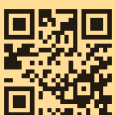


Ladder Safety Guide

A reference guide to safe ladder use and best practices for preventing accidents



Division of Occupational Safety and Health



www.Lni.wa.gov/Safety



1-800-423-7233



Washington State Department of
Labor & Industries

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Ladder Safety Guide

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How This Book Can Help Prevent Ladder Accidents

Introduction

Falls from ladders are one of the leading causes of occupational injuries. The intent of this Ladder Safety Guide is to serve as a quick reference for employers and workers in Washington State. This guide highlights best practices for setting up and using ladders safely.

This safety guide is designed to help employers and employees in the state of Washington do their jobs safely and comply with the Washington Industrial Safety and Health Act (WISHA) and Division of Occupational Safety and Health (DOSH) regulations.

Disclaimer: This safety guide does not replace any or cover all of the requirements detailed in the actual WISHA law or DOSH regulations. The safety guide should only be used as a companion to the actual regulations.

If there is any inconsistency between this safety guide and the DOSH regulations, the WISHA/DOSH regulation will always prevail. The information in this document is not a substitute for any provisions of a regulation. It is a summary of the ladder requirements under WAC 296-876 and Agriculture WAC 296-307 and does not include all workplace safety and health requirements related to ladders safety.

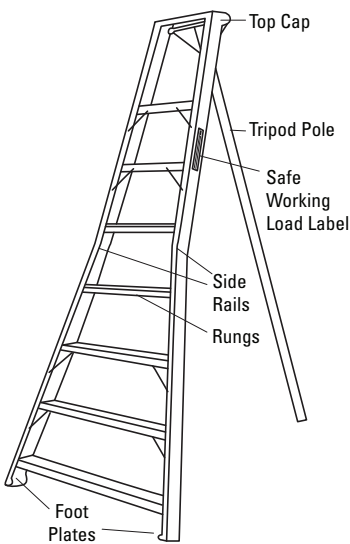
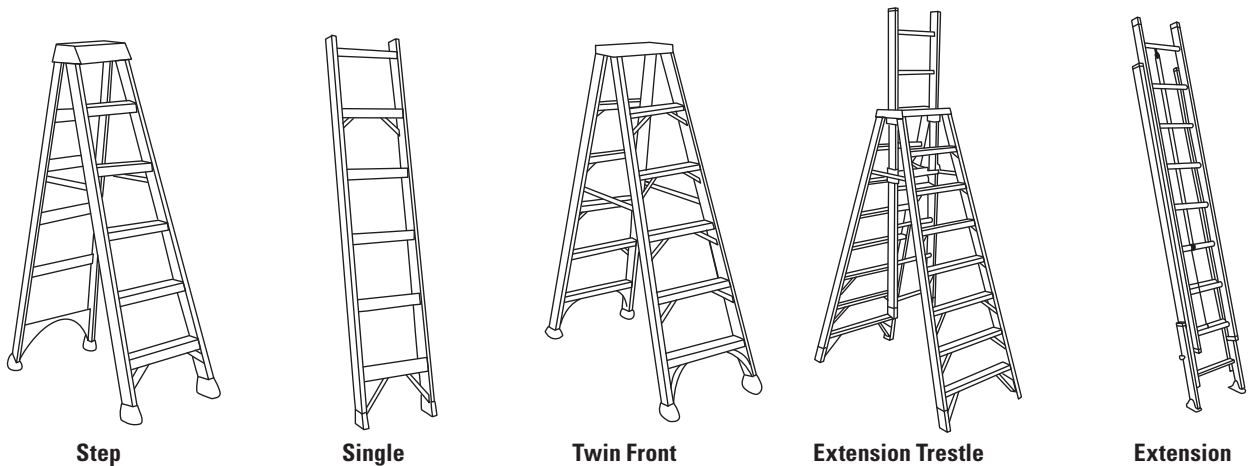
L&I safety rules for ladders

Please refer to Safety Standards for Ladders, Portable and Fixed – Chapter 296-876 WAC or Safety Standards for Agriculture – Chapter 296-307-05505, WAC, Part D Ladders, How must orchard ladders be used?

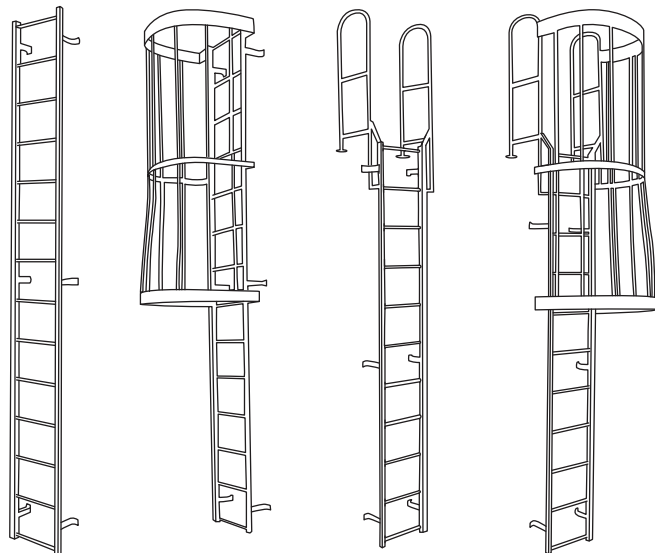
Types of Ladders

- **Portable ladder:** A ladder that can be readily moved or carried.
- **Orchard ladder:** A three-legged portable ladder used in orchards that can be readily moved or carried.
- **Fixed ladder:** A ladder that cannot be readily moved or carried because it is an integral part of a building or structure.

Portable ladders are typically manufactured from aluminum or fiberglass. The portable-ladder classification includes self-supporting ladders, single ladders, twin front ladders, extension trestle ladders, and extension ladders.



Orchard Ladder



Fixed Ladders

Selecting the Right Ladder for the Job

Determine the type of ladder needed for the job and environment it will be used in.

- **Wood:** Wood provides a natural feel and good insulation against heat and cold. However, untreated wood ages quickly; wood ladders need a protective coat of linseed oil (not paint or varnish) to keep the wood from drying and splitting. Also, wood ladders are heavy, particularly longer ones.
- **Aluminum:** Aluminum ladders are lightweight and corrosion resistant. Aluminum will not crack or chip with rough handling; however, aluminum doesn't insulate well against heat and conducts electricity. Never use aluminum ladders for work near sources of electricity or energized electrical lines.
- **Fiberglass:** Fiberglass is durable, weather resistant, and nonconductive when clean and dry. Unlike wood, fiberglass won't dry out or split and provides better insulation against heat than aluminum. However, fiberglass ladders are heavier than comparable aluminum or wood ladders and can chip or crack with improper handling.

Determine how much weight will be applied to the ladder.

Never exceed the manufacturer's maximum intended load, which is the total load of the person's weight, equipment, tools and materials that will be applied to the ladder or ladder component at any one time. Keep this in mind when purchasing ladders.

The maximum intended/working load for each ladder type (excluding orchard ladders), is as follows:

| Duty Rating | Ladder Type | Maximum Intended Load (in pounds) |
|-------------|-------------|-----------------------------------|
| Extra Heavy | IAA | 375 |
| | IA | 300 |
| Heavy | I | 250 |
| Medium | II | 225 |
| Light | III | 200 |

Don't subject a ladder to a load greater than its duty rating.

Carrying, Lifting and Moving Ladders

Workers carry, lift and move ladders during the workday. To avoid injuries from carrying, lifting and moving ladders, train workers to properly handle one ladder at a time.

Training should include the proper technique for handling a ladder:

- Place your arm through the ladder and balance it on your shoulder.
- Carry ladders in a horizontal position with the top of the ladder facing forward.
- When moving long distances, it may be useful to carry the ladder in a horizontal (side-to-side) position, either by one or two workers.
- Watch for other people and other tripping hazards in the work area.

Good ladder lifting and handling techniques can protect workers from back injuries, as well as ease the work.

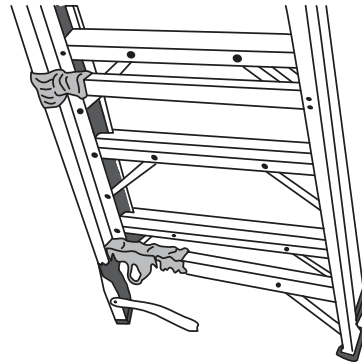
Four Rules for Safe Use of Portable and Orchard Ladders

1. Pick the right ladder for the job you are going to do.

Choose the correct type able to hold the weight of the person and his/her tool belt. You will probably use an ordinary straight ladder for most purposes. An extension ladder may be required for high work. Use a stepladder when you need a free-standing ladder or one with a bucket or pail shelf.

2. Make sure the ladder is in good condition.

- Keep portable ladders in good condition. Good condition includes, but is not limited to:
 - Joints between the steps or rungs and the side rails are tight.
 - Rungs, cleats or steps are not bent, broken or missing.
 - Side rails are not bent, broken or split.
 - All bolts and rivets are in place and secure.
 - Hardware, fittings and accessories are securely attached and working properly.
 - Ropes are not frayed or badly worn.
 - Moveable parts operate freely without binding or excessive play.
 - Safety feet and other auxiliary equipment are not excessively worn.
 - Metal components are not corroded.
 - There are no other faulty or defective components.
- Make sure wood ladders are not coated with an opaque covering except for the minimum amount necessary for identification and warning information, which may be placed on one face only of a side rail.
- Have a competent person inspect a ladder:
 - Use ladder inspection criteria.
 - An inspection is required after any other occurrence that could affect safe use.
- You must make sure any ladder with structural damage or other hazardous defect is:
 - Marked to identify it as defective or tagged with “do not use” or similar language; and
 - Removed from service.
- Do not use ladders for skeds, braces, workbenches or any other purpose other than climbing.



Do not use!

Ladders in need of repair must be taken out of service immediately or replaced.

Note: Ladders subjected to certain acids or alkali materials may experience chemical corrosion and a reduction in strength. Consult the manufacturer or a qualified person prior to use.

Four Rules for Safe Use of Portable and Orchard Ladders (continued)

3. Set up ladder properly.

Stepladders

- Never use an aluminum ladder or any other tools within 10 feet of energized electrical equipment such as power lines.
- Never set up a ladder on unstable surfaces or objects (i.e., boxes, barrels) to gain additional height.
- Do not use stepladders as straight ladders.
- Do not stand or step on the last step, the top cap or the bucket or pail shelf.
- Ladders made by fastening cleats across a single rail are prohibited.
- Follow manufacturer's recommendations for rated load capacity.
- If a ladder shows any of these signs of an unsafe condition, remove it from service:
 - Is the ladder damaged, broken, bent or delaminated?
 - Does it lack structural integrity, have broken treads or rails?
 - On extension ladders, do the rung locks function?
- Do not place tools or materials on the steps or platform of a stepladder.
- Make sure stepladders are set up a firm, level surface.
- Make sure stepladders are fully open with the spreader bars in a down, locked position before using it.
- If you must place a ladder front of a doorway that opens toward the ladder, make sure you block the door open, close and lock the door, or guard the door to prevent a person from opening the door.

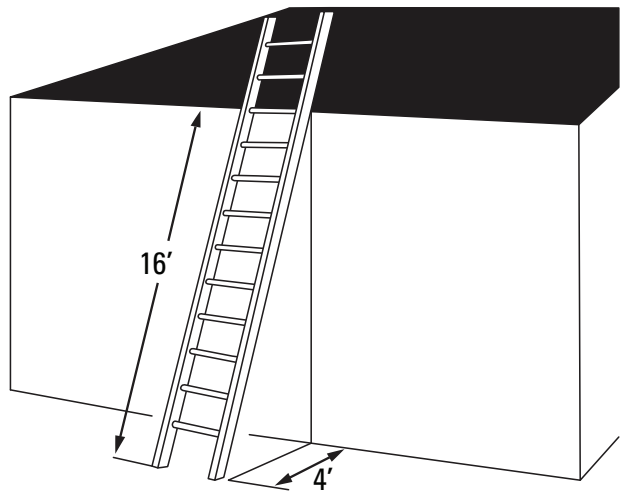
Straight type or extension ladders

- All straight or extension ladders must extend at least three feet beyond the supporting object when used to access an upper level such as a roof. However, if the extension ladder does not extend at least three feet, then either get a ladder that does or secure the top and provide hand holds.
- All extension or straight ladders must be secured to prevent displacement.
- Raising an extension ladder can be a two-person job but one person can raise a ladder if they walk it into position hand over hand.
- Make sure that all the ladder's feet are on a firm and level surface.
- All ladders must be equipped with safety (non-skid) feet.
- A straight ladder should be placed against the wall at an angle so that the base of the ladder is one foot away from the wall for every four feet of height.
- After raising the extension portion two or more rungs of the ladder to the desired height, check to ensure that the safety dogs or latches are engaged and on the same rung.

Note: Safe ladder angle.

You must set up non-self-supporting ladders at a safe angle. The ladder is set at the proper angle when the horizontal distance from the top support to the foot of the ladder is approximately 1/4 the working length of the ladder.

You must set up job-made ladders with spliced side rails so that the horizontal distance from the top support to the foot of the ladder is not greater than 1/8 the working length of the ladder.

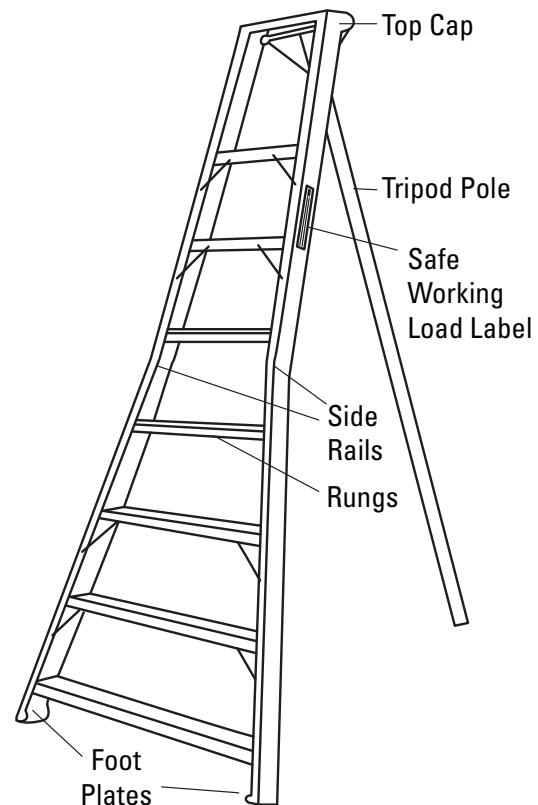


Four Rules for Safe Use of Portable and Orchard Ladders (continued)

Orchard Ladders

Orchard ladders are used for pruning, thinning activities and fruit harvest:

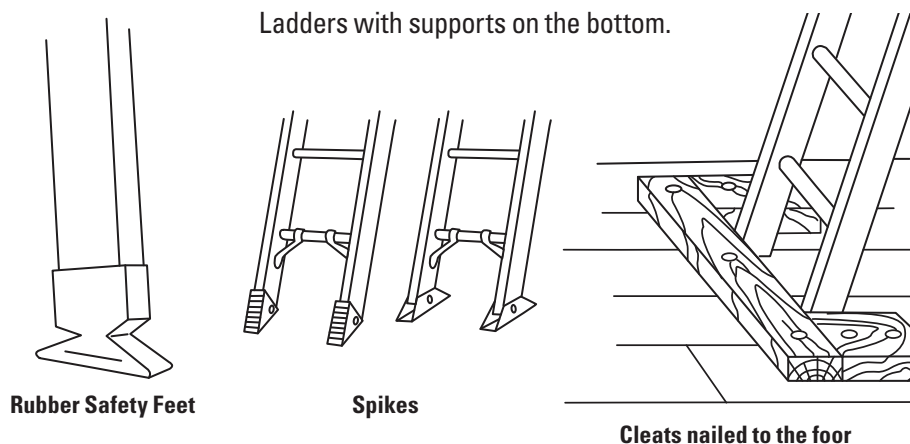
- At the beginning of employment employees must have an orientation and training on the proper use of ladders including how to set a ladder and properly dismount with a full load.
 - Keep rungs, shoes and boots clean of substances that would make them slippery and hazardous.
 - Do not step off the ladder onto branches of trees, except onto the main crotch.
 - Only one person at a time may climb or stand on an orchard ladder.
 - Never sit on an orchard ladder top cap, and do not stand on the top two steps of an orchard ladder.
 - When positioning a tripod orchard ladder, the steps should be level and the tripod leg should extend straight from the center line of the ladder. Where possible, the tripod leg should be placed on level ground. On sloping land, position the tripod leg uphill. When positioning the ladder across the land slope, locate the tripod leg slightly downhill.
 - Position the straps of the fruit sack or bucket to evenly distribute the picked crop weight, and maintain a stable posture on the orchard ladder.
- Carefully remove fruit from the tree to prevent being poked by or hit by rebounding branches.
 - Do not overreach! Avoid reaching too high above your head or too far to the side while standing on an orchard ladder. Climb to a higher step or move the ladder closer to the tree fruit if you are beginning to reach above your head or lean out past the ladder rails.
 - Orchard ladders longer than 16 feet are prohibited.



4. Work safely on the ladder

The following applies to portable, extension, stepladder and orchard ladders:

- A competent person must train employees to recognize ladder hazards. At the beginning of employment, train all employees on how to properly select and inspect ladders, how to set up and use ladders, and how to climb ladders.
- Never use a ladder or any other tools within 10 feet of energized electrical equipment such as power lines.
- Only one person is allowed on a ladder at a time.
- Face the ladder when climbing up and down.
- Keep centered on the ladder. Here's a way to remember to do so: your belt buckle should remain between the two side rails at all times. Never lean away from the ladder because you can cause it to topple.
- Do not carry tools or materials in your hands. Keep tools in a belt, or hoist objects up after you.
- Do not stand on the top two rungs of any ladder.
- Footwear should have clean soles made of a non-skid material.
- Never move a ladder while you are on it.
- Move slowly and carefully on a ladder.
- Do not jump from a ladder when descending.
- Do not work on a ladder if you are ill, overly tired or possibly under the influence of alcohol or any drug.
- Stay off outdoor ladders during bad weather such as rain, wind or lightning.

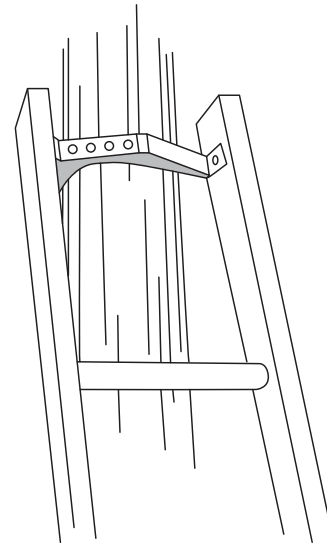


Four Rules for Safe Use of Portable and Orchard Ladders (continued)

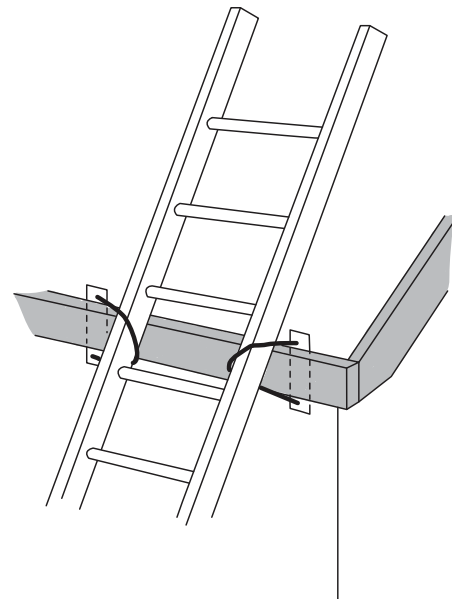
- Make sure a ladder is not moved, shifted or adjusted while you are on it.
 - Secure the ladder at the top and bottom when working from it.
 - Use a safety belt with a lanyard that is secured to the ladder when doing any work that requires the use of both hands at heights more than 25 feet above the ground or floor.
 - Prohibit work being done from a ladder more than 25 feet above the ground or floor if the work requires wearing eye protection or a respirator.

If you remember to pick the right ladder, check its condition, set it up right and use it correctly, you will be ensuring that the job is done safely.

For rules and regulations regarding portable ladders, please refer to WAC 296-876: Ladders, Portable and Fixed.



Ladder with a single support attachment for a pole.



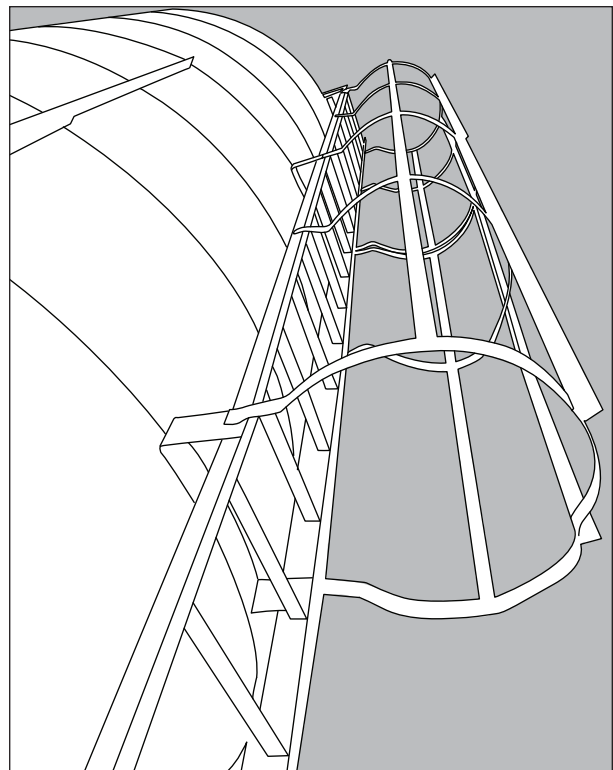
Ladder ties to the support at top.

Fixed Ladder Safety

Important: This section applies only to fixed ladders installed before Dec. 1, 2006. For fixed ladders installed on or after Dec. 1, 2006, refer to ANSI A14.3-2002, American National Standards for Ladders-Fixed-Safety Requirements.

- A fixed ladder must be capable of supporting without failure, the total of the following loads:
 - At least two loads of 250 lbs. each, concentrated between any two consecutive attachments.
 - Any additional concentrated loads of 250 lbs. each determined from the anticipated use of the ladder.
 - Anticipated loads caused by ice buildup, winds, rigging and impact loads resulting from the use of ladder safety devices.
- Fixed ladders must be secured to the building or structure.
- A cage, well or ladder safety device must be provided if the safety cage is at least 27 inches wide and there is at least 27 inches but not more than 30 inches from the cage to the centerline of the step or rung at all points except where the cage flares at the bottom of the ladder.
- Defects in fixed ladders should be repaired as soon as possible.
- Fixed ladders without cages or wells must have at least a 15-inch-clear width to the nearest permanent object on each side of the centerline of the ladder.

- Keep the top and base areas of a ladder clear of obstructions.
- Make sure the side rails of through or step-side ladders extend 42 inches above the top of the access level or landing platform.



Resources

Come to the Source!

Visit www.Lni.wa.gov/Safety for information on safety and health standards, ergonomics, WISHA guidelines, hazard alerts, training workshops, hospitalization and fatalities, proposed rule changes and safety and health videos.

Ladder Resources

Find ladder safety rules, policies, training materials, videos, hazard alerts and more at the ladder safety topic page, online at www.Lni.wa.gov/Safety/Topics/AtoZ. Click on "L" for Ladder Safety.



Ladder Safety Checklist

Date: _____

Employer/Business: _____

Completed By (Name/Title): _____

Job Location: _____

Length of Ladder: _____

| | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| Have all employees received instruction on using ladders safety? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the right ladder been selected for the job? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the ladder been inspected for defects, cracks, corrosion, and are bolts and rivets secure? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have unsafe ladders been tagged and removed from service? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the ladder been placed away from overhead electrical wires? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is a fiberglass ladder in use if there is any chance of contact with electricity? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Do the ladder's feet work properly and have slip-resistant pads? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the ladder been placed away from exit doors or away from the path of pedestrian or vehicle traffic? If placed in front of a door — is the door open or locked shut? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the ladder been placed on firm, level footing and is there rigid support for the top of the ladder? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is help available if it is too difficult to handle the ladder alone? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the load the ladder is supporting within the manufacture's duty rating? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the stepladder legs completely open and the spreader brace bars locked? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are ladder rungs, shoes, and boots clean of substances that would make climbing the ladder slippery or hazardous? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is only one person at a time allowed to climb or stand on a ladder? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have employees been instructed not to pull, lean, stretch, or make sudden movements on a ladder that could cause it to tip over? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have employees been instructed not to reach beyond the ladders rails? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have employees been instructed to climb higher or move the ladder closer to the area where they are working if they are beginning to reach above their heads or lean out past the ladder rails? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Does the ladder extend three feet above the landing when employees must climb off the ladder at an upper level? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are employees instructed to never stand on the top step or top cap? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Orchard Ladders | | | |
| Do the warning labels on step and orchard ladders clearly state that the top step and top cap are not to be used as a step? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is a straight orchard ladder facing into an uphill or downhill slope? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Are the steps of a tripod orchard ladder level and the tripod leg extended straight from the center line of the ladder? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| On sloping land, is the position of the tripod leg uphill? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| When positioning the ladder across the land slope, is the tripod leg slightly downhill? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| When using an orchard ladder, are the straps of the fruit sock or bucket positioned so that the weight of the picked crop is evenly distributed and the employees can maintain a stable posture on the ladder? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| When using an orchard ladder, are employees instructed to never step off onto branches of the tree, except onto the main crotch? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Get 1-on-1 Assistance

When you need professional help, we're here (and we're free)

As a Washington State business owner, plant manager or safety officer, you're entitled to no-cost consultation services from L&I.

L&I's Division of Occupational Safety and Health includes safety professionals, industrial hygienists, ergonomists and risk management specialists who want to help you protect your employees and manage your costs.

- We'll work with you to develop a plan that meets the specific needs of your business.
- Consultants do not issue citations — they help you identify and solve problems.
- Visit www.Lni.wa.gov/Safety/Consultation to learn more about the benefits of a consultation and request any or all that could benefit your company.
 - Workplace safety and health
 - Preventing sprains and strains
 - Risk management

Invest in your business and your employees

Benefits of a safe and healthy workplace and risk management include:

- Fewer injuries, lower costs
- Less risk of citations during compliance inspections
- Opportunities to lower employee turnover and improve morale
- Peace of mind knowing you have done your part
- Quality of life for employees
- Everyone goes home to their loved ones at the end of the workday.

Schedule your free consultation

| Business location | Call |
|-------------------------------------|------------------------------|
| Northwest Washington | 425-290-1431 |
| King County | 206-515-2837 or 206-835-1146 |
| Pierce County/ Olympic Peninsula | 253-596-3917 |
| Southwest Washington | 360-575-6951 |
| Central Washington | 509-886-6570 |
| Eastern Washington | 509-324-2543 |

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