



# Chapter 8: Scaffolds and Ladders

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# AGC Tool Box Safety Talk

## LADDERS: CLIMBING

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

OSHA estimates that there are 24,882 injuries and as many as 50 fatalities per year due to falls on stairways and ladders used in construction. When using ladders, be mindful and follow these basic safety rules:

- Make sure rungs and steps are clear of grease, oil, dirt, snow, or ice before climbing.
- Clean muddy or slippery boot soles before climbing a ladder.
- Always face a ladder when climbing up or down.
- Follow the three-point rule: keep at least both feet and one hand or both hands and one foot on the ladder at all times.
- Keep your body centered between the side rails of the ladder so you don't tip over the ladder. A good rule is to always keep your belt buckle inside the rails of a ladder.
- Avoid carrying materials or tools when climbing a ladder. Carry tools up or down in a belt or hoist them in a bag or bucket.
- Never stand on the top two steps of a stepladder and the top four rungs on other ladders.
- Inspect the ladder before climbing to make sure it is in good shape. Report all defects to your supervisor.
- Do not use any ladder that is defective.



# AGC Tool Box Safety Talk

## LADDERS: EXTENSION LADDERS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Each year, an estimated 50 construction workers are killed by falls from ladders. Falls from extension ladders can be particularly dangerous because people are usually working at greater heights. Follow these safety tips when using extension ladders:

- When choosing an extension ladder, keep in mind that the length of a ladder is different from its usable length. The height these ladders can safely reach is reduced by the angle at which the ladder must be set up.
- Position an extension ladders so that the base of the ladder is one foot away from the wall for every four feet of ladder height. This ratio is important because if the angle is too steep, you can fall backward. If the angle is too horizontal, the ladder can slip out from under you.
- Make sure that both feet are on stable and level surfaces, and that both rails are resting evenly on the resting spot. Secure ladders to prevent accidental movement.
- Make sure side rails are at least three feet above the landing point, or that an adequate grab rail is provided.
- After you set up an extension ladder, lock the top section in place.
- If using multi-section ladders, make sure sections overlap — by at least 3 feet for ladders up to 32 feet, by 4 feet for ladders 32 feet to 48 feet, and by 5 feet for ladders 48 feet to 60 feet.
- When working from an extension ladder, consider using a fall protection system attached to a secure anchor point on the building, especially if doing work that involves pushing, pulling, or prying.



# AGC Tool Box Safety Talk

## LADDERS: FIXED

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

A fixed ladder is a ladder permanently attached to a structure, building or equipment. Fixed ladders pose hazards including slippery surfaces, unsure footing, and structural damage. Take these precautions when using fixed ladders:

- Check rungs to ensure that they’re free of splinters, sharp edges, burrs or projections that may create a hazard. Report all defects promptly.
- Clean muddy or slippery boot soles before mounting a fixed ladder, or any ladder.
- When climbing fixed ladders on towers, tanks, or chimneys, use appropriate ladder safety devices as instructed. A ladder safety device is an appliance that will arrest the fall of an individual working at elevated heights.
- Wait until the other person has exited the ladder before ascending or descending.
- When climbing fixed ladders, follow the same basic rules as with portable ladders.
- Take advantage of landing platforms to rest when climbing or descending from heights.



# AGC Tool Box Safety Talk

## LADDERS: JOB-BUILT LADDERS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

A Job-made ladder is a ladder that is fabricated by employees, typically at the construction site. Job-built ladders must conform to certain standards to ensure safety of the user. While job-built ladders can provide safer solutions than using makeshift arrangements for access, they must be used with care. Here are some tips to help ensure safety when using job-built ladders:

- Do not load ladders beyond the maximum intended load for which they were built.
- Allow only one person at a time on a single-width ladder and no more than two people on a double width ladder, each on a separate side.
- As with all ladders, set job-built ladders on a level, solid surface.
- Keep ladders from passageways, doorways, or driveways where they could be bumped or damaged by adjacent activities, unless the ladder area is barricaded.
- Always secure the ladder at the top and whenever possible, secure or stake the bottom too.
- Job built ladders should be inspected on a regular basis.
- When using a job-built ladder be sure to remove rungs which are over the upper level.



# AGC Tool Box Safety Talk

## LADDERS: PROPER ACCESS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Ladders are one of the biggest hazards of overhead work and result in many accidents. The worker on the ladder is exposed to the risk of a fall, and other workers could slip or trip on the ladder or tools and materials left at the access point. Take these precautions to protect yourself and your co-workers when using ladders to access upper levels:

- Always select a ladder that is the correct length to safely reach the working height.
- Position ladders so that the base of the ladder is one foot away from the wall for every four feet of ladder height.
- Do not tie ladders together to create longer sections.
- When using a ladder to access elevations, make sure that it extends three feet above the landing surface for ease in mounting and dismounting. If this is not possible, secure the ladder and use a grasping device such as a grab rail to assist in mounting and dismounting the ladder.
- Position the ladder so that both feet are resting on a stable, level surface and that both rails are resting evenly against a solid, secure surface. Secure the ladder to prevent movement.
- Keep all access points to ladders clear of tools, materials or debris.
- When using ladders near doors, equipment travel paths or similar areas make sure the area is blocked off to prevent the ladder from being struck or dislodged.
- Secure straight ladders in place prior to use.





# AGC Tool Box Safety Talk

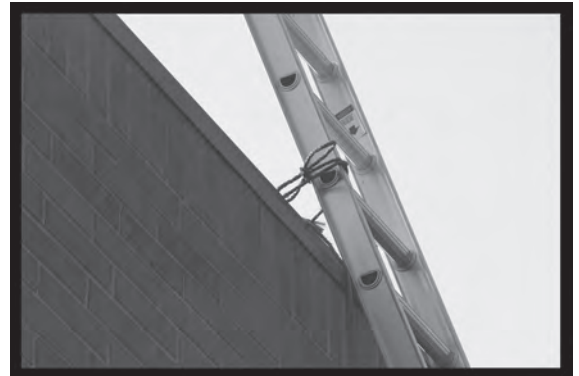
## LADDERS: TIE-OFFS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Each year about 50 construction workers are killed by falls from ladders. To ensure safety when working from a ladder or using a ladder to access upper levels, take these precautions:

- When accessing an upper level from a ladder, position the ladder so the side-rails extend at least three feet above the landing point.
- Secure the ladder by tying off to a stationary object.
- Attach the ties to side-rails of the ladder, not the rungs.
- While tying off the top, make sure someone “foots” the bottom or the bottom is tied off.
- If it is not practical to tie off or secure a ladder for whatever reason, make sure the ladder is “footed” at the base by another person with both hands on the side-rails to prevent any movement or overturning of the ladder.



# AGC Tool Box Safety Talk

## LADDERS: TYPES/CATEGORIES

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Ladders come in all shapes, sizes and material types. When using a ladder, the first step to safety is to select the right ladder for the job.

- When selecting a ladder, make sure it is of the correct duty, or weight rating.
- Type I-AA ladders are extra heavy duty and can handle up to 375 pounds.
- Type 1-A ladders are heavy duty and can handle up to 300 pounds.
- Type I ladders can hold up to 250 pounds.
- Type II ladders can hold 225 pounds.
- Type III ladders are for light duty or household use. Type III ladders should not be used on construction sites.
- When selecting a ladder, keep in mind that the combined weight of the user, their tools and materials should NEVER exceed the duty rating of that ladder.





# AGC Tool Box Safety Talk

## LADDERS: WARNING LABELS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Improper use of ladders can lead to serious injury as a result of falls, and in some cases electrocution. Warning labels provide information on hazards and instruction for safe use, plus they describe ladder weight and height limits that help you choose the proper ladder for the job.

- Always read and follow warning labels on ladders.
- Choose the right ladder for the job.
- Do not choose a ladder with height or weight limits that are less than you need to perform the job.
- Follow instructions for safe use.
- Do not remove labels.
- If labels have become worn or damaged, replace them if possible.
- Remove ladder from service if unsure of suitable condition and usability.



# AGC Tool Box Safety Talk

## LADDERS: METAL LADDERS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

While all ladders can be hazardous when used incorrectly, metal ladders pose additional risks, particularly when working around electricity. Work safely with metal ladders by taking these steps:

- Inspect the ladder before using to ensure that it free of sharp edges, dents, and bent steps, rungs, or rails. If the ladder is defective, remove it from service.
- Do not attempt to straighten a bent metal ladder.
- Make sure metal ladders have slip-resistant rubber or plastic feet.
- Keep rungs free of slippery material (grease, oil, paint, snow ice etc.).
- DO NOT use metal ladders around electrical equipment. Keep at least 10 feet away. Metal ladders conduct electricity.
- If you or the ladder could contact exposed, energized equipment, use a ladder with nonconductive side-rails.
- When working from a metal ladder, use only double-insulated or properly rounded electrical tools.



# AGC Tool Box Safety Talk

## LADDERS: STEPLADDERS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

When using a stepladder, falls can occur if the stepladder collapses or tips sideways. To prevent such accidents while using stepladders, take these precautions:

- Erect stepladders only on a flat, level surface.
- Before climbing a stepladder, make sure that its legs are fully extended and the spreader is locked.
- Do not step on the bucket shelf or attempt to climb or stand on the rear section supports.
- Do not work from the top two steps.
- Do not use a stepladder as a straight ladder or lean a stepladder against a wall.
- Do not use a stepladder for getting onto a roof or other platform.
- Do not place a stepladder on a table or any similar platform for added height.



# AGC Tool Box Safety Talk

## SCAFFOLDS: BASIC REQUIREMENTS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

When scaffolds are not erected or used properly, fall hazards can occur. About 2.3 million construction workers frequently work on scaffolds. Protecting these workers from scaffold-related accidents would prevent an estimated 4,500 injuries and 50 fatalities each year. Take these steps to help protect workers and reduce accidents:

- Follow industry guidelines for erecting scaffolds: verify that each scaffold and its components is capable of supporting, without failure, its own weight and at least four times the maximum intended load. Erect and dismantle under the direction of a scaffold competent person.
- Inspect scaffolds daily before use; check footing, guardrails, connectors, fastening, tie-ins and bracing.
- Do not use unstable objects such as barrels, boxes, loose bricks, or concrete blocks to support scaffolds or planks.
- Fully plank platforms on all working levels.
- Install guardrails and toe-boards on all open sides and ends of platforms on scaffolding over 10 feet above floor or ground.
- If a scaffold is more than two feet above or below a level, provide adequate access, such as a ramp, ladder, or steps.
- Do not erect, use, dismantle, alter or move scaffolds so they, or any conductive material handled on them, might come closer than 10 feet to energized overhead power lines.
- Obtain scaffold user training prior to working on scaffolding.
- Inspect all scaffolds prior to use or at least on a daily basis.



# AGC Tool Box Safety Talk

## SCAFFOLDS: USE OF BRACES FOR GUARDRAILS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Guardrails are installed on scaffolding to protect workers from falls. Cross-braces are used to support the structure and keep the scaffold square. In some instances, cross bracing may be used as guardrails. Follow these basic guidelines for installing guardrails:

- When working on scaffolds more than 10 feet above a lower level, install guardrails, mid-rails, and toe-boards along all open sides and ends of platforms.
- Install top rails so the top edge is between 39 and 45 inches.
- Install mid-rails halfway between the work platform and the top rail.
- Install toe-boards of a substantial material at least 4 inches high on all open sides and ends of platforms if there are workers below.
- You may use cross bracing as a top rail provided where it crosses is between 39 and 42 inches above the work platform.
- You may use cross bracing as a mid-rail provided the crossing point is approximately 20 inches above the work platform and you install a top-rail 39 to 45 inches above the work platform.
- You cannot use cross bracing as both top and mid-rail. Cross bracing can be only used as either a mid-rail or top-rail.



# AGC Tool Box Safety Talk

## SCAFFOLDS: MOBILE

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

One of the greatest hazards associated with mobile scaffolds is the risk of overturning. Employees who erect, disassemble, or otherwise use mobile scaffolds must follow all OSHA requirements to ensure safety. Follow these basic guidelines when working with mobile scaffolds:

- Erect mobile scaffolds with cross, horizontal, or diagonal braces, as designed, to provide a rigid structure.
- Make sure scaffolds are plumb, level, and squared with all brace connections securely fastened.
- To prevent movement of the scaffold while it is being used in a stationary position, lock all scaffold casters and wheels with positive wheel and swivel locks.
- Check overhead clearance for power lines or other possible hazards before moving a mobile scaffold. Stay at least 10 feet away from all power lines.
- When using manual force to move the scaffold, apply the force as close to the base as possible, but not more than five feet above the supporting frame.
- Never move a mobile scaffold while you are on it.
- Inspect all scaffolds prior to use or at least on a daily basis.





# AGC Tool Box Safety Talk

## SCAFFOLDS: MASONRY

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Masonry scaffolds pose unique hazards because they are subject to heavy loads. If not constructed properly, scaffolds may collapse, and cause serious injury or death. To help ensure safety, take the following precautions:

- When erecting a supported scaffold, make sure its erected properly.
- Ensure poles, legs, posts, frames, and uprights rest on base plates and mud sills. Masonry assumes heavy duty loading, and good footing is critical.
- Inspect scaffolds prior to use to ensure that they are stable and secure. A scaffold must be capable of supporting its own weight plus four times the maximum intended load.
- Ensure that masonry materials placed on a scaffold do not exceed the design capacity of the scaffold.
- Bricks and blocks shall be stored in a safe manner, on a firm and level.
- Do not remove cross braces from a supported scaffold. This drastically reduces the load capacity of the scaffolding.
- Guardrails that are removed to load material must be immediately replaced.
- Inspect all scaffolds prior to use or at least on a daily basis.



# AGC Tool Box Safety Talk

## SCAFFOLDS: OVERHEAD HAZARDS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Workers on scaffolds risk injury from overhead hazards such as falling tools, equipment, and materials and energized overhead power lines. To protect employees from falling objects and electrical shock, take these precautions:

- Install overhead protection when there is risk of exposure to falling objects. Types of overhead protection include toe-boards at edges of platforms, screens, guardrails, debris nets, catch platforms, canopy structures.
- Designate a fall zone under scaffolding with barricades or danger tape to protect employees working below scaffolds.
- Keep scaffolds 10 feet or more from power lines, unless you verify the power lines are de-energized.
- Secure tools and equipment so that they don't become falling objects.
- Always wear approved head and foot protection when working on or around scaffolds.
- Inspect all scaffolds prior to use or at least on a daily basis.
- When stacking materials above toe-boards either secure and / or use a screen.
- Pay attention to material handling while working on scaffolding to avoid contact with energized power lines.



# AGC Tool Box Safety Talk

## SCAFFOLDS: SUPPORTED

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Supported scaffolds consist of one or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support. Supported scaffolds include fabricated frame scaffolds, tube and coupler scaffolds, wall brackets, form brackets, and ladder jack and pump jack scaffolds. Follow these precautions to help provide adequate structural support and fall protection for workers:

- Construct scaffolds on a level foundation. Make sure poles, legs, posts, frames, and uprights are set on base plates and mud sills when required.
- Make sure footings can support the loaded scaffold without settlement or displacement. Inspect scaffolds prior to use to ensure they are stable and secure. A scaffold must be capable of supporting its own weight plus four times the maximum intended load.
- Plumb or brace legs, posts, frames and uprights to prevent swaying or displacement. Connect frames and panels by cross, horizontal, or diagonal braces, as designed, to secure vertical members together laterally.
- Do not use unstable objects to support scaffolds or platforms such as boxes, buckets, barrels, etc. Only use scaffold system components.
- When a supported scaffold reaches a height that is more than four times its minimum base dimension (4:1), restrain the scaffold by guys, ties, or braces to prevent it from tipping.
- Use fall protection (either a guardrail system or a personal fall arrest system) when working on any scaffold 10 feet or more above a lower level. When working on a suspension scaffold, use both a guardrail and a personal fall arrest system.
- Inspect all scaffolds prior to use or at least on a daily basis.
- Always use scaffolds under the oversight of a competent person.



# AGC Tool Box Safety Talk

## SCAFFOLDS: SUSPENDED

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Suspended scaffolds are platforms suspended by ropes, or other non-rigid means, from an overhead structure. Suspended scaffolds include swing stage, multipoint scaffolds, and catenary scaffolds. Suspended scaffolds can pose serious risks if there is a failure in integrity of the structure or the ropes. In addition, workers at heights risk serious injury or death from falls if fall-protection systems are not in place. Follow these tips to help ensure safety:

- Suspended scaffolds must be designed by a competent person.
- Make sure all suspension support devices are resting on surfaces capable of supporting at least four times the intended load. Supporting devices include outrigger beams, cornice hooks, parapet clamps and similar devices.
- Verify that each suspension rope, including connecting hardware, is capable of supporting, without failure, at least 6 times the maximum intended load.
- When inspecting scaffolds for capacity, keep in mind that adjustable suspension scaffolds are designed to be raised and lowered while occupied by workers and materials, and must be capable of bearing their load whether stationary or in motion.
- Restrain outrigger beams to prevent movement.
- To keep a scaffold from falling to the ground, use counterweights and attach them to an acceptable anchor point
- Use fall protection (either a guardrail system or a personal fall arrest system) when working on any scaffold 10 feet or more above a lower level. When working on a suspension scaffold, use both a guardrail and a personal fall arrest system.
- Inspect all scaffolds prior to use or at least on a daily basis.



# AGC Tool Box Safety Talk

## SCAFFOLDS: ERECTING/DISMANTLING

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Many scaffolding accidents occur during the erecting and dismantling and missing tie-ins or bracing. Always follow OSHA guidelines for erecting and/or dismantling scaffolds and use these safe work practices:

- Erect, move, dismantle, or alter scaffolds only if you are trained and under the supervision of a competent person qualified in such activities.
- Wear fall protection whenever feasible. A qualified person must determine where fall protection is feasible and does not create a greater hazard.
- If using a personal fall arrest system, do not use scaffolds as an anchorage unless authorized to do so by a qualified person.
- Stay on structurally sound and stable portions of the scaffold while erecting or dismantling other portions of the scaffold.
- Unless they can be handed down, use ropes to lower components to the ground when dismantling a scaffold. This prevents the components from being damaged that can occur if tossed down.
- Stage materials to minimize fall hazards and to permit safe access.
- Wear approved head and foot protection.



# AGC Tool Box Safety Talk

## SCAFFOLDS: FOUNDATIONS

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

A safe scaffold begins with a solid foundation. Scaffolding foundations must be able to carry and distribute all the weight of the scaffold, including any extra loads placed on the scaffold. When designing the foundation of the scaffold, take the following safety precautions:

- A qualified person should inspect all scaffolding erections.
- Set scaffold legs on base plates and mudsills adequate to support the maximum intended load without settling or displacing.
- Use mudsills, usually made of wood planks, to provide additional support on soft surfaces or uneven terrain.
- Do not use unstable objects to support scaffolds or platform units.
- Do not use masonry blocks and bricks for support.
- Do not use front-end loaders and similar pieces of equipment to support scaffold platforms.
- Scaffold legs must be set with base plates or screw jacks.
- Inspect all scaffolds prior to use or at least on a daily basis.





# AGC Tool Box Safety Talk

## SCAFFOLDS: SAFE WORK PRACTICES

### INTRODUCTION

1. Review any accidents or “near accidents” from the past week.
2. Describe the hazards of the work as they relate to your project. Explain or show the SAFE way of doing the job.
3. Give the TOOL BOX SAFETY TALK

Failure to follow safe work practices when using scaffolds is a major cause of scaffolding-related accidents. To ensure safety, learn to recognize hazards, and always use these safe work practices:

- Inspect scaffolds before each work shift and after any incident that could affect the structural integrity of the scaffold. Take any questionable scaffold out of service, tag it and report damage or defects immediately.
- Do not load scaffolds beyond their capacity. Keep only the tools and materials you need on the scaffold.
- Keep the platforms and area around the scaffold clear of debris and unneeded equipment, material, and other hazards that could cause a worker to trip or fall.
- Use guardrails and/or personal fall arrest system working on a scaffold that is 10 feet high or higher.
- Maintain proper clearance near power lines (at least 10 feet, plus 4 inches for every kilovolt above 50 kilovolts).
- Wear head protection and other personal protective equipment as necessary.
- Do not work on scaffolds during storms or high winds and clear all ice and snow from the platforms before using them.
- Keep others away from the base of the scaffold while work is occurring overhead.

