Ladder Safety
Four most frequent work-related fatal injury events, 1992–2009*

Workplace homicides have declined more than 50 percent since 1994, but were only down 1 percent from 2008 to 2009.

*Data for 2009 are preliminary. Data for prior years are revised and final.

NOTE: Data from 2001 exclude fatal work injuries resulting from the September 11 terrorist attacks.

Washington L&I Facts:

- Every year, nearly 900 people in Washington State are seriously injured falling off ladders at work. These injuries include dislocated limbs, broken bones, head injuries and in a few cases some workers even die from their injuries.

- These accidents occur because:
  - The ladder moves, falls over, or is set up improperly; or
  - The worker slips on the rungs, overreaches, or carries objects while climbing the ladder; or
  - The worker stands on the top of the ladder; or
  - The ladder is cracked, broken, or in need of repair.
Fatal falls, by type of fall, 2009*

- From ladder: 20%
- From roof: 18%
- From nonmoving vehicle: 12%
- From scaffold, staging: 9%
- On same level: 13%
- From floor, dock, or ground level: 5%
- From building girders or structural steel: 3%
- Down stairs or steps: 3%
- Other or unknown: 17%

Total falls = 617
Ladder Injuries

- 20,000 workers injured annually
- 100 workers die from ladder falls every year
- 136,000 people injured from ladder accidents yearly
Train employees to recognize ladder hazards and the procedures to minimize these hazards
SEVEN STEPS TO LADDER SAFETY

1. Never use a substitute
2. Know what kind of a ladder to use
3. Inspect your ladder
4. Set up the ladder properly
5. Climb the ladder safely
6. Practice safe work habits
7. Carry the ladder correctly
Never Use a Substitute

DON’T USE:

- Office (especially rolling) chair
- Boxes
- Table
- Other soft, unstable, non-level support
Know What Kind of Ladder to Use

- Step stool
- Folding ladder
- Inclined ladder
- Extension ladder
- Fixed ladder
- Other kinds
Inspect Your Ladder
Inspect Your Ladder

- Joints between the steps or rungs and the side rails are tight.
- Rungs, cleats, or steps aren't bent, broken, or missing.
- Side rails aren't bent, broken, or split.
- All bolts and rivets are in place and secure.
- Hardware, fittings and accessories are securely attached and working properly.
- Ropes aren't frayed or badly worn.
- Moveable parts operate freely without binding or excessive play.
- Safety feet and other auxiliary equipment are not worn out.
- Metal components aren't corroded.
- There are no other faulty or defective components.

IF IT IS DAMAGED, DON’T USE IT
(1) Never use a substitute
(2) Know what kind of a ladder to use
(3) Inspect your ladder
(4) Set up the ladder properly
(5) Climb the ladder safely
(6) Practice safe work habits
(7) Carry the ladder correctly
Step Ladders

Diagram showing parts of a step ladder:
- Top (not a step)
- Pail, shelf or bucket holder
- Three-piece spreader
- Left rear rail
- Rear horizontal brace
- Right rear rail
- Rear knee brace
- Front knee brace
- Feet
- Left front rail
- Web
- Earth
You must:

(1) Use stepladders that are less than twenty feet.

(2) Not climb on the bracing or the back legs.

(3) Not use as single ladders.

(4) Not stand on a step higher than the third step from the top, if working more than five feet or higher from the ground (except when the top step is 18 inches or more below the top cap).

(5) Not use the tops of stepladders as steps.
Inclined Ladders
Extendable Inclined Ladder

- Always at least 3 rungs over
- Step onto roof from this rung
- Overlap
- Four units
- One unit
- 15° 0'
Extendable Inclined Ladders

Diagram of extendable inclined ladder with labels:
- End Cap
- Side Rail
- Web
- Base Section
- Center Swivel Pulley
- Runge (Flat or Round)
- Flange
- Rope
- Locks
- Plastic Rail Closures
- Foot Assembly
- 6 in or 12 in End Spacing
Flag Pole
Securing Ladder to Pole or Tree

1. Secure base of ladder
2. Place ladder against pole or tree
3. Attach rope or strap to ladder rail
4. Wrap rope or strap once around pole
5. Secure strap to other side rail
6. Test stability
Make sure the base section of the portable metal ladder has secure footing.

Examples of Securing the Ladder Base

- Rubber Safety Feet
- Spikes
- Cleats Nailed to the Floor

Make sure both rails are supported at the top, unless the ladder has a single support attachment.
Secure Ladder for Roof Work

Ladder secured to roof.
## Extension Ladders

<table>
<thead>
<tr>
<th>Length of section (Feet)</th>
<th>Min overlap (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 36</td>
<td>3</td>
</tr>
<tr>
<td>37 to 48</td>
<td>4</td>
</tr>
<tr>
<td>49 to 60</td>
<td>5</td>
</tr>
</tbody>
</table>
The Fly-Lock Mechanism

A rung-lock or fly-lock is a mechanism used to secure together the two sections of an extension ladder as seen in Figure 1.

Figure 1. Fly-Lock in Secure Position.

Figure 2. Fly-Lock in Tip Lock Position.

Figure 3. Tip Lock Caused by Tongue.

Figure 4. Fly-Lock in False Lock Position.
Safely use a portable ladder when working more than 25 feet above ground

You must:

(1) Secure the ladder at the top and bottom
(2) Not perform work that requires the use of both hands unless wearing a safety belt and lanyard secured to the ladder.
(3) Not perform work requiring eye protection, respirators and/or pressure equipment if >25 feet above the ground.
Tripod Ladders

1. Does not have rubber feet. Cannot be used on hard surfaces.
2. Inspect ladder before each use.
3. Do not use around energized electrical equipment.
4. Ladders are designed for one person only. Do not overload.
5. Do not stand on top two steps.
6. Position properly
   - Steps should be level (rails at 72 degrees)
   - For hillside use, 3rd leg placed uphill
   - For cross sloping ground, 3rd leg slightly down slope
Fixed Ladders: Fall Arrest
Fixed Ladders : Cage
SEVEN STEPS TO LADDER SAFETY

1. Never use a substitute
2. Know what kind of a ladder to use
3. Inspect your ladder
4. Set up the ladder properly
5. Climb the ladder safely
6. Practice safe work habits
7. Carry the ladder correctly
Unsafe Ladder Work

**Danger!** The spreader isn’t fully open (WAC 296-876-40050).

**No standing on the top step!** Employee training on proper use of ladders will help prevent unsafe use.
Safe Ladder Work

- Set up properly
  - Tie off if needed
  - Brace feet if needed
- Only one person on ladder!
- Look up! Look down!
- Use a tool belt
  - Don’t lay tools loosely on ladder or shelf
- Use non-conducting ladder
- Carry ladder properly
Thank You