

A PRACTICAL APPROACH TO LADDER SAFETY

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

INTRODUCTION

While ladder manufacturers strive to produce the safest ladders possible, a well-made ladder is not enough. Our safety while climbing or working on a ladder depends on following safe work practices: choose the correct ladder for the job; inspect the ladder before use; set up the ladder properly; and, use the ladder in a safe and proper manner. This new program discusses the basic precautions that will keep employees safe when using ladders. Viewers will also see the consequences of failing to follow these safe work practices.

Topics include selecting the correct ladder, transporting ladders properly, setting up ladders on uneven and unstable surfaces, placing ladders against round objects, standing and working on ladders safely and use of multi-function ladders.

PROGRAM OUTLINE

BACKGROUND

- Ladders are used to reach elevated areas in just about every type of job, industry and at home. While there are many types of ladders and countless jobs performed with these valuable tools, the basic safety rules are similar for all ladders.
- Most of us are aware of these rules; yet, we often choose to ignore them, often taking our safety for granted when using ladders. Unfortunately, this nonchalant attitude leads to 300 deaths and 165,000 injuries each year.
- Ladder manufacturers strive to produce the safest ladders possible, but a well-made ladder is not enough. Our safety while on a ladder depends on following safe work practices: first, choose the correct ladder for the job; secondly, inspect the ladder before use; third, set up the ladder properly; and, finally, use the ladder in a safe and proper manner.

SELECTING THE CORRECT LADDER

- Before doing anything with a ladder, make sure you have selected the correct ladder for the job.
- The two most common types of ladders are the step ladder and the straight ladder. Straight ladders can be a single ladder or an extension ladder that can be adjusted for additional height.

- Another type of ladder, the multi-functional ladder, is common in many facilities. Because of their portability and versatility, these ladders can perform a variety of tasks.
- Ladders are constructed in a variety of materials, including wood, aluminum and fiberglass, which is the most commonly used.
- Because aluminum ladders conduct electricity, they should never be used while performing electrical work or where they may come in contact with live electrical parts.
- Wooden ladders may contain hard-to-spot weaknesses and defects, especially if the ladder has been painted. This is why you should never paint a wooden ladder and always inspect them thoroughly before use.
- When selecting a ladder, make sure the ladder is long enough to reach the height you need and allows you to work comfortably. Many injuries and deaths occur when people try to work from a ladder that's too short.
- Make sure the ladder is sturdy and strong enough to support the working load. The working load is the combined weight of your body and the work materials to be used while on the ladder.
- Many people are unfamiliar with a ladder's duty rating. This rating can be found on the ladder and indicates the working load it can safely support.
- A type I-AA special-duty ladder can hold up to 375 pounds. A type I-A rating means the ladder can hold up to 300 pounds. A type I rated ladder holds up to 250 pounds. Ladders with a type 2 rating will only hold up to 225 pounds. Ladders with a type 3 rating hold just 200 pounds and are not recommended for industrial or commercial applications.
- Keep in mind that many job tasks require the use of scaffolds or aerial work platforms, rather than ladders, to perform them safely. Jobs that entail side-to-side movement or the use of heavy or awkward tools should not be performed on a ladder.
- If you have any questions about the appropriate equipment for your job, ask your supervisor.

INSPECTING THE LADDER BEFORE USE

- Keep in mind that ladders may become damaged with use. This is why you should conduct a thorough inspection of the ladder's condition before using it.
- Check the side rails for cracks, dents, fractures and other defects.
- Check for loose or damaged rungs and braces. Be sure to clean off any slippery substances you discover on these parts.
- Also, make sure that screws, bolts, hinges, rivets and other hardware aren't loose or missing.
- When using a stepladder, make sure the spreaders are in good condition and can be locked into place.
- It is very important to check the feet on the ladder. Make sure they are in good working condition and aren't broken. The slip-resistant pads on the feet should be secure.

- These rubber pads keep the ladder from slipping when erected on a smooth, firm surface.
- On extension ladders, there is a rope and pulley system designed to help extend the ladder. Make sure the rope and pulley function properly and the rope is not cut, frayed or otherwise damaged.
- No matter what type of ladder you are using, make sure it isn't warped or bent.
- If a ladder has any of these or other defects, don't use it. Get another ladder and mark the damaged ladder out of service, so it can be disposed of properly and not be used by others.

TRANSPORTING YOUR LADDER

- After a thorough inspection, your ladder is ready for use; however, be sure to transport it safely to your work area.
- You should carry a straight or extension ladder parallel to the ground. Hold the side rail in the middle of the ladder so you can balance it. Be aware that the ladder itself may present a hazard to others and proceed with caution.
- Of course, many ladders are long and heavy, requiring two people to carry them safely.
- When carrying a stepladder, make sure it is in the fully-closed position. It should also be carried by the side rail in the middle of the ladder.

PLACING THE LADDER

- When arriving in the work area, the ladder must be set up properly to prevent injury.
- Be particularly aware of overhead power lines or other exposed live electrical parts. Avoid erecting your ladder near electricity unless you are sure that proper energy control measures have been taken.
- If you must use the ladder in an area with a great deal of traffic, you should set up a barricade or have a co-worker serve as a watch to prevent collisions.
- Be aware that working from a ladder may present hazards to people below. Setting up a barricade or posting a watch can also protect pedestrians from falling objects.
- Try to avoid erecting a ladder directly in the path of a doorway. If you must, be sure the door is secure and have a co-worker stand watch to prevent mishaps.
- If the doorway is also an exit, the spotter must be able to redirect pedestrians in case of emergency.
- Whenever possible, place the ladder on a solid, level surface. Make sure the area around the base of the ladder is uncluttered.

SETTING UP THE LADDER ON UNEVEN/UNSTABLE SURFACES

- Of course, you won't always be able to find a solid, level surface to place the ladder on. If the soil or surface isn't firm, you should place a flat board underneath the feet of the ladder to keep it stable.
- The board should be in good condition and large enough to provide adequate stability and support. Using boards that are too small or aren't sturdy enough can lead to injury.

- If the surface is uneven, such as working on steps or stairs, or on uneven ground, you should use accessories approved by the ladder manufacturer and your company to ensure the ladder remains level while working.
- Bricks, stones, boxes or similar items are prohibited by the company and dangerous, often leading to disaster.
- Multi-functional ladders, like this one, can be used for many unlevel applications such as stairs, but keep in mind these ladders present specific hazards which will be discussed later.
- For additional stability, a ladder can be tied off to a sturdy, immobile object with a rope or stabilizing strap. This will keep the ladder from slipping or sliding sideways while you work.
- Keep in mind that the higher you tie the ladder off, the more stable it will be.

PLACING LADDERS AGAINST ROUND OBJECTS

- When you must place your ladder against a round object such as a utility pole, there are a variety of accessories that can make the ladder much more stable.
- A v-rung, also known as a pole grip, have a “v” indent that rests against the pole to provide a better grip.
- For larger poles or round objects, a pole strap or pole lash provides better stability. A pole strap is much like a v-rung except it is made of nylon and can be adjusted to fit the circumference of the pole.

OTHER STABILITY FACTORS

- The base of a ladder can also be secured to prevent slipping. For example, when using an extension ladder outdoors, stakes or chocks can be placed behind the feet to prevent slipping.
- Also, the feet of an extension ladder can be turned up, allowing the ladder to dig into soft ground, providing additional stability to the base. This should never be done on smooth, firm surfaces; without the traction provided by the rubber feet, the ladder will easily slide.
- When necessary, someone may also hold the ladder for additional stability.
- When setting up a step ladder, make sure it is fully open and make sure the spreaders are locked. All four feet should make contact with the floor or ground to give your ladder a stable base of support.

SETTING UP A STRAIGHT LADDER

- To ensure a stable base of support for a straight ladder, it should be placed one foot away from the wall for every four feet the ladder rises. For example, if the ladder contacts the wall at twelve feet, the feet of the ladder should be placed three feet from the wall.
- A practical way to ensure a proper angle is to stand the ladder straight up and down a few feet from the wall. Lean the ladder against the wall, keeping your feet near the feet of the ladder. Holding your arms straight out, the ladder’s side rails should fit into the palm of your hands.
- If you can’t reach the side rails, the ladder’s feet are too far from the wall. If your hands extend past the side rails while keeping your arms straight, the ladder’s feet are too close to the wall.

- When using the ladder to access a higher elevation, it should extend three feet higher than the surface being accessed and be tied off securely. Failing to do this makes it very difficult to get on and off the ladder and can easily lead to a fall.
- Be aware that extending a ladder more than three feet past the surface can also be a danger. The leverage created by stepping up the surface edge can cause the feet to kick out.
- Also, the upper and lower sections of an extension ladder should overlap to provide stability. Generally, this should be about three feet, but ladders extended over 32 feet in length should overlap even more.
- For extra safety, avoid extending the latches past the next to last rung of an extension ladder.
- No matter what type of ladder you use, never place it on boxes, tables, pallets or other surfaces to gain additional height. Take the time to get a longer ladder when needed, but do not needlessly risk your life.
- This also applies for scaffolds. Never use a ladder while on a scaffold.

PREPARING TO CLIMB & CLIMBING THE LADDER

- Make sure you're in proper condition to climb the ladder. Do not use a ladder if you are taking medication that could affect your balance, are not physically able to climb safely or if you are afraid of heights.
- You should also be aware that there are other conditions that should prevent you from climbing such as high winds, lightning or other dangerous conditions.
- Before climbing, place any required tools in your tool belt or arrange to have someone hand them to you once you reach your destination. Never climb with any object or load that may cause you to lose your balance and fall.
- Hauling tools and materials up with a rope is a practical way to avoid this hazard. An interesting ladder statistic is that 57 percent of ladder fall victims were holding objects with one or both hands.
- Inspect your shoes for slippery substances and make sure your shoes are tied before stepping on the ladder. Another interesting statistic is that 33 percent of ladder fall victims had wet, greasy or oily shoes.
- Always face the ladder squarely and maintain three-point contact when climbing by having one hand and two feet or two hands and one foot on the ladder at all times.
- Take your time going up; don't be in a rush. One common reason for ladders falling is the base of a ladder kicking out when workers climb too fast.

STANDING & WORKING ON THE LADDER SAFELY

- While on any ladder, do not lean beyond the side rails. Your belt buckle should always stay between the two rails. Some ladder attachments may appear to provide additional stability, but don't be fooled—keep your belt buckle between the side rails to prevent injury.
- Ladder manufacturers mandate never standing above the third rung from the top on a straight ladder, or on the top two steps of a step ladder.

- A safer rule of thumb is to keep your belt buckle at or below the very top of the ladder regardless of which step you are standing on. This simple rule also allows you to maintain three-point contact with the ladder while working.
- Standing too high makes it impossible to keep one hand on the ladder and reach your work.
- Also, when it's necessary to work briefly with two hands, keeping your waist below the top of the ladder allows you to use your body as a third point of contact, keeping you safe and stable. If you can't do this and comfortably reach your work, you may need a taller ladder.
- Only climb on the ladder as intended; stay off of the paint shelf, spreaders or back section. Also, do not sit on or straddle the top of a step ladder.
- Only one person at a time should stand on or climb a ladder. The movements of a second person can cause the ladder or the other person to become unbalanced. Also, the weight of the second person could overload the ladder.

DESCENDING & PUTTING UP THE LADDER

- Descend the ladder in the same manner in which you climbed, facing the ladder and maintaining three points of contact.
- When descending an extension ladder, be extra cautious where the dual rungs turn into single rungs. This is a common area for falls.
- Never leave a ladder set up and unattended. Once you have reached the ground, take the ladder to its approved storage area if you no longer need it.

MULTI-FUNCTION LADDERS

- As we mentioned earlier, multi-functional ladders have become a popular choice because they are easy to transport and have so many uses and they also have some unique hazard.
- First of all, due to their unique configuration and aluminum construction, be aware that some companies do not allow these types of ladders onsite. Only use ladders approved by your company when performing any job.
- Before using a multi-function ladder, read the operator's manual and become familiar with the proper operation of and specific safety precautions for your brand and model.
- When adjusting hinges and locks, keep clothing and body parts out of the mechanisms. Be extra cautious of pinch points when manipulating this type of ladder.
- Hold the ladder with both hands on the vertical upper rails or hinges while moving it up and down.
- Make sure all catches and latches have properly engaged before climbing.
- When using the ladder on stairs, the short end should rest on a step. The long end must always be placed on the floor or landing area.
- Most multi-use ladders are made of aluminum, so they should not be used near electrical sources.

INTENTIONAL MISUSE OF LADDERS

- While many ladder-related deaths and injuries occur when safe work practices aren't followed, a large percentage of these injuries occur when ladders are intentionally misused.
- Tying two ladders together to gain height is an all too frequent and dangerous practice which should never be attempted.
- Workers often "walk" or "bounce" the ladder by rocking it from side to side to move it. This is very dangerous. It's much easier and safer to climb down the ladder and reposition it.
- While a folded-up stepladder may look like a good substitute for a straight ladder, it isn't. It is designed to rest on four feet and when used as a straight ladder, its feet do not sit squarely on the ground. There's a very good chance the feet will slip out from under the user when climbed.
- Another common mistake is attempting to use a chair, a box or other item in place of a ladder. Even worse, some people try to use pallets or lift truck forks when a ladder is required. This common error results in thousands of injuries each year; only use approved step stools or ladders.
- Often when a platform or scaffold isn't available, workers will lay down a ladder and use it instead. Ladders are only designed for vertical applications and should never be used in a horizontal position.
- If you find yourself tempted to commit one of these unsafe acts, you may want to think twice about the consequences. Even falls from relatively small heights can result in big injuries.

PLATFORM LADDERS

- Besides straight and stepladders, you may also have to climb other types of ladders in your workplace.
- Platform ladders have wheels that allow it to be transported easily to its destination. Before using this type of ladder, check the steps and structure of the ladder. Also, make sure the brake functions properly. When you apply your weight to the ladder, the spring-loaded brake will keep the ladder in place.
- When climbing, always use the handrails. Never stand on them to gain additional height.

PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your videotape equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

CONDUCTING THE PRESENTATION

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.

Explain that the primary purpose of the program is to make clear why ladder safety is so important by showing viewers the right way and wrong way to use ladders.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about the specific types of ladders used at your facility and the hazards associated with using them. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- How to correctly choose a ladder according to type, construction and duty-rating;
- What to look for when inspecting a ladder before use;
- How to properly place and set step and straight ladders;
- How to stand and work on a ladder properly;
- Why ladders shouldn't be intentionally misused;
- What unique hazards are posed by multi-function ladders.

A PRACTICAL APPROACH TO LADDER SAFETY
REVIEW QUIZ

Name _____ **Date** _____

The following questions are provided to check how well you understand the information presented during this program.

1. The most common material used in the construction of ladders is _____.
 - a. aluminum
 - b. fiberglass
 - c. wood

2. Which type of ladder is rated for just 200 pounds and is not recommended for industrial or commercial operations?
 - a. Type I
 - b. Type II
 - c. Type III

3. A step ladder should be carried to your destination in the _____ position.
 - a. closed
 - b. open

4. If a straight ladder contacts a wall at a height of 12 feet, the feet of the ladder should be placed _____ feet from the wall.
 - a. two
 - b. three
 - c. six

5. More than half of all ladder fall victims are holding objects with one or both hands when they fall.
 - a. true
 - b. false

6. You should only lean out beyond the side rails when working on a ladder when it is equipped with a stabilizing bar or other attachment that increases stability.
 - a. true
 - b. false

7. When using a multi-use ladder on stairs, the short end of the ladder should always be placed on the floor or landing area.
 - a. true
 - b. false

8. You should never attempt to tie two ladders together to gain additional height.
 - a. true
 - b. false

ANSWERS TO THE REVIEW QUESTIONS

1. b

2. c

3. a

4. b

5. a

6. b

7. b

8. a