

# Ladder Safety



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## Slide Show Notes

Today, we're going to talk about ladder safety. This is an important topic because every year many workers are injured or killed because of ladder accidents. Injuries can be very serious—even from falls at short heights. In fact, some workers who fall from ladders end up permanently disabled.

The good news is that ladder accidents are preventable. All you have to do is use your common sense and take some simple precautions when using ladders. During this session, we're going to discuss all the key issues involved in working safely with ladders. This session includes information on portable ladders only.

## Session Objectives

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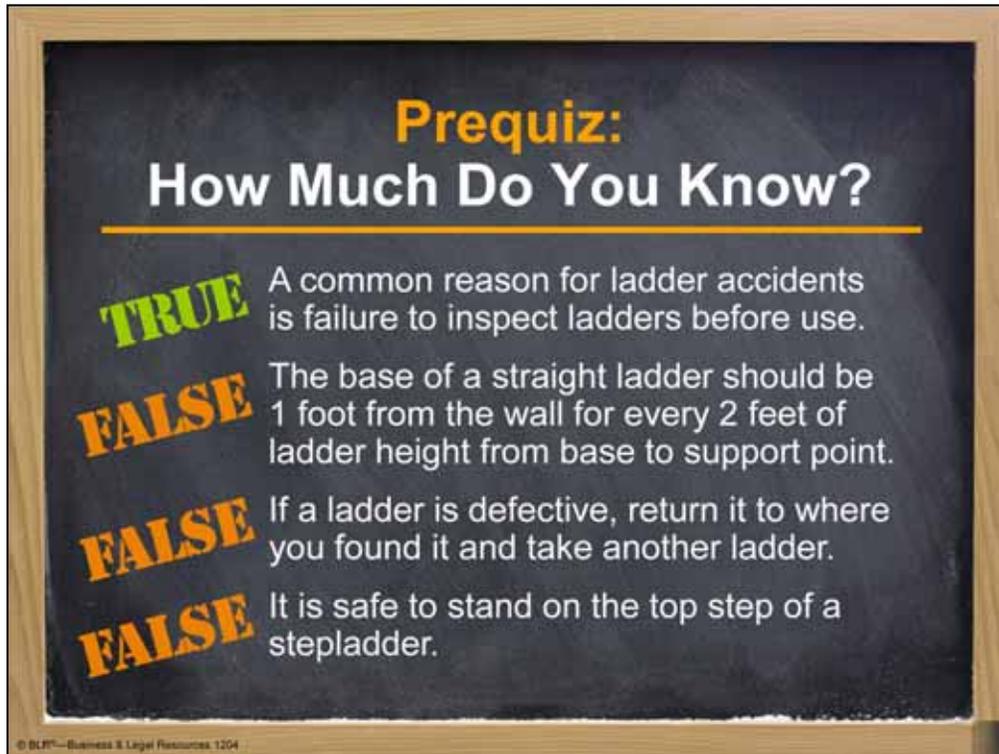
- Recognize the importance of ladder safety
- Identify common causes of ladder accidents
- Select and inspect ladders correctly
- Set up ladders properly
- Climb and work on ladders safely
- Maintain, store, and transport ladders properly

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### Slide Show Notes

The main objective of this session is to discuss general ladder safety. By the time the session is over, you should be able to:

- Recognize the importance of ladder safety;
- Identify common causes of ladder accidents;
- Select and inspect ladders correctly;
- Set up ladders properly;
- Climb and work on ladders safely; *and*
- Maintain, store, and transport ladders properly.



### Slide Show Notes

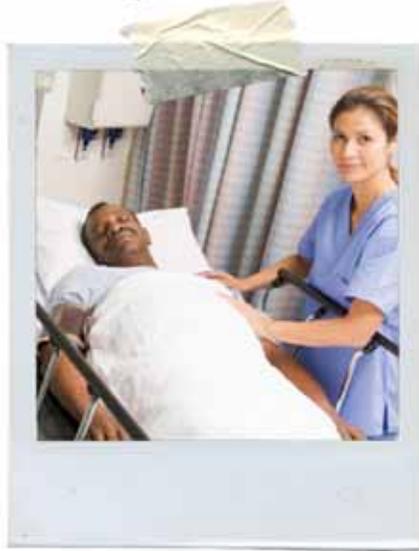
Before we begin the session, let's take a few minutes to see how much you already know about ladder safety. Decide which of the statements on the screen are *true* or *false*.

- A common reason for ladder accidents is failure to inspect ladders before use.
  - This is *true*.
- The base of a straight ladder should be 1 foot from the wall for every 2 feet of ladder height from base to support point.
  - This is *false*.
- If a ladder is defective, return it to where you found it and take another ladder.
  - This is *false*.
- And finally, it is safe to stand on the top step of a stepladder.
  - This is also *false*.

How did you do? Did you get all the answers right?

If not, don't worry. You'll learn all about these issues and a lot more during the session.

# Why Ladder Safety Matters



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- Juan is standing on the top step of a stepladder, loses his balance, and falls, suffering a spinal injury. He's out of work for 4 months.
- Carla fails to secure an extension ladder at the top and falls 20 feet when the ladder slips away from the wall.
- Frank overreaches to drill a hole above his head and plunges helplessly to the ground.
- Mark is climbing a ladder with both hands full and misses a step. Unable to grab the ladder, he falls, spraining his back.
- Bill, climbing a ladder, fails to check the area above him and hits his head on a beam. The resulting gash on his head sends him to the emergency room for stitches.

These are just a few of the kinds of ladder accidents that happen every day on the job. In fact, unfortunately, ladder accidents are a common cause of workplace injuries. Some injuries are severe. Some workers are disabled and unable to return to their regular jobs. Others recover slowly and painfully.

And every year, some workers die in falls from ladders.

Ladder safety is important because your continued good health—indeed, your life—may depend on what you learn today.

## 3 Most Common Causes Of Ladder Accidents

- Wrong ladder used
- Ladder in poor condition
- Ladder used improperly



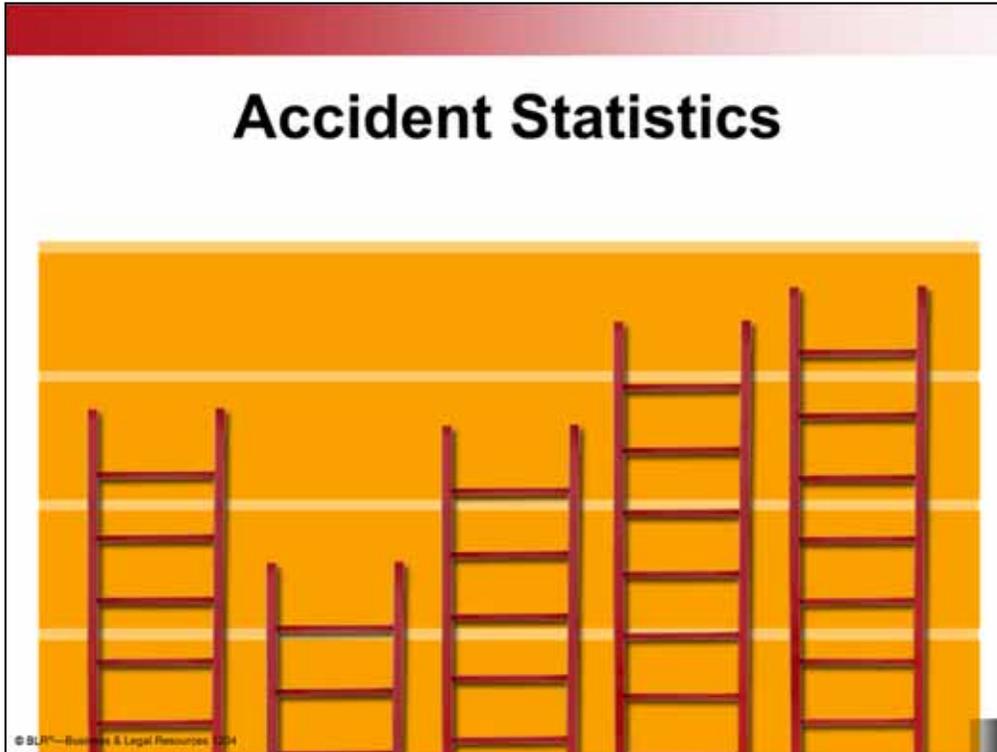
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### Slide Show Notes

The National Institute of Occupational Safety and Health—NIOSH—classifies ladder accidents into one of three broad categories:

- Accidents in which the wrong ladder is used;
- Accidents in which a ladder fails because it is in poor condition; *and*
- Accidents in which the ladder is used improperly.

# Accident Statistics



## Slide Show Notes

Findings of a Bureau of Labor Statistics study of 1,400 ladder accidents back up NIOSH's classification:

- 57 percent of fall victims in the study were holding objects with one or both hands while climbing or descending the ladder;
- 30 percent had wet, greasy, or oily shoes;
- 53 percent of straight ladders had not been secured or braced at the bottom, and 61 percent had not been secured at the top;
- 66 percent of accident victims had never been trained in how to inspect ladders for defects before using them; *and*
- 73 percent had not been provided with or consulted written instructions on the safe use of ladders.

Think about how each of these hazards could cause a ladder accident.

*Describe ladder accidents that have occurred in your workplace, and identify the causes of these accidents.*

## Five Simple Steps to Reduce the Risk of Falls



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### Slide Show Notes

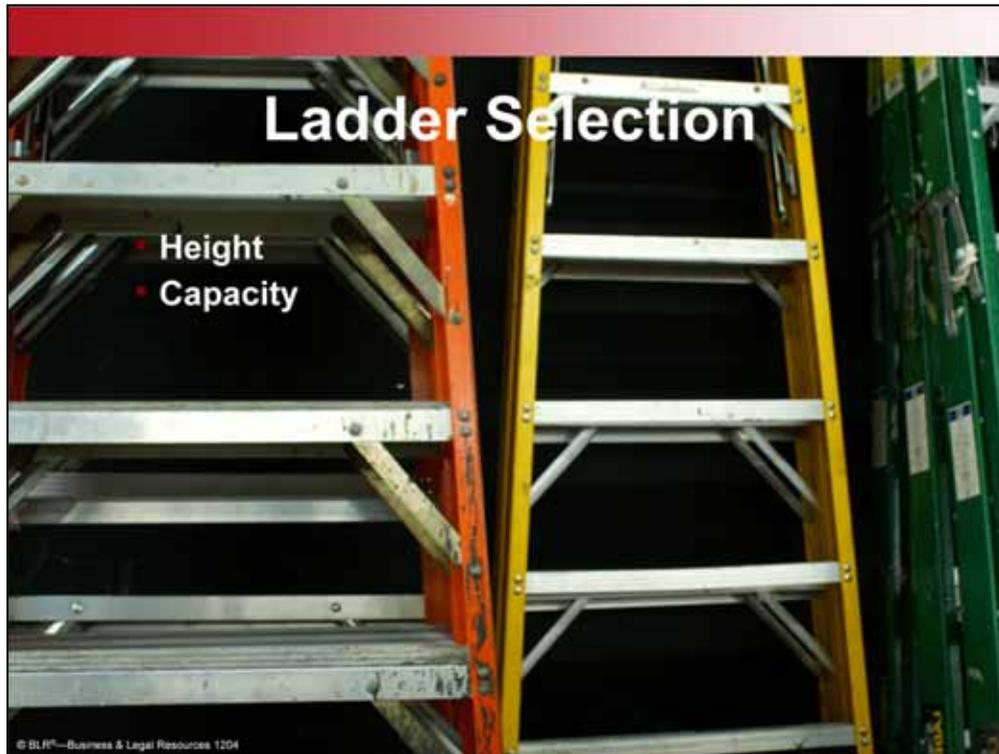
Fortunately, ladder accidents can be prevented. You don't have to suffer a painful, possibly disabling injury. You have the power to prevent ladder accidents by taking five simple steps:

- Inspect ladders carefully before use—ensure there are no cracked or broken rungs;
- Follow ladder safety rules and regulations;
- Use your common sense—only one person on a ladder at a time;
- Avoid risky behavior when using ladders; *and*
- Report safety problems with ladders right away.

There are more specific ladder safety rules, and we'll be talking about all of those during this training session—for example, selecting the right ladder for the job, setting the ladder up correctly, and climbing safely.

But first think about these five simple ladder safety rules. Do you always follow these rules when using ladders? If you do, you can prevent ladder accidents and injuries.

*Review your organization's ladder safety policies and work rules.*



### Slide Show Notes

OK, now let's start getting specific. We'll start with selecting the right ladder for the job.

- To begin with, a ladder must be the right height for the job so that you don't have to overreach. A stepladder should be tall enough so that you don't have to stand on the top two steps, which would leave you nothing to hold on to. A straight or extension ladder should be tall enough so that you don't have to stand on the top four rungs.
- Secondly, a ladder must have the capacity to support the weight that will be on it. Remember that the total weight a ladder has to support is your weight plus the weight of any tools and materials you use while working on the ladder. Weight capacity is displayed on a label affixed to the ladder. Here's the weight rating system:
  - I-A means the ladder can hold a maximum weight of 300 pounds;
  - I means a maximum weight of 250 pounds;
  - II means a maximum weight of 225 pounds; *and*
  - III means a maximum weight of 200 pounds.

## Ladder Selection (cont.)

No metal ladders around:

- Electricity
- Corrosives
- Flammables

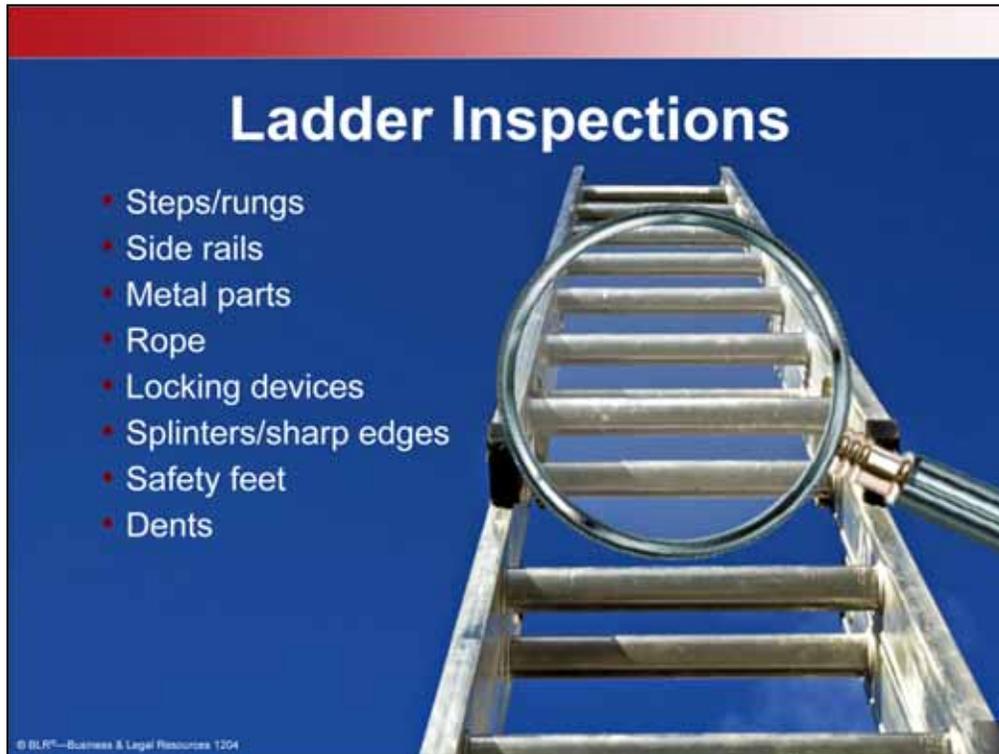


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### Slide Show Notes

Additionally, the material the ladder is constructed of may be a safety issue. Never use a metal ladder around:

- Electricity. Also check for metal parts and pieces and never use a ladder that is wet around electricity.
- Aluminum, steel, and acids are not compatible, so never use a metal ladder around corrosives.
- Finally, do not use metal ladders around flammables—the ladder could potentially cause a spark that could ignite around flammables.



### Slide Show Notes

All ladders should be inspected before each use. It doesn't take long to check out a ladder to make sure it's safe to use. But those few minutes could be the most important of your life.

Check to make sure that:

- Steps or rungs are in good repair and free of mud, grease, oil, or sticky substances;
- Side rails have no cracks or splits;
- Metal parts are lubricated;
- Rope is not worn or frayed;
- Spreaders or other locking devices are in place and working properly;
- Splinters or sharp edges have been filed down;
- Safety feet are solid and in place; *and*
- Metal ladders are free of dents and bent parts.

You should also inspect ladders following any tipovers or possible damage to a ladder that has been struck by something, hit something, or been dropped.



### Slide Show Notes

- When you uncover a safety problem with a ladder during an inspection, don't use it. Instead, remove it from service and tag it to make sure nobody else uses it. For example, you could write "DO NOT USE" in big bold letters on a tag and attach it to the ladder where it can be easily seen.
- Don't try to repair ladders yourself. Just report the problem to maintenance and let them handle it from there. They'll fix the ladder if they can, or it'll be replaced with a new ladder.

Remember, never take chances with a defective or damaged ladder. Your life could depend on a mistake like that.

Do you know the proper procedures for dealing with defective ladders? You should.

*Review your rules for reporting defective ladders and removing them from service.*



### Slide Show Notes

Let's test your knowledge now about the information we've just discussed with this quiz. You will see several statements on the screen—some which represent safe behavior, and some which represent unsafe behavior. Your job is to decide which are *safe* and which are *not*.

- Securing an extension ladder top and bottom:
  - This is a *safe* behavior.
- Inspecting a ladder before each use:
  - This is a *safe* behavior.
- Carrying tools up a ladder in your hands:
  - This is a *not safe* behavior.
- Climbing a ladder with mud on your shoes:
  - This is a *not safe* behavior.
- Using a ladder with a broken locking device:
  - This is a *not safe* behavior.
- Reaching rather than moving a ladder:
  - This is a *not safe* behavior.
- And finally, choosing a straight ladder that requires you to stand on the second rung from the top:
  - This is a *not safe* behavior.

How did you do? Did you make the safe choices?

# Review

Do you understand:

- Importance of ladder safety?
- Common causes of ladder accidents?
- Basic ways to reduce risk of falling?
- Ladder selection?
- Ladder inspection?
- What to do with defective ladders?



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## Slide Show Notes

Now it's time to ask yourself if you understand the information presented so far. For example, do you understand what we've said about:

- The importance of ladder safety?
- Common causes of ladder accidents?
- Basic ways to reduce risk of falling?
- Ladder selection?
- Ladder inspection?
- What to do with a defective ladder?

*Answer any questions trainees have about the information presented in the previous slides.*

*Conduct an exercise, if appropriate.*

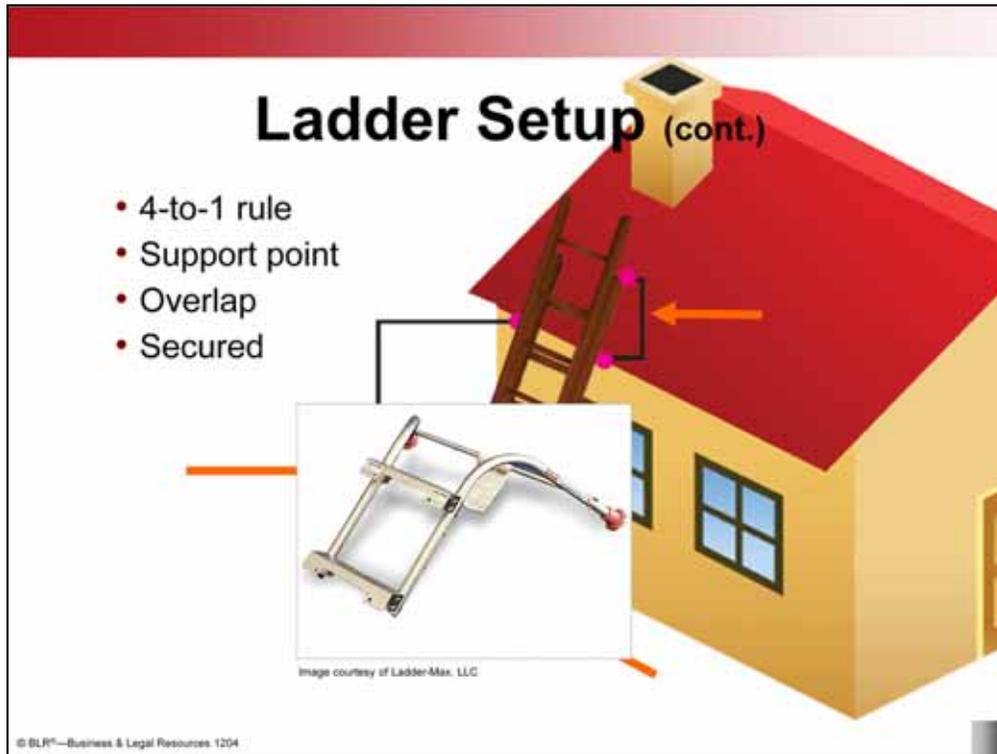
Let's continue now to the next slide and talk about ladder setup.



### Slide Show Notes

To avoid ladder accidents, you have to set up ladders correctly. Remember these setup tips.

- Place the ladder on a firm, level surface, and check to make sure the ladder is stable. Use wide boards under the ladder to give stability if the ground is soft.
- Never set a ladder on top of a drum, stack of pallets, or other object to gain more height. Use a taller ladder instead. If you set up a ladder on such an unstable base, you're just asking for an accident.
- Never set up a ladder in front of a door unless the door is locked or blocked—or you've got someone standing on the other side to keep people from opening the door.
- Never lean a ladder against a surface that isn't strong enough to support your weight, such as a window or an object that might move under your weight.
- Never fasten two ladders together for additional height. Instead, use a taller ladder or an extension ladder designed for two-ladder coupling.
- Make sure the spreaders on stepladders are fully extended and locked in place and that locking devices on extension ladders are secured.



### Slide Show Notes

Here are some more ladder setup safety tips:

- Remember the 4-to-1 rule, and place the base of the ladder 1 foot from the wall for every 4 feet between the base and the support point. For example, if it is 8 feet from the base of a ladder to its support point, the base of the ladder should be 2 feet away from the building. Another way to think of the 4-to-1 rule is to count the rungs between the base and the support point and then divide by 4. For example, say you count 8 rungs between the base and the support point: 8 divided by 4 is 2. So in this case, you should place the base of the ladder 2 feet from the wall.
- Extend extension ladders at least 3 feet above a support point such as the edge of a roof.
- Also, make sure that the upper section of an extension ladder overlaps and rests on the bottom section. The overlap should always be on the climbing side of the ladder. For ladders of 36 feet or more, the overlap should be least 3 feet.
- Secure ladders at the top and bottom.

Think about how you set up ladders. Do you always follow these rules and make sure the ladder is stable before you climb?

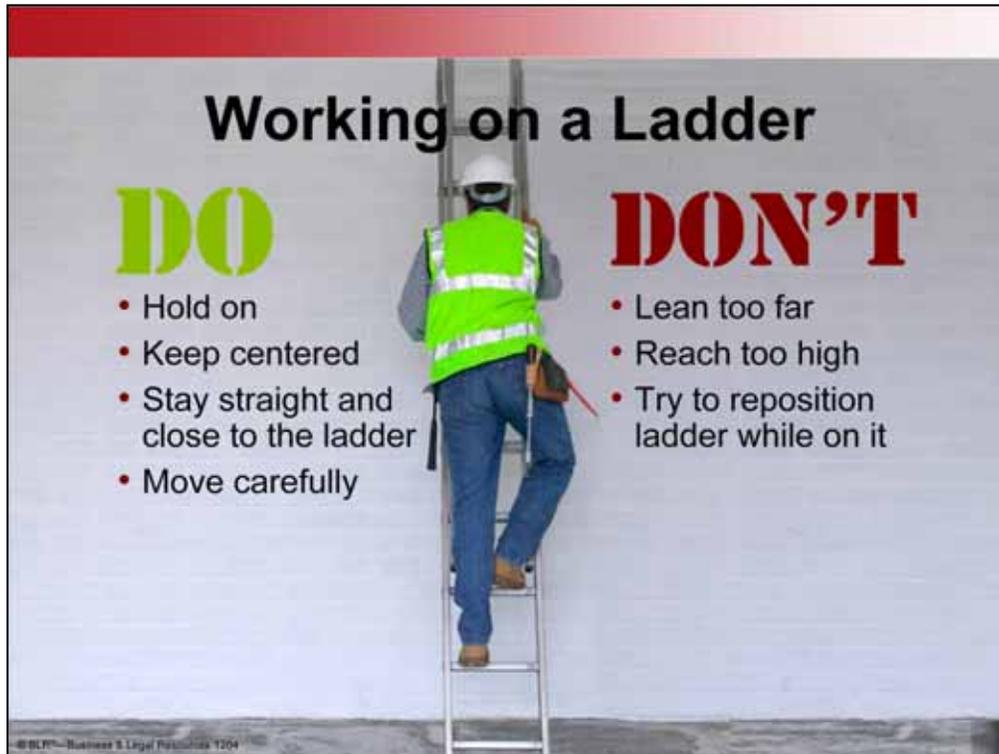
*Demonstrate proper ladder setup for stepladders, straight ladders, and extension ladders.*



### Slide Show Notes

When climbing or descending a ladder, remember these safety rules.

- Check your shoes before you climb, and wipe off wet, muddy, or greasy soles.
- Allow only one person on a ladder at a time.
- Face the ladder when you go up or down, holding on to the side rails with both hands as you climb. Some safety experts compare climbing a ladder to the way a bear climbs. Your right foot and hand moving simultaneously, followed by your left hand and foot. It may feel a little funny at first, but it can improve your balance and security as you climb. Bears are great climbers and rarely fall.
- Don't climb higher than the fourth rung from the top on a straight or extension ladder, or the second step from the top on a stepladder.
- Carry tools on a belt or shoulder strap, or hoist them up once you're atop the ladder.
- Never slide down a ladder. Descend safely, lowering one foot at a time and holding on to the side rails with both hands.
- Never climb a ladder if you are very tired, feeling ill, on medication that affects alertness or balance, or if you are impaired by alcohol or drugs.



### Slide Show Notes

When working on a ladder, remember these do's and don'ts:

- Do keep one hand on a side rail at all times.
- Do keep your body centered on the ladder. A good rule of thumb is to keep your belt buckle between the rails.
- Do keep your body straight and as close to the ladder as possible.
- Do move carefully and slowly when working on a ladder.
- Don't lean too far in either direction. Overreaching is a major cause of ladder accidents.
- Don't reach too far overhead either. Use a taller ladder to reach higher, if necessary.
- Don't try to reposition the ladder while you're standing on it. Get down and move it.

Think about how you climb and work on ladders. Do you always follow the precautions we've discussed in this and the previous slide?

*Lead a discussion about safety precautions for climbing, descending, and working on ladders.*



### Slide Show Notes

Ladders must be well maintained to keep them in good, safe condition and to make them last longer. Routine ladder maintenance should include:

- Checking joints between the steps and side rails to make sure they're tight;
- Testing hardware and fittings to make sure they're secure;
- Lubricating moveable parts when necessary so that they operate freely;
- Replacing worn rope on extension ladders;
- Making sure safety feet are in good condition; *and*
- Cleaning rungs and steps to keep them free of grease and oil.

Remember that ladder repairs should be made only by qualified personnel. Some regulations may prohibit repairs from being made. Be sure to check with your supervisor.

Do you know the proper procedures for ladder maintenance and repair?

*Review your ladder maintenance and repair policy and procedures.*

## Storing Ladders

- Store securely, out of the way
- Store short stepladders vertically
- Store straight ladders flat or hang horizontally
- Never store materials on top of a ladder
- Keep in a well-ventilated area



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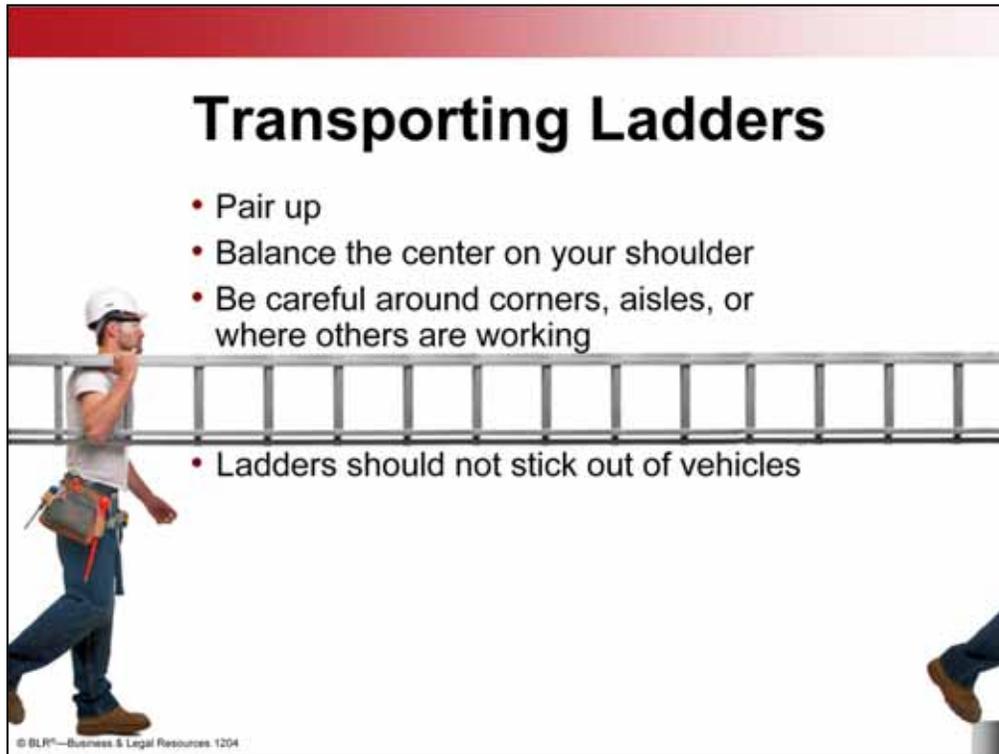
### Slide Show Notes

Proper storage is also important to keep ladders in safe condition.

- Ladders should be stored securely, out of the way, so that they can't trip people or fall on passersby.
- Short stepladders can be stored vertically.
- Straight ladders should be stored flat on racks with adequate support to keep from sagging or hung horizontally on wall hooks.
- Never store materials on top of a ladder that is stored horizontally. This can damage the ladder or cause it to warp.
- All ladders should be kept in a well-ventilated area, away from heat and moisture.

Think about our ladder storage areas and storage requirements. Make sure you always store ladders correctly and safely.

*Review ladder storage rules and procedures.*



### Slide Show Notes

Remember these safety rules when transporting ladders.

- Carry a ladder with another person, whenever possible.
- If you must carry a ladder alone, balance the center on your shoulder, keeping the front end above your head and the back end near the ground.
- Be especially careful going around corners, down narrow aisles, or in close quarters where others are working.
- If you are transporting a ladder in a vehicle, make sure it doesn't stick out too far from the front, back, or sides of the vehicle. Secure the ladder with ties so that it can't move or fall off while the vehicle is moving.

# Exercise

## Make the Right Choice

Is it safe to place a ladder on a stack of pallets to gain height?

- a. Yes
- b. No

If the distance between the base of an extension ladder and the support point is 12 feet, how far should the base of the ladder be from the wall?

- a. 3 feet
- b. 4 feet

When you climb a ladder, you should hold on with:

- a. One hand
- b. Two hands



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### Slide Show Notes

Time for an exercise. Read each question on the screen and decide which is the correct answer, *a* or *b*.

- Is it safe to place a ladder on a stack of pallets to gain height?
  - The correct answer is *b*. It is not safe to place a ladder on a stack of pallets or a drum or any other object to gain height. This could make the ladder unstable, and you could fall. If you need more height, choose a taller ladder.
- If the distance between the base of an extension ladder and the support point is 12 feet, how far should the base be from the wall; 3 feet or 4 feet?
  - The correct answer is *a*. The 4-to-1 rule says that the base of the ladder should be 1 foot from the wall for every 4 feet of ladder height from the base to the support point. So, 12 divided by 4 is 3 feet.
- When you climb a ladder, you should hold on with one hand or two hands?
  - The correct answer is *b*. You should hold on to the ladder with both hands while you climb, and then hold on with one hand while you work.

How did you do? Did you get all the answers right?

# Review

Do you understand:

- Ladder setup?
- How to climb and descend ladders safely?
- Working safely on ladders?
- Ladder maintenance and storage?
- Transporting ladders safely?



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## Slide Show Notes

Let's take a few minutes now to review and make sure you understand all the information presented in the previous slides. Do you understand what we said about:

- Ladder setup?
- How to climb and descend ladders safely?
- Working safely on ladders?
- Ladder maintenance and storage?
- Transporting ladders safely?

*Answer any questions trainees have about the information presented in the previous slides.*

*Conduct an exercise, if appropriate.*

Now, let's go on to the last slide and some key points to remember.

## KEY POINTS To Remember!

- ✓ Ladder accidents can cause serious injuries or death.
- ✓ You have the power to prevent accidents.
- ✓ Always choose the right ladder for the job and inspect before use.
- ✓ Set up ladders correctly and climb safely.
- ✓ Be careful when working on ladders and avoid overreaching.

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### Slide Show Notes

Here are the main points to remember from this session on ladder safety:

- Ladder accidents can cause serious injuries or death.
- You have the power to prevent accidents.
- Always choose the right ladder for the job and inspect it before use.
- Set up ladders correctly and climb them safely.
- Be careful when working on ladders and avoid overreaching.

This concludes the Ladder Safety training session.

*Give trainees the quiz, if appropriate.*