

## Introduction

This Leader's Guide is designed to help you conduct a successful safety presentation. This Guide includes the following material:

**Program Overview:** This is a summary of the video program content. If the program content is discussed before the video is presented, the entire program will be more meaningful and successful.

**Preparing for and Conducting the Presentation:** This information will help you prepare the training setting, help you relate the program to your specific work situation, and provide objectives for focusing your presentation.

**Discussion Ideas:** A number of ideas are presented that can help encourage discussions related to ladder safety procedures.

**Review Questions and Answers:** The Comprehension Test may be copied and given to participants to document how well they understood the information in the video. Answers to the test questions are provided separately.

## Video Overview

### **Introduction**

Ladders are a pretty common and useful fixture both on and off the job. Most of us have probably used one or more types of ladders in our lifetime. And you may feel familiar with and comfortable working with ladders. But there's more to working safely with ladders than just setting one up and climbing it.

The tragic fact is that every year 300 people are killed and 165,000 injured while using ladders. That's about 1 death and 500 people injured per day. And recent studies show those numbers are rising.

So obviously there are some important safety considerations and techniques we all need to be familiar with, if we're going to use ladders.

### **Selecting the Right Ladder**

First of all we need to know how to select the proper ladder.

The two most common types of ladders are step ladders and straight ladders. Straight ladders can be a single length or an extension ladder. Those are the two types of ladders we will cover in this program.

There are other types of ladders for specific uses such as rolling ladders and multifunctional or articulated ladders. Those have their own set of safety precautions and we cover those in other programs.

## Video Overview, continued

Most step and straight ladders are made from wood, fiberglass or aluminum. While having the benefit of being light weight, Aluminum ladders can conduct electricity, so never use an aluminum ladder if you are working near sources of electricity.

Another important consideration is the length of the ladder needed. Many people are injured or killed each year by working from a ladder that is too short for the task.

We also need to make sure the ladder is strong enough for the work load. Ladders are classified by duty ratings. – the amount of weight they are designed to carry.

Ladder manufacturers are required to supply a label on each ladder indicating the ladder's duty rating.

There are five categories of ladder Duty Ratings:

- Type III (Light Duty) will support only up to 200 pounds
- Type II (Medium Duty) will support 225 pounds
- Type I (Heavy Duty) will support 250 pounds
- Type IA (Extra Heavy Duty) will support 300 pounds
- Type IAA (Extra Heavy Duty) will support up to 375 pounds

In addition to considering your own weight, you also need to include the weight of any tools, supplies or materials the ladder may need to support while you are using it.

Finally, consider whether using a ladder is the proper way to perform your task. If you are going to use heavy or awkward material or tools or if you will need to move from side to side, you should use a scaffold or aerial work platform instead of a ladder.

If you can avoid using a very tall ladder by using a lift, by all means do it if you have the appropriate training.

## Inspecting the Ladder

The next step in using ladders safely is to inspect the ladder.

- Look for loose or worn rungs.
- Check the rails for cracks or corrosion and make sure they are straight, not bowed or dented.
- Look for any loose or missing hardware such as screws, bolts or hinges.
- Check the rope on extension ladders. If it's frayed or damaged don't use it.
- Also make sure the extension locks are working correctly.
- Check the feet of the ladder and replace any worn or damaged feet or pads.
  
- On Step Ladders make sure the spreaders are in good condition and lock securely.
- A step ladder should not wobble on a flat surface.
- Replace any damaged or missing labels.
- Tag any damaged or defective ladder. Take it out of use immediately.
- And never paint a wooden ladder. Paint may hide defects.

## **Video Overview, continued**

### **Transporting the Ladder**

Okay, you've chosen the correct ladder for the job and it is in good working order. Next you need to get the ladder to the work area – safely. Sounds simple? Not always.

Carry your ladder by the side rail and horizontal to the ground. Both step ladders and extension ladders should be fully closed before carrying them. Don't hesitate to get help with long or heavy ladders.

Don't drag a ladder on the ground or pavement. This can damage the feet and pads.

When approaching blind corners raise the forward end of the ladder if possible and move slowly.

Carry extension ladders fully closed not extended.

Transporting ladders can be a hazard to other personnel or equipment so take it seriously and do it safely.

### **Setting up the Ladder**

The next step is to set up your ladder correctly and safely. First some general rules, then we'll discuss setting up Step Ladders and Extension ladders.

First of all look over your work location for potential hazards. Look for any overhead power lines or electrical sources. Stay at least ten feet away from any electrical sources unless of course you are authorized to work in the area and have taken all necessary safety precautions.

Clear away any debris, objects or obstructions from the base of the ladder. Try to avoid traffic areas – vehicle or pedestrian traffic. If you have to work near other people you may need to barricade the area or have a co-worker stand by to alert others to the hazard of the ladder or the potential of falling objects.

If you must set up a ladder in front of or near a door make sure the door has been secured and have a co-worker stand watch. The watch person should be able to redirect traffic if the door is an entrance or exit way.

Step ladders are to be used only when open and stable. Don't use step ladders folded and leaned against a structure. The feet are designed to be flat on the floor while spread. Whenever possible, step ladders should be positioned so you face the ladder while working. Not turning sideways. When using a tall step ladder it is sometimes necessary to set it so it is parallel to the wall or surface you are working on.

And never stand or climb on the back side of a step ladder.

**Video Overview, continued**

Extension ladders usually take more effort to set up than step ladders.

First, position the feet of the ladder at the base of the structure. If that is not possible have a person block the ladder with their feet.

The lower or base section of the ladder should be on top and the upper or Fly section should be on the ground or pavement.

Raise the ladder by walking forward lifting the ladder rung by rung. If the ladder is too heavy for you just reverse your movements and go get help.

Next move the ladder away from the structure to approximately the position it will be at when you are working on it.

Raise the upper section by pulling the rope. You can stabilize it by putting a foot on the bottom rung and leaning it on your knee.

Raise the ladder three feet higher than you plan to stand. If you are going to access a surface from the ladder, raise it three feet higher than that surface.

When you get it to the height you need, relax the rope so the upper section drops slightly and the locking hooks engage and lock securely.

Now finish positioning the ladder so that it sits at the correct angle. The base of the ladder should be one foot from the object it is leaning on for every four feet of height. Here's an example – the top of this ladder is 16 feet above the floor. So the base should be 4 feet from the wall.

A good way to check this angle is to put your toes against the base of the rails and extend your arms towards the ladder. Your hand should just reach the ladder rungs. If your hands extend past the rungs the ladder is too steep.

If you can't reach the rungs the ladder's angle is too shallow.

Make sure the ladder is on firm and level footing. If the ground is soft you can use a piece of plywood or large board. But don't use small pieces of lumber that may slip out of place. Why is it so important that a ladder is on level footing? Well, a 20 foot ladder that is out of level by 1 inch at the bottom will be out of plumb by 20 inches at the top – and very unstable.

Use a level to check plumb if you don't have a good vertical reference.

If you are accessing elevated surfaces such as a roof, the ladder should extend 3 feet above the roofline and if possible be tied off. This will help you get on and off the ladder at

the elevated surface. But don't over extend the ladder. Pressure on the upper end could cause the feet to lift off.

### **Video Overview, continued**

### **Ascending the Ladder**

When your ladder is set properly make sure your shoes or boots are clean. Make sure the rungs of the ladder are clean also.

Put any tools you need in your tool belt or have someone hand them up to you if possible. Position your tool belt so it doesn't snag on the ladder as you climb. Hauling tools or parts up using a rope and bucket is another way to avoid carrying objects while climbing.

You want to use 3 points of contact when climbing the ladder. This means having one hand and two feet or two hands and one foot in contact with the ladder at all times.

Grasp the ladder rungs with your hands when climbing. If your foot slips the rungs are easier to hold on to than the side rails.

And don't rush. Climb carefully and intentionally. Hurrying can cause the ladder to vibrate and lose stability.

Climb down the ladder the same careful way you climbed up – facing the ladder and using 3 points of contact and taking your time.

On extension ladders, be careful positioning your foot at the point that the rungs switch from double rungs to single rungs.

If you must leave it unattended for a while, it's a good idea to place a warning cone at the base to indicate it is in use.

If you are finished using the ladder, put it in its approved storage area.

### **Working on a Ladder**

It's important to avoid over reaching while on a ladder – either horizontally or vertically. Here's a simple rule to remember: Keep your belt buckle within the rails of the ladder. If you can't reach your work while adhering to the belt buckle rule – climb down and move your ladder. Another good rule is to keep your belt buckle below the top of the ladder.

Ladders will have a sticker warning you to not use the top two steps of a step ladder or the top three rungs of a straight ladder. But using the belt buckle rule no matter what step or rung you are on is the safest way to ensure your balance and stability. Also, if you need to work with both hands on occasion, this allows you to use your body as the third point of contact. If you can't reach your work while keeping your waist below the top of the ladder you should use a taller ladder.

A couple points about working with Step Ladders: Never leave tools on top of a step ladder

And never climb the back side of a step ladder.

### **Video Overview, continued**

### **Additional Safety Tips**

Here are some additional tips for making a ladder stable:

You can pound in stakes behind the feet of an extension ladder that is on soft ground or make cleats if the ladder is on a wood surface.

Turn up the feet on an extension ladder to allow them to dig into soft ground. Of course never do this on smooth surfaces. The rubber feet provide traction on smooth surfaces.

If possible, tie off the ladder to a sturdy, immobile object with a rope or strap. The higher the tie off, the more stable the ladder will be.

And of course it's often helpful to have someone hold the ladder for stability.

There are ladder accessories available to help stabilize your ladder. Ladder leg extenders and levelers can help when you are working on uneven ground.

There are rail end covers that not only protect the surface the ladder rests on, but makes the ladder less prone to slip on smooth surfaces.

And there are a variety of stabilizing bars that can attach to the upper area of your ladder.

Besides the common step ladder there are special types of step ladders such as platform ladders which give you room to stand and move, and twin step ladders which allow two people to work on opposite sides of the ladder.

Ladders can be essential tools for getting some jobs done. So remember these six steps for safe ladder use.

- Select the correct ladder for the job.
- Inspect the ladder to make sure it's in proper working order.
- Transport it safely – for you, other workers, and for the integrity of the ladder.
- Set the ladder up correctly and be aware of hazards.
- Always use 3 points of contact when ascending and descending.
- Remember the belt buckle rule when working on the ladder – don't overreach.

## **Video Overview, continued**

### **Interview**

The video also contains the following interview with a construction manager.

Many years ago I was working with a carpenter getting ready to install some paneling in a room. And we had to level a line all the way around the room.

And he was on the second step of a step ladder marking his line and he was doing good. Then all of a sudden he was reaching over to one side and I asked him if he needed a hand holding the level. And he said he had it. And I turned around and just that instant I heard a big crash and he had stepped off and tried to jump and he broke his heel, shattered his heel and as he fell down, he broke his right wrist in seven places.

Just in that short of a fall, from two feet, the second step of a step ladder. So that shows you, you can't be too safe working on a step ladder. You have to be watching all the time.

### **Conclusion**

So don't get complacent and don't take risks.

The next time you grab a ladder to do a job, stop and think about what we just covered.

I think you'll be glad you did.

## **Preparing for and Conducting the Presentation**

- Before presenting the video, review each section of this Leader's Guide and view the video before the presentation.
- Make sure the presentation area is quiet, has good lighting, unobstructed access and good climate control.
- Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the presentation. If extension cords are to be used, secure them in such a way that they won't become a tripping hazard.
- Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.
- Make everyone aware of the importance your organization places on protecting employee's health and safety and how everyone must be an active member of the safety team.
- Explain the objectives of the Ladder Safety video.
  1. Describe how to select the right ladder for the task.
  2. Demonstrate how to inspect your ladder.
  3. Illustrate how to transport your ladder.
  4. Demonstrate how to set up your ladder.
  5. Describe how to ascend and descend your ladder.
  6. Explain how to safely work on your ladder.
  7. Provide an overview of additional safety tips for working safely with ladders.
- Next, introduce the video and play it without interruption.
- After the video is finished, you can tailor discussions to your specific situation, or refer to the Discussion Ideas section below.
- After the discussion, give a copy of the Test included in this Guide to each participant and ask them to complete the questions.
- Maintain copies of an attendance record and each participant's test as written documentation of the training.

### **Discussion Ideas**

1. Does anyone have a story about mishaps or near misses related to improper ladder use?
2. What are some common ladder mistakes people make that you have observed?
3. Can you describe some common uses for ladders away from work? What kind of hazards do these situations present?



## Ladder Safety Quiz

1. Using ladders incorrectly can be dangerous. How many people are killed and injured daily while using ladders?
  - A) 1 death and 500 injuries
  - B) 5 deaths and 1000 injuries
  - C) 50 deaths and 500 injuries
2. The first step in using a ladder safely is:
  - A) climbing it safely
  - B) selecting the proper ladder
  - C) tying it off
3. While aluminum ladders have the benefit of being light weight, what is a potential drawback?
  - A) they can become slippery
  - B) sharp edges
  - C) conduct electricity
4. The Duty Rating of a ladder refers to:
  - A) type of work that can be conducted on the ladder
  - B) years of service the ladder will provide
  - C) weight the ladder will safely support
5. You can determine a ladder's Duty Rating by:
  - A) looking it up on the internet
  - B) reading a label on the side of the ladder
  - C) flexing the ladder
6. When considering the duty rating of a ladder you must take into consideration your weight plus:
  - A) the wind speed
  - B) the weight of tools and materials on the ladder
  - C) the height you will be working at
7. The strongest Duty Rating is:
  - A) Type 3
  - B) Type 1A
  - C) Type 1AA

8. Components to inspect before using a ladder include:
- A) rungs and rails
  - B) hardware including nuts and bolts
  - C) extension locks and spreaders
  - D) feet, pads, and ropes
  - E) all of the above
9. All ladders should be carried:
- A) vertically
  - B) fully closed
  - C) horizontally by the rail
  - D) both b and c
  - E) all of the above
10. When transporting a heavy ladder:
- A) drag only the feet on the ground
  - B) get someone to help you
  - C) drag only the top of the rails on the ground
11. When approaching a corner with a long ladder:
- A) lift the front end above head height if possible
  - B) move slowly and cautiously
  - C) both A and B
12. When setting up a ladder it is important to:
- A) check for hazards
  - B) look for overhead wires or electrical sources
  - C) clear debris or obstructions
  - D) avoid traffic or pedestrian areas
  - E) all of the above
13. Step ladders can be used like straight ladders if they are long enough.
- A) true
  - B) false
14. The top of an extension ladder is 20 feet above the ground. How far from the wall should the base be?
- A) 5 feet
  - B) 10 feet
  - C) 2 feet

15. When accessing an elevated surface such as a roof with a ladder, the top of the ladder should be how many feet above the surface?

- A) 6 feet or more
- B) even with the surface
- C) 3 feet

16. 3 points of contact refers to:

- A) components of the ladder touching surface
- B) climbing or descending with three appendages always in contact with the ladder

17. The belt buckle rule refers to:

- A) keeping your belt buckle within the rails of a ladder while working on a ladder
- B) keeping your belt buckle below the top of the ladder while working on a ladder
- C) both A and B

18. Climbing the back side of a step ladder is permissible when:

- A) time is of the essence
- B) the ladder is a Twin Ladder designed for this use
- C) your weight is below the duty rating for the ladder

19. Turning up the feet on an extension ladder on soft ground can improve stability.

- A) true
- B) false

20. You should begin to think about ladder safety rules when:

- A) you climb 4 feet or more
- B) you are under pressure to get the job done
- C) before selecting the ladder

## Ladder Safety Answer Key

1. A

2. B

3. C

4. C

5. B

6. B

7. C

8. E

9. D

10. B

11. A

12. E

13. B

14. A

15. C

16. B

17. C

18. B

19. A

20. C