user over-reaches	Keep your body centered within the ladder
	Always keep three points of contact with the ladder
The user slips from the ladder	Keep the rungs clean and in good condition
	Wear non-slip footwear, if necessary clean the soles before using the ladder
	Are fit to work at height
	Are trained to use a ladder
	Keep three points of contact with the ladder
	Make sure the rungs are horizontal
The ladder wobbles, slips and falls	Position the ladder correctly on a firm, level surface
	Check the feet of the ladder daily
	Fasten the ladder at top and bottom
	Rest the ladder on a firm surface at the top
The ladder breaks	Position the ladder properly, use the 1 in 4 rule for leaning ladders
	Do not exceed the maximum weight limit on the ladder
	Only carry light materials or tools (up to 10kg)

Ladder Selection

- Develop Plan For the Job:
 - Desired Working Height
 - Where Ladder Will be Set Up
 - Anticipated Workload Weight on Ladder
 - Identify Electrical Hazards/Power Lines
 - No Metal Ladders
 - Know Your Minimum Safe Approach Clearance



Identify Two Hazards



Portable Ladder Selection

- Material
 - Metal, Wood, Fiberglass, Reinforced Plastic
- Ladder Type
 - Extension, Single, Step Ladder, Step Stool
- Ladder Classification
 - Duty Rating/Ladder Type/Working Load
Special Duty/IAA/375 lbs

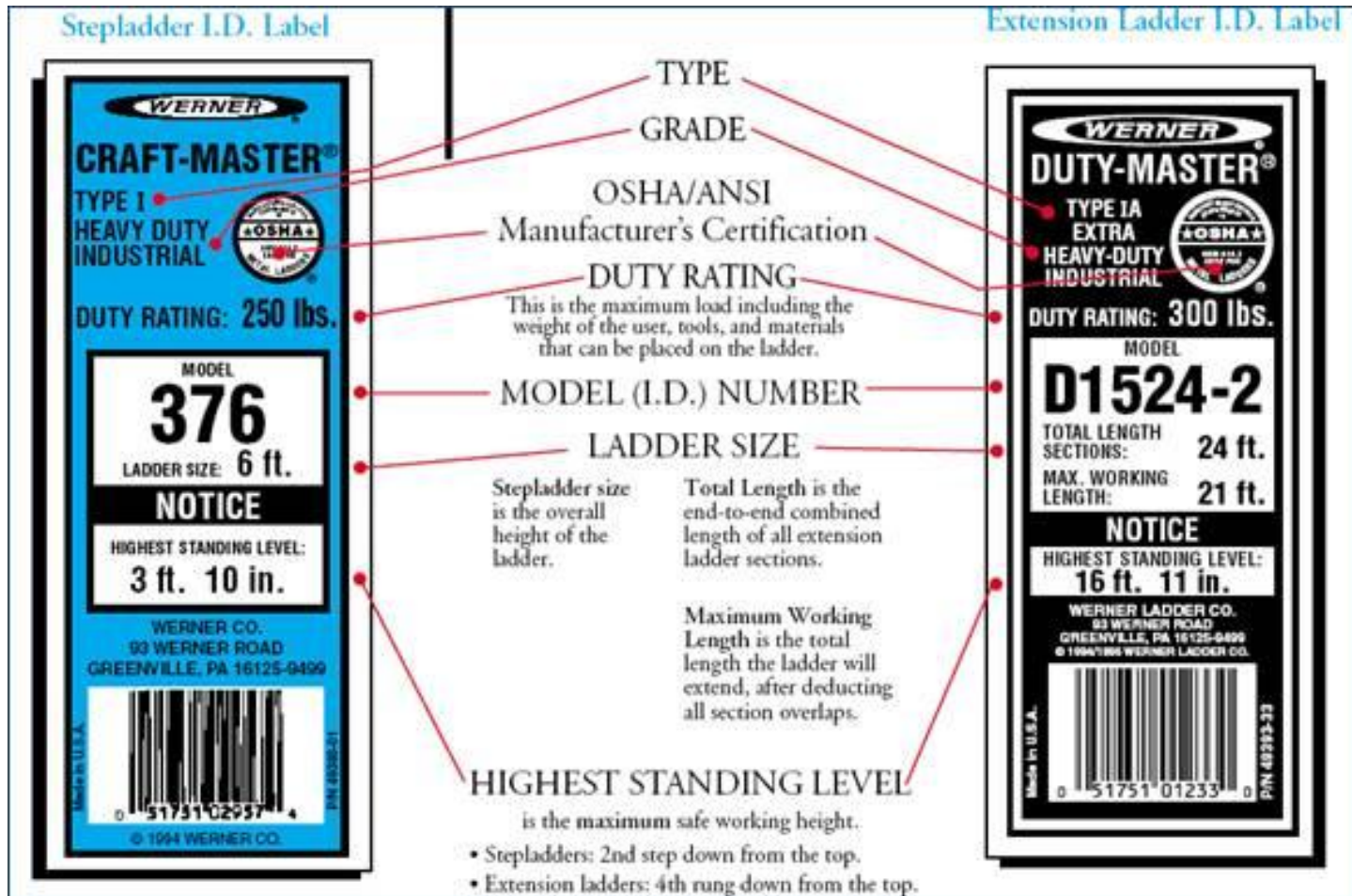


Portable Ladder Inspection

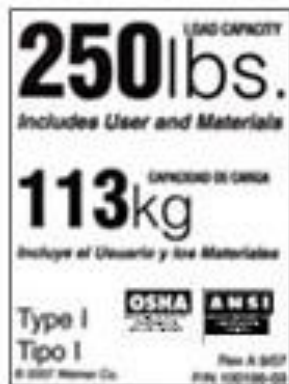
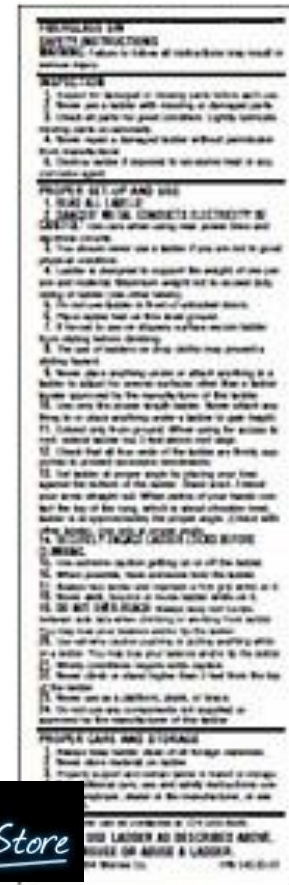
- Manufacturer Safety Data Labels
 - Duty Rating
 - ANSI A14-2007 Conformance Standards
 - Safety/Danger/Caution Labels
 - i.e. Don't Sit/Stand Here
- Labels Must be Present and Legible (OSHA)



Ladder Labels



Danger/Caution/Information Labels



Portable Ladder Inspection

- (e,2) Inspection: Ladders shall be inspected by a qualified person for visible defects frequently and after any occurrence that could affect their safe use.
 - California Code of Regulations, Title 8, Section 3276. Portable Ladders.
- Perform a Pre-shift Inspection Before Use
- Inspect After Heavy Usage or Dropping



Portable Ladder Inspection

- (e,3) Damaged Ladders: Ladders that have developed defects shall be withdrawn from service for repair or destruction; and *tagged* or *marked* as “Dangerous, Do Not Use” or with similar language. Ladders with broken or missing steps, rungs, cleats, safety feet, side rails, or other defects shall not be used.
 - California Code of Regulations, Title 8, Section 3276. Portable Ladders.



Use Ladder Inspection Forms

CLIMBING PRO™
SAFETY TIME™

Ladder Inspection Form

Provided by Werner Co.

Company Name: _____
Please Print

Ladder Reference Number: _____ Dept. _____

Inspector _____ Date: _____

Stepladder Size _____ ft.

Fiberglass Aluminum Wood

	Yes	No
Steps: Loose, Cracked, Bent or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rails: Cracked, Bent, Split or Frayed Rail Shields	<input type="checkbox"/>	<input type="checkbox"/>
Labels: Missing or Not Readable	<input type="checkbox"/>	<input type="checkbox"/>
Pail Shelf: Loose, Bent, Missing or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Top: Cracked, Loose or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Spreader: Loose, Bent or Broken	<input type="checkbox"/>	<input type="checkbox"/>
General: Rust, Corrosion or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Other: Bracing, Shoes, Rivets	<input type="checkbox"/>	<input type="checkbox"/>

Circle Areas of Damage

Actions: Ladder tagged as damaged & removed from use
 Ladder is in good condition

Extension Ladder Size _____ ft.

Fiberglass Aluminum

	Yes	No
Rungs: Loose, Cracked, Bent or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rails: Cracked, Bent, Split or Frayed	<input type="checkbox"/>	<input type="checkbox"/>
Labels: Missing or Not Readable	<input type="checkbox"/>	<input type="checkbox"/>
Rung Locks: Loose, Bent, Missing or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Hardware: Missing, Loose or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Shoes: Worn, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rope/Pulley: Loose, Bent or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Other: Bracing Rivets	<input type="checkbox"/>	<input type="checkbox"/>
General: Rust, Corrosion or Loose	<input type="checkbox"/>	<input type="checkbox"/>

Circle Areas of Damage

Actions: Ladder tagged as damaged & removed from use
 Ladder is in good condition

CLIMBING PRO™
SAFETY TIME™

Ladder Inspection Form

Provided by Werner Co.

Specialty Ladder Fiberglass Aluminum Wood

Model Number: _____

Mark all that apply

	Yes	No
Steps/Rungs: Loose, Cracked Bent or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rails: Cracked, Bent, Split or Frayed	<input type="checkbox"/>	<input type="checkbox"/>
Labels: Missing or Not Readable	<input type="checkbox"/>	<input type="checkbox"/>
Hardware: Missing, Loose or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Fasteners: Rust, Corrosion, Loose or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Top: Cracked, Loose, or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Spreader: Loose, Bent or Broken	<input type="checkbox"/>	<input type="checkbox"/>
Outriggers: Missing, Rust, Corrosion or Loose for scaffolding	<input type="checkbox"/>	<input type="checkbox"/>
General: Rust, Corrosion or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Hinges: Loose, Bent or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Locks: Loose, Bent, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Bracing		
Front,Rear: Loose, Bent, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rivets: Rust, Corrosion, Loose, Missing	<input type="checkbox"/>	<input type="checkbox"/>
Shoes: Worn, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Platform: Loose, Bent, Broken or Missing	<input type="checkbox"/>	<input type="checkbox"/>
Rail Shield: Missing or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Shoulder Bolt: Rust, Corrosion or Loose	<input type="checkbox"/>	<input type="checkbox"/>
Casters: Rust, Corrosion or Loose for scaffolding	<input type="checkbox"/>	<input type="checkbox"/>

Actions: Ladder tagged as damaged & removed from use
 Ladder is in good condition

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Ladder Inspection

- (e,4) Cleaning. Ladders Shall be Free of Oil, Grease, or Slippery Materials
 - California Code of Regulations, Title 8, Section 3276. Portable Ladders.
- Wearing slip-resistant shoes with heels and heavy soles to prevent foot fatigue;
- Cleaning the soles to maximize traction;
 - <http://www.laddersafety.org/basicladdersafety.aspx>



Stepladder Setup

- Fully Open Stepladder, Lock Both Spreaders
- Position Ladder to Face Work Directly
- Ensure All Feet Are on Firm, Level Ground
- Do Not Block Entrances, Exits, or Passageways (Ensure Safe Practices for Exceptions)
- Reposition Instead of Overreaching



Extension Ladder Setup

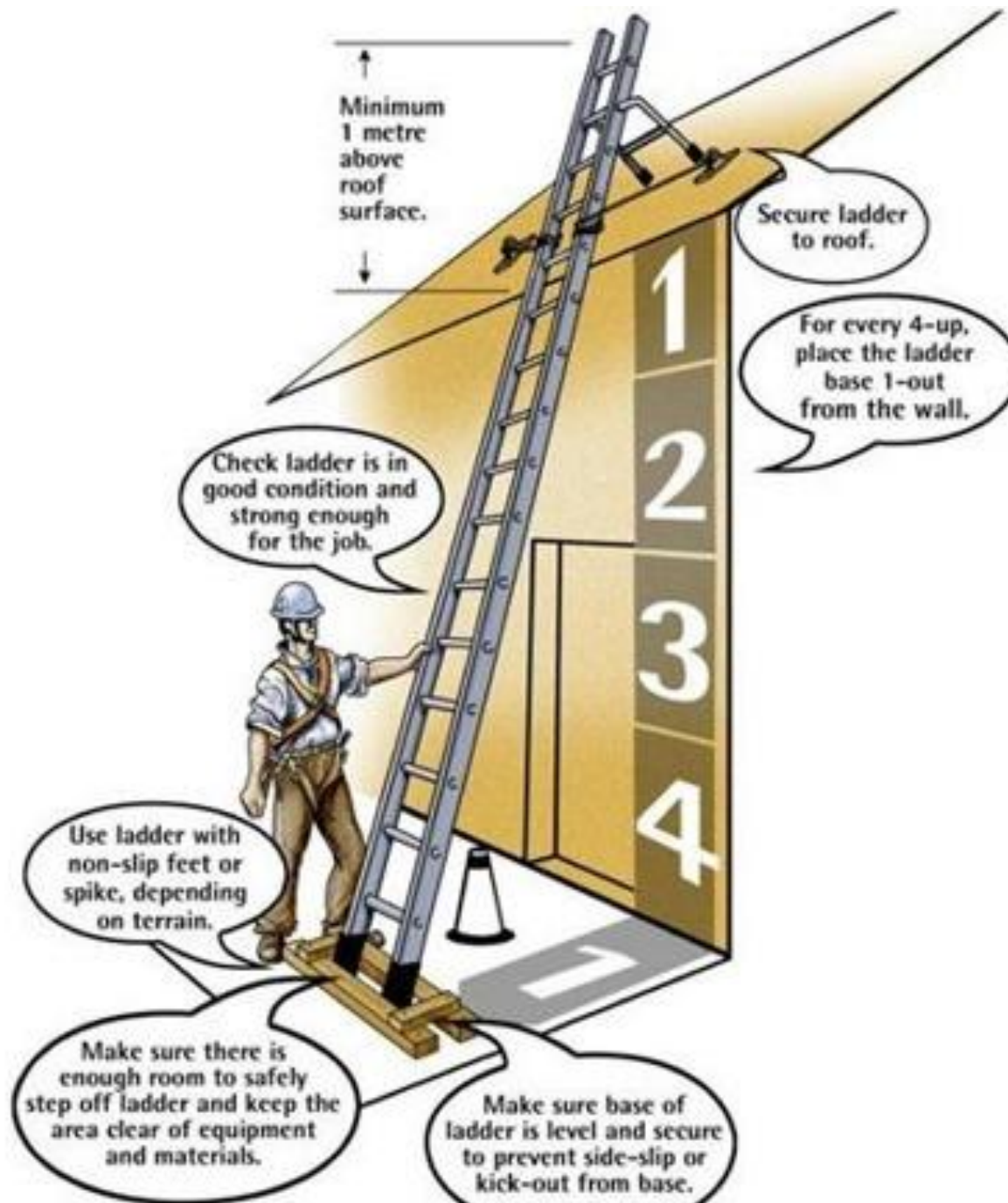
- Extend Ladder, Ensure Rung Locks Fully Engaged
 - Two Section Extension Ladders Must Overlap at Least 36” for Ladder Size Up to and including 32 ft
- Footing Support
 - Secure and Level Footing
- Top Support
 - Two Rails Supported Equally, At Least 36” or More Above Landing



Extension Ladder Setup

- Angle of Inclination (Single and Extension Type)
 - Horizontal Distance From Top Support to Footing of Ladder is One-Quarter of the Working Length of Ladder. i.e. 1/4th rule
 - To Prevent Slipping, or it Shall be Tied, Blocked, Held, or Otherwise to Prevent Slipping
- Do Not Block Entrances, Exits, or Passageways (Ensure Safe Practices for Exceptions)





Ladder Usage

- Do Not Stand or Work on the Top 3 Rungs of a Single or Extension Ladder
- Do Not Stand or Work on the Topcap or the Step Below Topcap of a Step Ladder
- Do Not Overreach While Working from a Ladder



Ladder Usage

- **Belt Buckle Rule**
 - Naval Inside The Frame Rails
 - Climb and Work Near Center of Rung/Cleat
- **Face Ladder When Ascending or Descending**
- **Never Climb on The Backside of a Ladder**
- **Maintain 3 Points of Contact**
 - Two Feet, One Hand
 - Two Hands, One Foot
- **Use a Tool belt or Towline**
 - Do Not Carry Tools or Materials In Your Hands



Personal Protective Equipment

- What is Your District's Policy Regarding:
 - Fall Protection Equipment?
 - When Equipment is to be Used?
 - Other PPE or Special Equipment
 - Outriggers, Ladder Levelers, Tie Straps, etc.

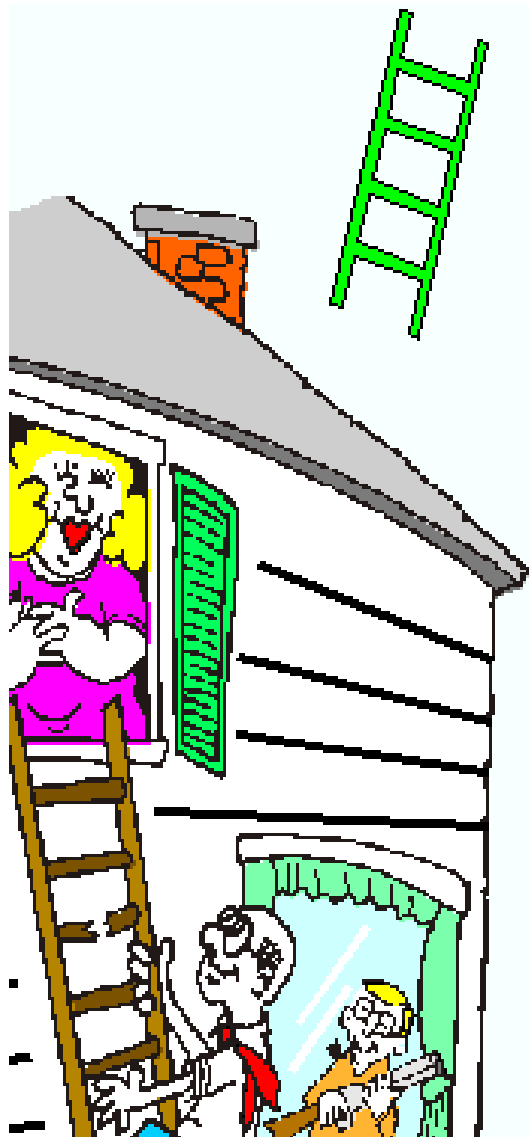


Operator Error

- Most Accidents are ***NOT*** a Result of Ladder Failure
- Errors Are Avoided Through Proper:
 - Self Care of Operator (Fitness Level, Rest, Hydration)
 - Inspection of Ladder Before Use
 - Ladder Setup
 - Climbing and Working Technique
 - Teamwork/Communication



Use Safety Flyers



COMMON SAFETY PRACTICES:

CHOOSE THE RIGHT LADDER.

CHECK CONDITION OF LADDER BEFORE USE.

ENGAGE ALL LADDER LOCKS.

USE 4-TO-1 RULE (for every 4 feet of ladder height, position the ladder's base 1 foot away from the vertical support).

SECURE (tie off) THE LADDER AS CLOSE TO THE TOP AS YOU CAN.

EXTEND THE LADDER AT LEAST 3 FEET ABOVE THE SUPPORTING EDGE WHEN CLIMBING ONTO A ROOF OR PLATFORM.

FREE HANDS WHEN CLIMBING. CARRY TOOLS, PARTS, ETC., IN AN APRON OR BELT OR RAISE AND LOWER THEM BY A HAND LINE. HOOK EQUIPMENT ON A RUNG WHILE YOU WORK.

DO NOT LEAN OR STRETCH TO REACH YOUR OBJECT WORK AREA, MOVE THE LADDER.

Understand Solutions

- Regular Safety Trainings
- Avoid Distractions
- Proper Ladder Selection
- Ladder Inspection
- Proper Ladder Setup
- Listen to Your Body
- Stay Fit-Stay Hydrated-Stay Alert



LADDER SAFETY

- 
- Ensure the ladder has no loose, damaged or missing parts
 - Ensure the ladder is properly erected and secure
 - Ensure the ladder projects at least 1 metre above the landing place
 - Ensure the ladder is set at the correct angle of 75 degrees and is on firm ground
 - One ladder, one person
 - Keep 3 limbs on the ladder at all times. 2 feet and 1 hand or 2 hands and 1 foot
 - Always carry tools in toolbelt holster or pouch and not in hands

What Could Possibly Go Wrong?



Resources/Links

- Work Safe BC-Ladder Safety/Education
 - Video – <http://www2.worksafebc.com/Publications/Multimedia/Videos.asp?ReportID=34544>
- Basic Ladder Safety-Portable Ladders
 - <http://www.laddersafety.org/basicladdersafety.aspx>
- Californian Code of Regulations et.al
 - <http://www.dir.ca.gov/title8/3276.html>
- Werner Ladder Safety
 - <http://www.wernerladder.com/safety/>
- Werner Ladder Inspection Form
 - <http://www.wernerladder.com/safety/LadderInspectionForm.pdf>
- Common Causes of Falls From Ladders
 - <http://www.hse.gov.uk/falls/ladders.htm#common>
- Ladder History/Education/Shoes
 - <http://www.safety-engineer.com/ladder.htm>
- OSHA Ladder Safety Publication
 - <http://www.osha.gov/Publications/osha3124.pdf>



Resources/Links

- CDC Ladder Flyer
 - <http://www.bt.cdc.gov/disasters/pdf/flyer-watch-your-step.pdf>
- Safety Center– Ladder Safety
 - 3909 Bradshaw Road, Sacramento, CA 95827
 - 1-800-825-7262
 - <http://www.safetycenter.org>

