

# OSHA All Toolbox Talks Bundle

**FORBES SAFETY SOLUTIONS**

Complete bundle — 36 templates included

Editable Word/Excel/PowerPoint versions available at [forbessafety.com/downloads/](https://forbessafety.com/downloads/)

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FORBES SAFETY SOLUTIONS

# ASBESTOS & LEAD AWARENESS

Identification, Health Risks & Protective Measures

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Ref: 29 CFR 1926.1101 (Asbestos) | 29 CFR 1926.62 (Lead)

TOOLBOX TALK

## KEY STATISTICS

**~3,000 Cases/Year**

Mesothelioma diagnoses in the U.S. — nearly all from asbestos exposure

**~500,000 Children**

Have blood lead levels above the CDC reference value in the U.S.

**Pre-1980 Buildings**

Highest risk for asbestos-containing materials and lead-based paint

## WHERE ARE THESE MATERIALS FOUND?

- Asbestos: floor tiles, ceiling tiles, pipe insulation, pipe wrap, roofing materials, joint compound
- Asbestos: boiler insulation, duct wrap, spray-applied fireproofing, transite panels
- Lead: paint in pre-1978 buildings (most common source), solder in plumbing joints
- Lead: glazed ceramics, imported consumer products, some industrial coatings
- If you suspect ACM (asbestos-containing material) or LBP (lead-based paint) — STOP WORK immediately
- Do NOT disturb, cut, sand, or demolish suspected materials — report to your supervisor at once
- Testing and survey by qualified professionals is required before any demolition or renovation work

# HEALTH EFFECTS

- Asbestos exposure causes mesothelioma, lung cancer, and asbestosis — often with 10-40 year latency
- There is no safe level of asbestos exposure — even brief disturbances can release deadly fibers
- Asbestos fibers are microscopic and cannot be seen, smelled, or tasted
- Lead poisoning affects the nervous system, kidneys, reproductive system, and brain development
- Acute lead exposure: abdominal pain, fatigue, headaches, muscle/joint pain
- Chronic lead exposure: memory loss, mood disorders, reduced cognitive function, organ damage
- Workers can carry lead dust home on clothing — endangering family members (take-home exposure)

## CONTROLS & PPE REQUIREMENTS

- Never use power tools, dry sweeping, or compressed air on suspected ACM or LBP — creates airborne hazards
- Wet methods: keep materials damp to minimize fiber/dust release during any authorized disturbance
- HEPA vacuums required for cleanup — standard shop vacuums spread fine particles into the air
- PPE for asbestos: minimum half-face respirator with P100 filters, disposable coveralls, gloves
- PPE for lead: respirator appropriate to exposure level, coveralls, gloves, shoe covers
- Decontamination: use designated wash stations; do not eat, drink, or smoke in work areas
- Only trained and licensed abatement workers may perform removal of ACM or LBP

## QUIZ — TEST YOUR KNOWLEDGE

**Q1: What should you do if you suspect you've found asbestos-containing material?**

*A: Stop work immediately, do not disturb the material, and report it to your supervisor.*

**Q2: Why are HEPA vacuums required instead of regular shop vacuums?**

*A: Standard vacuums cannot capture fine asbestos fibers or lead dust and spread them into the air.*

**Q3: Name two common locations where lead-based paint is found on construction sites.**

*A: Pre-1978 building surfaces (walls, trim, doors) and plumbing solder joints.*

# SIGN-OFF SHEET

Asbestos & Lead Awareness

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# Back Safety & Proper Lifting

[Company Name]

[Date]

## Why This Matters

**1 in 5**

Workplace injuries  
are back-related

**\$100B+**

Annual cost of  
back injuries  
in the U.S.

**51 lbs**

NIOSH recommended  
weight limit under  
ideal conditions

# Proper Lifting Technique

## 1. Plan the Lift

Assess the weight, check your path, and decide if you need help or mechanical aids before lifting.

## 2. Get Close

Stand as close to the load as possible. The farther the load is from your body, the greater the strain on your back.

## 3. Bend at the Knees

Squat down by bending your knees — not your waist. Keep your back straight and chest forward.

## 4. Get a Firm Grip

Use your full hand, not just your fingers. Ensure the load is stable before lifting.

## 5. Lift with Your Legs

Straighten your legs to lift. Let your leg muscles do the work, keeping the load close to your body.

## 6. No Twisting

Turn with your feet, not your torso. Twisting while carrying a load is a leading cause of back injuries.

# Additional Back Safety Measures

## Team Lifts

If a load exceeds 51 lbs or is awkward to handle, get a partner. Communicate clearly — one person leads the lift.

## Mechanical Aids

Use dollies, hand trucks, forklifts, or hoists whenever available. Mechanical aids dramatically reduce injury risk.

## Stretching & Warm-Up

Begin each shift with light stretching. Cold muscles are more prone to strains and tears.

## Body Positioning

Avoid reaching overhead or bending at the waist for extended periods. Reposition materials to waist height when possible.

## Know Your Limits

If a load feels too heavy, it probably is. Never risk injury to save time — ask for help.

# NIOSH Lifting Equation — Key Factors

The NIOSH Recommended Weight Limit (RWL) starts at 51 lbs and is reduced by multipliers based on the conditions below. If conditions are not ideal, the safe lifting weight drops significantly.

| Factor              | Description                         | Impact                          |
|---------------------|-------------------------------------|---------------------------------|
| Horizontal Distance | How far the load is from your body  | Farther = lower safe weight     |
| Vertical Location   | Height of the load at start of lift | Very high/low = reduced limit   |
| Vertical Travel     | How far you move the load up/down   | Greater distance = more strain  |
| Asymmetry Angle     | Degree of twisting during the lift  | Twisting reduces safe weight    |
| Frequency           | How often you lift per minute       | More frequent = lower limit     |
| Coupling Quality    | Quality of handles or grip          | Poor grip = reduced safe weight |

# Quiz / Discussion

**Q1: What body part should do the heavy lifting — your back or your legs?**

A: Your legs. Keep your back straight and use your leg muscles to power the lift.

**Q2: What is the NIOSH recommended weight limit under ideal conditions?**

A: 51 pounds. This limit decreases when conditions are not ideal.

**Q3: What should you do if a load feels too heavy?**

A: Stop and ask for help. Use a team lift or mechanical aid — never risk injury.

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# Bloodborne Pathogens Awareness

Ref: 29 CFR 1910.1030 — Bloodborne Pathogens Standard

[Company Name]

[Date]

## WHY THIS MATTERS

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5.6M

Workers in healthcare and other industries are at risk of occupational exposure to bloodborne pathogens

3

Primary BBPs: HIV, Hepatitis B (HBV), and Hepatitis C (HCV)  
— all potentially fatal

95%

Hepatitis B vaccine effectiveness rate —  
vaccination is the best protection for at-risk workers

# Understanding Bloodborne Pathogens

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## WHAT ARE BBPs?

- Bloodborne pathogens are infectious microorganisms in human blood that cause disease
- HIV: attacks immune system — no vaccine available
- Hepatitis B (HBV): attacks the liver — vaccine available and highly effective
- Hepatitis C (HCV): chronic liver disease — no vaccine, but treatable
- BBPs can survive outside the body in dried blood for up to a week (HBV)

## HOW TRANSMISSION OCCURS

- Through broken skin (cuts, abrasions, dermatitis, acne)
- Mucous membranes (eyes, nose, mouth) contact with infected blood/fluids
- Needlestick or sharp object injuries
- On construction sites: contact with blood at first aid scenes, contaminated sharps, human waste
- NOT spread by casual contact, coughing, sneezing, or sharing food/water

# Universal Precautions & Protection

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## UNIVERSAL PRECAUTIONS

- Treat ALL blood and body fluids as if they are infectious
- Wear nitrile or latex gloves when providing first aid or handling potentially contaminated materials
- Use eye protection and face shields if splashing is possible
- Use CPR barrier devices — never perform mouth-to-mouth without a barrier
- Wash hands immediately after removing gloves

## WHAT TO DO ON A JOBSITE

- If you encounter blood/body fluids: do NOT touch without PPE
- Alert your supervisor immediately
- Clean contaminated surfaces with 10% bleach solution or approved disinfectant
- Place contaminated materials in labeled biohazard bags
- Hep B vaccination: offered at no cost to at-risk employees
- Report any exposure incident immediately for post-exposure evaluation

# Exposure Incident Response Steps

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| Step | Action                | Details                                                                      |
|------|-----------------------|------------------------------------------------------------------------------|
| 1    | Immediate care        | Wash wound with soap and water; flush eyes/mucous membranes with clean water |
| 2    | Report exposure       | Notify supervisor immediately — document how it occurred                     |
| 3    | Medical evaluation    | Seek confidential medical evaluation and follow-up within 24 hours           |
| 4    | Source identification | If possible, identify the source individual (with consent)                   |
| 5    | Documentation         | Complete exposure incident report with date, time, circumstances             |
| 6    | Follow-up             | Blood testing at baseline, 6 weeks, 3 months, and 6 months post-exposure     |

# QUIZ / DISCUSSION

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1

**Name the three primary bloodborne pathogens of concern in the workplace.**

Answer: HIV (Human Immunodeficiency Virus), HBV (Hepatitis B Virus), and HCV (Hepatitis C Virus).

2

**What does 'universal precautions' mean?**

Answer: Treat all human blood and body fluids as if they are known to be infectious — always use appropriate PPE regardless of the perceived risk.

3

**What is the first thing you should do after an exposure incident?**

Answer: Immediately wash the wound with soap and running water (or flush eyes with clean water), then report the exposure to your supervisor for documentation and medical follow-up.

# ATTENDANCE SIGN-OFF

Bloodborne Pathogens Awareness

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FORBES SAFETY SOLUTIONS

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# CAUGHT-IN / CAUGHT-BETWEEN HAZARDS

OSHA Focus Four — 29 CFR 1926

TOOLBOX TALK

[Company Name]

[Date]

# WHY THIS MATTERS

Caught-In/Between: The Last of OSHA's "Focus Four" Hazards

**5-7%**

**of Construction  
Fatalities**

Caught-in/between is  
one of the "Fatal Four"

**18-24**

**Deaths Per Year**

Workers killed annually  
in caught-in/between incidents

**#4**

**Focus Four  
Hazard**

Joins falls, struck-by,  
and electrocution

Source: OSHA Fatal Four Statistics / Bureau of Labor Statistics Census of Fatal Occupational Injuries

# TYPES OF CAUGHT-IN/BETWEEN HAZARDS

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## MACHINERY

- Caught in unguarded rotating parts (gears, rollers, augers)
- Clothing, hair, or jewelry pulled into running equipment
- Hand/fingers caught in moving belt or chain drive

## EQUIPMENT & OBJECTS

- Crushed between backing equipment and a fixed object
- Caught between equipment swing radius and a wall or post
- Pinch points between moving and stationary machine parts

## COLLAPSING MATERIALS

- Trench cave-in burying workers
- Collapsing stacked materials or unsecured loads
- Structural collapse during demolition or excavation

# PREVENTION MEASURES

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| CATEGORY                   | PREVENTION MEASURES                                                                                                                                                                                                                                  |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Machine Guarding & LOTO    | <ul style="list-style-type: none"><li>• All moving parts must have guards in place (29 CFR 1910.212)</li><li>• Lockout/Tagout before ANY maintenance or adjustment</li><li>• Never reach into operating machinery</li></ul>                          |
| Personal Precautions       | <ul style="list-style-type: none"><li>• No loose clothing, jewelry, or long hair near rotating equipment</li><li>• Never position body between equipment and immovable objects</li><li>• Stay clear of equipment swing radius at all times</li></ul> |
| Trench & Excavation Safety | <ul style="list-style-type: none"><li>• Trench protective systems required at 5 ft depth</li><li>• Sloping, shoring, or shielding per competent person</li><li>• Never enter an unprotected trench — no exceptions</li></ul>                         |
| Equipment & Vehicles       | <ul style="list-style-type: none"><li>• Use spotters when backing heavy equipment</li><li>• Establish barricades around swing radius areas</li><li>• Never walk between operating equipment and structures</li></ul>                                 |

# REAL-WORLD SCENARIOS

| SCENARIO                                      | HAZARD TYPE                | WHAT WENT WRONG                                               | PREVENTION                                                   |
|-----------------------------------------------|----------------------------|---------------------------------------------------------------|--------------------------------------------------------------|
| Clothing caught in unguarded auger            | Caught In — Machinery      | Machine guard removed, loose sleeve pulled worker in          | Replace guard; no loose clothing policy; LOTO for cleaning   |
| Worker crushed between backing truck and wall | Caught Between — Equipment | No spotter; worker in blind spot between truck and structure  | Use spotter; establish exclusion zone; high-vis vest         |
| Trench cave-in buries worker                  | Caught In — Collapse       | No protective system; trench deeper than 5 ft without shoring | Trench box or sloping; competent person inspection           |
| Hand caught in conveyor belt                  | Caught In — Machinery      | Worker cleared jam without shutting down conveyor             | LOTO before clearing jam; never reach into running equipment |

*Discuss: Has anyone on this crew witnessed or experienced a caught-in/between near miss?*

# QUIZ / DISCUSSION

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## 1 Name the three types of caught-in/between hazards.

Answer: Caught in running machinery, caught between equipment and fixed objects, and caught in collapsing materials (e.g., trench cave-in).

## 2 At what depth must trench protective systems be used?

Answer: 5 feet. Trenches 5 feet or deeper require protective systems (sloping, shoring, or shielding) unless excavated in stable rock.

## 3 What must be done before performing maintenance on equipment with moving parts?

Answer: Lockout/Tagout (LOTO) — De-energize the equipment and apply lock and tag to prevent unexpected startup.

# TOOLBOX TALK SIGN-OFF

Caught-In / Caught-Between Hazards

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# Working in Cold Weather

Ref: OSHA Cold Stress Guidance | NIOSH Cold Stress Publication

[Company Name]

[Date]

TOOLBOX TALK

## WHY THIS MATTERS

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~700

Workers die annually in the U.S. from environmental heat and cold exposure combined

-25°F

Wind chill at which exposed skin can develop frostbite in as little as 15 minutes

95°F

Below this core body temperature, hypothermia begins — confusion, shivering, and loss of coordination set in

# Cold-Related Illnesses: Recognize the Signs

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## HYPOTHERMIA

- Core body temp drops below 95°F
- Early signs: shivering, fatigue, confusion, loss of coordination
- Severe: slurred speech, drowsiness, slow pulse, loss of consciousness
- First Aid: Move to warm area, remove wet clothing, warm center of body first, give warm beverages (no alcohol), seek EMS immediately

## FROSTBITE & TRENCH FOOT

- Frostbite: skin freezes — numbness, waxy appearance, white/gray patches on ears, nose, fingers, toes
- Do NOT rub affected area — warm gently with body heat or warm (not hot) water
- Trench foot: prolonged exposure to cold, wet conditions — swelling, numbness, blisters
- Prevention: keep feet dry, change wet socks frequently, air out boots at breaks

# Cold Weather Protection Strategies

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## LAYERING SYSTEM

- Base layer: moisture-wicking (polyester, merino wool) — never cotton
- Mid layer: insulating (fleece, down) — traps body heat
- Outer layer: wind/waterproof shell — blocks wind chill and rain/snow
- Protect extremities: insulated gloves, warm hat (40% heat loss from head), face covering in extreme cold

## WORK PRACTICES

- Schedule warm-up breaks every 60-90 minutes in heated areas
- Use buddy system — watch coworkers for signs of cold stress
- Chemical hand/toe warmers in gloves and boots
- Stay hydrated — dehydration increases cold injury risk even in winter
- Monitor wind chill factor — not just temperature

# Wind Chill Risk Levels

| Wind Chill Temp | Risk Level     | Action Required                                                    |
|-----------------|----------------|--------------------------------------------------------------------|
| Above 20°F      | Low risk       | Standard cold weather PPE, regular monitoring                      |
| 20°F to 0°F     | Moderate risk  | Warm breaks every 60 min, buddy system required                    |
| 0°F to -20°F    | High risk      | Warm breaks every 40 min, limit exposure time                      |
| -20°F to -40°F  | Very high risk | 15-min max exposure, heated enclosures required                    |
| Below -40°F     | Extreme danger | Non-emergency outdoor work should be suspended                     |
| —               | All levels     | Ensure warm beverages available, emergency warming shelter on site |

# QUIZ / DISCUSSION

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1

**What are the three layers of a proper cold-weather layering system?**

Answer: Base layer (moisture-wicking), mid layer (insulating fleece/down), and outer layer (wind/waterproof shell).

2

**What should you NOT do if a coworker shows signs of frostbite?**

Answer: Do not rub or massage the frostbitten area — this can cause further tissue damage. Warm gently with body heat or warm water.

3

**Why is hydration still important when working in cold weather?**

Answer: Dehydration increases the risk of cold-related injuries. Cold air is dry and your body still loses moisture through breathing and sweating under heavy layers.

# ATTENDANCE SIGN-OFF

Working in Cold Weather

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*By signing above, I confirm that I attended this toolbox talk and understand the material presented.*

# CONFINED SPACE ENTRY

29 CFR 1910.146 & 1926 Subpart AA

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Presenter: \_\_\_\_\_

Date: \_\_\_\_\_

**FORBES SAFETY SOLUTIONS**

TOOLBOX TALK

# WHY THIS MATTERS

- From 2011 to 2018, 1,030 workers died in confined spaces — an average of 129 deaths per year (BLS Census of Fatal Occupational Injuries).
- More than 60% of confined space fatalities are would-be rescuers. The worker who goes in to save a buddy without proper equipment becomes the second victim.
- Atmospheric hazards are invisible killers: hydrogen sulfide (H<sub>2</sub>S) deadens your sense of smell at high concentrations, carbon monoxide (CO) is odorless, and oxygen-deficient air gives no warning before you collapse.
- Permit-required confined spaces account for the majority of fatalities. The permit exists to force you through a checklist that keeps you alive.
- Construction now has its own confined space standard (29 CFR 1926 Subpart AA) — if you're in construction, you must follow it, not just the general industry rule.

Source: [BLS Confined Space Fatalities Fact Sheet](#)

# ATMOSPHERIC TESTING & PERMIT ELEMENTS

- Test the atmosphere BEFORE entry, in this order: (1) Oxygen — must be 19.5% to 23.5%, (2) Flammability (LEL) — must be below 10% of the lower explosive limit, (3) Toxics — H2S below 10 ppm, CO below 25 ppm.
- Test at multiple levels — top, middle, and bottom of the space. Gases stratify: H2S is heavier than air (sinks), methane is lighter (rises), CO mixes evenly.
- Continuous atmospheric monitoring during the entire entry, not just at the start. Conditions change — welding, coating, or disturbing sludge can release deadly gases instantly.
- Entry permit must include: space identification, purpose of entry, date/time, authorized entrants, attendant name, atmospheric readings, rescue procedures, communication method, and entry supervisor signature.
- Permit-required vs. non-permit: A permit-required space has a recognized hazard (atmospheric, engulfment, configuration, or other). You can reclassify to non-permit ONLY by eliminating all hazards and documenting the basis.

# ATTENDANT DUTIES & RESCUE PLANNING

- The attendant stays OUTSIDE the space for the entire entry. No exceptions. Their job is to monitor entrants, maintain communication, track who is inside, and summon rescue if anything goes wrong.
- The attendant must NEVER enter the space to attempt rescue. This is how 60% of confined space deaths happen. Your job is to call for help, not become the next victim.
- Communication must be continuous. If you lose contact with an entrant for any reason, initiate emergency procedures immediately — do not wait to see if they respond.
- Rescue planning: Non-entry rescue (retrieval systems with tripods and winches) is preferred. Entry rescue requires a trained rescue team with SCBA on standby. "Call 911" is not a rescue plan — municipal responders may not arrive equipped for confined space rescue.
- Every entrant must wear a chest or full-body harness attached to a retrieval line unless the retrieval line creates a greater hazard. The retrieval system must be in place and functional before anyone enters.

# DISCUSSION QUESTIONS

*Take 5 minutes to discuss with your crew:*

1. Can you identify every confined space on this site? Which ones are permit-required and which are not?
2. If our gas monitor alarmed right now, what's the immediate procedure? Who do you contact first?
3. Who is the trained attendant for today's entry, and what are the three things they must never do?
4. If you saw a co-worker collapse in a confined space, what would you do — and what would you NOT do?

# ATTENDANCE SIGN-OFF

Date: \_\_\_\_\_ Topic: Confined Space Entry Presenter: \_\_\_\_\_

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# PERMIT-REQUIRED CONFINED SPACE AWARENESS

Understanding Entry Hazards and Required Controls

*Reference: 29 CFR 1910.146 | 29 CFR 1926 Subpart AA*

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## KEY STATISTICS

**~100**

Workers die in confined spaces in the U.S. every year

**60%**

Of confined space fatalities are would-be rescuers

**#1**

Atmospheric hazards are the leading cause of confined space deaths

## WHAT MAKES A SPACE "CONFINED" AND "PERMIT-REQUIRED"

**Confined Space — Three Criteria** — large enough to enter and perform work; has limited or restricted entry/exit; not designed for continuous occupancy

**Permit-Required — Hazard #1** — contains or has the potential to contain a hazardous atmosphere (toxic, flammable, oxygen-deficient/enriched)

**Permit-Required — Hazard #2** — contains material that could engulf or trap an entrant (grain, sand, water, sewage)

**Permit-Required — Hazard #3** — has an internal configuration that could trap or asphyxiate (inwardly converging walls, sloping floors)

**Permit-Required — Hazard #4** — contains any other recognized serious safety or health hazard (mechanical, electrical, thermal)

**Key Rule** — never enter any confined space without first determining if it is permit-required — assume it is until proven otherwise

## ATMOSPHERIC HAZARDS AND MONITORING

**Oxygen Deficiency** — below 19.5% O<sub>2</sub> is immediately dangerous; normal atmosphere is 20.9%

**Oxygen Enrichment** — above 23.5% O<sub>2</sub> creates extreme fire and explosion risk

**Flammable Gases** — monitor for LEL (Lower Explosive Limit); entry prohibited above 10% LEL

**Toxic Gases** — H<sub>2</sub>S, CO, and other toxics must be below their PEL before entry

**Continuous Monitoring** — atmospheric testing must occur before entry and continuously throughout the work

**Calibrated Instruments** — all gas monitors must be bump-tested daily and calibrated per manufacturer requirements

## ROLES, PERMITS, AND RESCUE PLANS

**Entrant** — the worker who enters; must know the hazards, monitor conditions, and exit immediately if danger arises

**Attendant** — remains outside at all times; tracks entrants, monitors conditions, summons rescue — never enters

**Entry Supervisor** — authorizes entry by signing the permit; verifies all precautions are in place before work begins

**The Permit** — documents hazards, controls, atmospheric readings, rescue plan, and duration — posted at the entry point

**Rescue Plan** — non-entry retrieval (tripod + harness) is preferred; entry rescue only by trained rescue teams

**Never Enter Without a Permit** — even to retrieve a tool — an unauthorized entry can be fatal in seconds

## KNOWLEDGE CHECK

Which of the following is NOT one of the three criteria that define a confined space?

- A) Large enough to enter and perform work
- B) Contains a hazardous atmosphere
- C) Has limited or restricted entry/exit
- D) Not designed for continuous occupancy

**Answer:** B) A hazardous atmosphere makes it permit-required, but it is not one of the three defining criteria of a confined space.

# CONFINED SPACE AWARENESS — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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# CRANE SIGNAL PERSON TRAINING

Standard Hand Signals and Communication Requirements

*Reference: 29 CFR 1926.1419-1422*

FORBES SAFETY SOLUTIONS

## KEY STATISTICS

**250+**

Crane-related deaths in the  
U.S. over the past decade

**80%**

Of crane accidents involve  
human error or  
miscommunication

**100%**

Of multi-crane lifts require a  
designated signal person

## SIGNAL PERSON QUALIFICATIONS & RESPONSIBILITIES

**Qualified Signal Person** — must be evaluated by a qualified third party or employer per OSHA 1926.1419

**Know Standard Signals** — must demonstrate proficiency in all standard hand signals before directing crane operations

**Clear Line of Sight** — signal person must maintain visual contact with operator at all times or use alternative communication

**Competent in Load Path** — must understand load dynamics, swing radius, and rigging to anticipate movements

**Authority to Stop** — any signal person can issue STOP and the operator must obey immediately

**When Required** — signals are mandatory when the operator cannot see the load, landing zone, or the path of travel

## STANDARD HAND SIGNALS — OSHA / ASME B30.5

**Hoist** — forearm vertical, index finger pointing up, move hand in small circles

**Lower** — arm extended downward, index finger pointing down, move hand in small circles

**Swing** — arm extended, point with finger in direction of swing of boom

**Boom Up** — arm extended, fingers closed, thumb pointing upward

**Boom Down** — arm extended, fingers closed, thumb pointing downward

**Stop** — arm extended, palm down, move arm back and forth horizontally

**Emergency Stop** — both arms extended, palms down, move arms back and forth horizontally

**Dog Everything** — clasp hands in front of body — halt all operations

## VOICE & RADIO SIGNALS AND LINE OF SIGHT

**Voice / Radio Signals** — permitted when hand signals are not practical due to distance, obstructions, or darkness

**Dedicated Channel** — radio communication must use a dedicated channel free from unrelated traffic

**Confirm Before Moving** — operator must repeat the signal back and receive confirmation before executing the movement

**Line of Sight Required** — if the signal person loses sight of the load or operator, all operations must stop immediately

**Multiple Signal Persons** — only one designated signal person directs at a time; transfer of duties must be clearly communicated

**Signal Person Positioning** — must stand in a safe location visible to the operator and clear of the swing radius and load path

## KNOWLEDGE CHECK

What hand signal requires BOTH arms extended, palms down, moving back and forth?

- A) Stop
- B) Dog Everything
- C) Emergency Stop
- D) Boom Down

**Answer:** C) Emergency Stop — both arms distinguish it from a regular stop (one arm).

# CRANE SIGNAL PERSON TRAINING — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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# Distracted Driving / Fleet Safety

[Company Name]

[Date]

## Why This Matters

**3,500+**

People killed by  
distracted driving  
per year (NHTSA)

**4.6 sec**

Average eyes-off-road  
time when texting  
at 55 mph = 100 yds

**6x**

More likely to  
cause a crash than  
drunk driving

# Three Types of Driver Distraction

## Visual

### Taking your eyes off the road

Looking at a phone, GPS, map, or passenger. Checking mirrors excessively. Rubbernecking at roadside events.

## Manual

### Taking your hands off the wheel

Texting, eating, drinking, adjusting radio or climate controls, reaching for objects in the cab.

## Cognitive

### Taking your mind off driving

Daydreaming, emotional stress, hands-free phone conversations, fatigue, thinking about work tasks.

**Texting is the most dangerous because it involves all three types of distraction simultaneously.**

# Fleet Safety Rules & Best Practices

## Cell Phone Policy

No handheld phone use while driving — ever. Many company policies also prohibit hands-free calls. Pull over safely if you must take a call.

## Pre-Trip Planning

Plan your route before departure. Set GPS destination while parked. Check weather and road conditions in advance.

## Seatbelts Required

Wear your seatbelt at all times. All passengers must also be belted. No exceptions — it's the single most effective crash protection.

## Defensive Driving

Maintain safe following distance (4+ seconds). Scan intersections. Anticipate other drivers' actions. Slow down in work zones.

## Fatigue on Long Drives

Take a break every 2 hours or 100 miles. If drowsy, pull over — don't push through. Avoid driving during your normal sleep hours.

## Report Unsafe Conditions

Report vehicle defects, near-misses, and unsafe road conditions immediately. Your report could prevent the next incident.

# Pre-Trip & Safe Driving Checklist

## Before Departure

Walk-around inspection completed

Tires, lights, mirrors, wipers checked

Seatbelt on before starting vehicle

GPS/route set before departure

Phone silenced and stored away

## On the Road

Mirrors properly adjusted

Load secured (if applicable)

Weather and road conditions reviewed

Emergency equipment present

Scheduled breaks planned for long trips

# Quiz / Discussion

**Q1: How long does texting take your eyes off the road on average?**

A: 4.6 seconds — at 55 mph, that's the length of a football field driven blind.

**Q2: What are the three types of driver distraction?**

A: Visual (eyes off road), manual (hands off wheel), and cognitive (mind off driving).

**Q3: What should you do if you need to make a phone call while driving?**

A: Pull over to a safe location and stop the vehicle before making the call.

# ATTENDANCE SIGN-OFF

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# DRUG & ALCOHOL AWARENESS

Maintaining a Safe and Drug-Free Workplace

*Reference: Drug-Free Workplace Act | Company Policy*

FORBES SAFETY SOLUTIONS

## KEY STATISTICS

**65%**

Of all workplace accidents  
are related to substance  
abuse

**3-5×**

Impaired workers file  
workers' comp claims at 3 to  
5 times the rate

**40%**

Of industrial fatalities involve  
alcohol or drug use

## EFFECTS OF IMPAIRMENT ON JOBSITE SAFETY

**Slowed Reaction Time** — impaired workers cannot respond quickly to hazards, moving equipment, or emergency signals

**Poor Judgment** — drugs and alcohol reduce risk perception — impaired workers take shortcuts and ignore safety procedures

**Loss of Coordination** — balance, fine motor skills, and spatial awareness deteriorate, increasing fall and struck-by risk

**Reduced Alertness** — drowsiness, tunnel vision, and inability to concentrate put the worker and everyone nearby at risk

**Prescription Medications** — opioids, muscle relaxants, sedatives, and some antihistamines can impair just as severely as illegal drugs

**Your Responsibility** — inform your supervisor if a prescribed medication may affect your ability to work safely — before starting your shift

## TESTING, CONSEQUENCES, AND ZERO TOLERANCE

**Pre-Employment Testing** — drug screening is required before starting work on any project

**Random Testing** — unannounced random testing may occur at any time during employment

**Post-Incident Testing** — mandatory drug and alcohol testing after any recordable incident or near-miss

**Reasonable Suspicion** — supervisors trained to recognize impairment signs may require immediate testing

**Consequences of Violation** — positive test, refusal to test, or tampering results in immediate removal from site and potential termination

**Zero Tolerance Policy** — possession, use, sale, or being under the influence of drugs or alcohol on the jobsite is strictly prohibited

## REPORTING CONCERNS AND EAP RESOURCES

**How to Report Concerns** — if you suspect a coworker is impaired, report it to your supervisor or safety manager immediately and confidentially

**You Are Not Being Disloyal** — reporting a concern may save that person's life and the lives of everyone working around them

**Employee Assistance Program (EAP)** — free, confidential counseling and support services available to all employees and their families

**EAP Covers** — substance abuse, mental health, stress management, financial counseling, and family issues

**Voluntary Self-Referral** — employees who seek help voluntarily before a policy violation may be eligible for assistance rather than discipline

**Your Role** — keep yourself and your coworkers safe — look out for each other, speak up, and never cover for impaired behavior

## KNOWLEDGE CHECK

What should you do if a prescription medication you are taking may affect your ability to work safely?

- A) Take half the dose so you can still work
- B) Inform your supervisor before starting your shift
- C) Only tell someone if you feel impaired
- D) There is no requirement to disclose prescriptions

**Answer:** B) Inform your supervisor before starting your shift — it is your responsibility to report any medication that may impair job performance.

# DRUG & ALCOHOL AWARENESS — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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FORBES SAFETY SOLUTIONS

# EMERGENCY ACTION PLAN REVIEW

Evacuation, Alarms, Assembly Points & Emergency Contacts

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Ref: 29 CFR 1910.38 | 29 CFR 1926.35

TOOLBOX TALK

## KEY STATISTICS

### Only 40% of Businesses

Have an emergency preparedness plan — leaving the majority unprepared

### Minutes Matter

Effective evacuation depends on knowing routes and assembly points before an emergency

### Every Worker's Responsibility

Every person on site must know the EAP — emergencies don't wait for management

## PURPOSE & KEY EAP ELEMENTS

- The Emergency Action Plan (EAP) establishes procedures for responding to workplace emergencies
- OSHA requires a written EAP that is communicated to all employees (29 CFR 1910.38 / 29 CFR 1926.35)
- Know your PRIMARY evacuation route and at least one ALTERNATE route from every work area
- Identify your designated assembly point — go there immediately after evacuating
- Headcount procedures: supervisors must account for every person at the assembly point
- Never re-enter the building or work area until the all-clear is given by an authorized person
- Review the EAP at every new site, whenever the plan changes, and at least annually

# ALARMS, EQUIPMENT & KEY LOCATIONS

- Know what the alarm signals sound like and what each one means (fire, evacuation, shelter-in-place, all-clear)
- Fire extinguisher locations: know the nearest extinguisher to your work area and how to use PASS (Pull-Aim-Squeeze-Sweep)
- First aid kits: know the location of the nearest kit and who the designated first aid responders are
- AED locations: know where Automated External Defibrillators are positioned on site
- Severe weather shelter areas: identify interior rooms or reinforced areas for tornado/storm shelter
- Emergency contact numbers: post emergency numbers for 911, site safety officer, and project manager visibly
- Know the location of utility shut-offs (gas, electric, water) in case of emergency

# EVACUATE VS. SHELTER IN PLACE

- EVACUATE for: fire, explosion, gas leak, bomb threat, structural collapse, or any order to evacuate
- SHELTER IN PLACE for: severe weather (tornado, lightning), external chemical release, active threat
- When evacuating: walk — do not run; use designated routes; assist anyone needing help; do NOT use elevators
- When sheltering: move to interior rooms away from windows; close doors; wait for further instructions
- Reporting emergencies: call 911, then notify your supervisor and site safety officer immediately
- If you discover a fire: activate the nearest alarm, evacuate, call 911 — only fight a small fire if trained and safe
- Practice makes prepared: participate in every drill and ask questions if anything is unclear

## QUIZ — TEST YOUR KNOWLEDGE

**Q1: What are the two main response options in an emergency, and when is each used?**

*A: Evacuate (fire, gas leak, explosion) or Shelter in Place (severe weather, external chemical release).*

**Q2: What does the acronym PASS mean for fire extinguisher use?**

*A: Pull the pin, Aim at the base of the fire, Squeeze the handle, Sweep side to side.*

**Q3: After evacuating, what must you do at the assembly point?**

*A: Report to your supervisor for headcount — never re-enter until the all-clear is given.*

# SIGN-OFF SHEET

Emergency Action Plan Review

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FORBES SAFETY SOLUTIONS

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# ELECTRICAL SAFETY & ARC FLASH AWARENESS

Toolbox Talk — Electrical Hazard Awareness

[Company Name]

[Date]

*Reference: 29 CFR 1910.331-335 | NFPA 70E | 29 CFR 1926.405*

# WHY THIS MATTERS

Arc flash can reach temperatures of 35,000°F — four times hotter than the surface of the sun.

**~1,000**

Electrical injuries  
per year in  
U.S. workplaces

**5–10**

Arc flash incidents  
per day in the U.S.  
(NFPA data)

**35,000°F**

Arc flash  
temperature —  
explosive force

# ARC FLASH & APPROACH BOUNDARIES

## WHAT IS ARC FLASH?

An arc flash is an explosive release of energy caused by an electrical fault between conductors or a conductor and ground.

### Dangers include:

- Temperatures up to 35,000°F
- Explosive pressure wave (blast)
- Molten metal shrapnel
- Intense light — can cause blindness
- Severe burns and hearing damage

## APPROACH BOUNDARIES (NFPA 70E)

| BOUNDARY            | WHO MAY ENTER                  | REQUIREMENT                 |
|---------------------|--------------------------------|-----------------------------|
| Arc Flash Boundary  | Qualified / Unqualified w/ PPE | Arc-rated PPE required      |
| Limited Approach    | Qualified persons only         | Shock hazard awareness      |
| Restricted Approach | Qualified with written plan    | Insulated tools & shock PPE |
| Prohibited Approach | Same as direct contact         | Same PPE as direct contact  |

# PPE CATEGORIES & QUALIFIED PERSONS

## ARC FLASH PPE CATEGORIES (NFPA 70E)

| CAT | cal/cm <sup>2</sup> | REQUIRED PPE                                                                        |
|-----|---------------------|-------------------------------------------------------------------------------------|
| 1   | 4                   | Arc-rated shirt/pants, safety glasses, hearing protection, leather gloves           |
| 2   | 8                   | Cat 1 + arc-rated face shield, balaclava                                            |
| 3   | 25                  | Arc flash suit hood, arc-rated jacket/pants, insulated gloves w/ leather protectors |
| 4   | 40                  | Multi-layer arc flash suit, heavy-duty insulated gloves, full face shield + hood    |

## QUALIFIED VS. UNQUALIFIED

### Qualified Person:

- Trained to work on or near exposed energized parts
- Can identify hazards and determine approach boundaries
- Authorized to enter restricted/prohibited boundaries

### Unqualified Person:

- Must stay outside the limited approach boundary
- May NOT work on energized equipment
- Must be escorted if entering limited boundary

# KEY ELECTRICAL SAFETY RULES

## DE-ENERGIZE FIRST

**De-energizing is ALWAYS the safest option.**

### Lockout/Tagout (LOTO) Steps:

- Notify all affected employees
- Identify all energy sources
- Isolate energy sources
- Apply lockout/tagout devices
- Verify zero energy state
- Test before you touch!

## CONSTRUCTION SITE REQUIREMENTS

**GFCIs required on all construction sites**

**(29 CFR 1926.405)**

- Inspect all cords and tools before each use
- Keep minimum 10 ft clearance from overhead power lines (up to 50kV)
- Never use damaged cords — replace immediately
- Do not overload circuits or use multi-outlet adapters
- Mark all electrical panels — keep 36" clearance
- Report any shock, tingle, or sparking immediately

# QUIZ / DISCUSSION

## **Q1** What is the safest approach before performing electrical work?

*Answer: De-energize the equipment first using Lockout/Tagout (LOTO) procedures, then verify zero energy before starting work.*

## **Q2** What PPE category requires a full arc flash suit, and what is its cal/cm<sup>2</sup> rating?

*Answer: Category 4 — rated at 40 cal/cm<sup>2</sup>. Requires multi-layer arc flash suit, heavy-duty insulated gloves, full face shield and hood.*

## **Q3** Can an unqualified person work inside the limited approach boundary?

*Answer: No. Unqualified persons must stay outside the limited approach boundary and may only enter if escorted by a qualified person.*

# ATTENDANCE SIGN-OFF

*By signing below, I acknowledge that I attended and understood this Toolbox Talk on Electrical Safety / Arc Flash Awareness.*

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# Eye & Face Protection

[Company Name]

[Date]

## Why This Matters

2,000

Workplace eye  
injuries per day  
requiring treatment

90%

Of eye injuries are  
preventable with  
proper eyewear

\$300M+

Annual cost of  
workplace eye  
injuries in the U.S.

# Common Eye & Face Hazards

## Flying Debris

Cutting, chipping, grinding, and drilling generate high-speed particles that can penetrate the eye

## Grinding Sparks

Metal grinding produces hot sparks and fragments that cause severe burns and corneal damage

## Chemical Splash

Solvents, acids, caustics, and cleaning agents can cause permanent eye damage on contact

## UV Radiation

Welding arcs, sunlight, and cutting torches emit UV that causes painful flash burns (arc eye)

## Dust & Fine Particles

Concrete dust, sawdust, and insulation fibers cause irritation, scratches, and infections

# Types of Eye & Face Protection

## Safety Glasses

Impact-rated lenses with side shields. Required for general construction work. Must meet ANSI Z87.1 — look for the "Z87+" marking on the lens.

## Safety Goggles

Sealed fit around the eyes. Required for chemical splash, dust exposure, and high-impact tasks where debris can enter from sides.

## Face Shields

Full-face coverage. Used over safety glasses for grinding, chipping, and chemical handling. Not standalone protection.

## Welding Helmets

Auto-darkening or fixed-shade lenses for welding and cutting operations. Proper shade number based on the welding process.

# Best Practices & ANSI Z87.1 Markings

## Best Practices

Wear eye protection at all times on site

Inspect lenses for scratches and damage daily

Use anti-fog coatings in humid environments

Ensure side shields are always attached

Prescription safety glasses must also meet Z87.1

Replace damaged or scratched eyewear immediately

- Clean lenses with approved lens cleaner only

## ANSI Z87.1 Markings

| Marking            | Meaning                   |
|--------------------|---------------------------|
| <b>Z87+</b>        | High-impact rated         |
| <b>Z87</b>         | Basic impact rated        |
| <b>D3</b>          | Splash/droplet protection |
| <b>D4</b>          | Dust protection           |
| <b>D5</b>          | Fine dust protection      |
| <b>W (shade #)</b> | Welding shade filter      |
| <b>U (scale #)</b> | UV filter rating          |

# Quiz / Discussion

**Q1: What percentage of eye injuries are preventable with proper PPE?**

A: 90% — the vast majority of eye injuries can be avoided with correct eyewear.

**Q2: What marking on safety glasses indicates high-impact rating?**

A: Z87+ stamped on the lens confirms it meets ANSI high-impact standards.

**Q3: Can a face shield be worn alone as eye protection?**

A: No — face shields must always be worn over safety glasses or goggles.

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# FALL PROTECTION

29 CFR 1926.501-503

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Presenter: \_\_\_\_\_

Date: \_\_\_\_\_

**FORBES SAFETY SOLUTIONS**

TOOLBOX TALK

# WHY THIS MATTERS

- Falls are the #1 killer in construction. In 2024, falls to a lower level caused 370 fatalities among construction and extraction workers — over a third of all construction deaths (BLS CFOI 2024).
- Fall Protection has been OSHA's most cited violation for 15 consecutive years, with over 7,000 citations issued in FY 2024 alone.
- The average fall fatality happens from just 6 to 10 feet. You don't need to be on a high-rise to die.
- Most fall deaths are 100% preventable. The equipment exists. The standards are clear. The gap is compliance.
- A single fall fatality can result in OSHA penalties exceeding \$150,000, criminal referrals, and project shutdowns.

Source: [OSHA Fall Prevention Campaign](#)

**FORBES SAFETY SOLUTIONS**

# 100% TIE-OFF & ANCHORAGE POINTS

- 100% tie-off means you are connected at ALL times when at 6 feet or above — no exceptions for "just a second" or "I'm almost done."
- Anchorage points must support 5,000 lbs per worker or be designed by a qualified person as part of a complete PFAS with a safety factor of 2.
- Never tie off to conduit, vents, antenna mounts, or anything you haven't verified. If you wouldn't hang your truck from it, don't hang yourself from it.
- When moving between anchorage points, use a dual-lanyard system so one hook is always connected before the other releases.
- Guardrails are the first line of defense — they protect without any action from the worker. Use them wherever feasible before defaulting to personal fall arrest.

# HARNESS INSPECTION & RESCUE PLANNING

- Inspect harnesses before every use with the ABC method: A = Anchors/D-rings (centered between shoulder blades), B = Buckles/Belts (no fraying, all buckles lock), C = Connections/Straps (no cuts, burns, chemical damage).
- Any harness involved in a fall arrest event must be immediately removed from service and destroyed — no exceptions, even if it "looks fine."
- Rescue planning is not optional. OSHA requires a rescue plan BEFORE anyone goes to height. "Call 911" is not a rescue plan — suspension trauma can kill in under 30 minutes.
- Every crew working at height must have a rescue method available: self-rescue training, rescue team on standby, or mechanical retrieval equipment.
- Never modify, paint, or attach unauthorized items to fall protection equipment. If the manufacturer didn't put it there, it doesn't belong.

# DISCUSSION QUESTIONS

*Take 5 minutes to discuss with your crew:*

1. Where on this jobsite are we most exposed to fall hazards today? Are all those areas controlled?
2. When was the last time you actually inspected your harness — and what would you look for?
3. If someone on your crew went into suspension right now, what's our plan to get them down in under 6 minutes?
4. Have you ever seen someone skip their tie-off "just for a second"? What would you say to them?

# ATTENDANCE SIGN-OFF

Date: \_\_\_\_\_ Topic: Fall Protection Presenter: \_\_\_\_\_

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# Fatigue & Alertness

[Company Name]

[Date]

## Why This Matters

70%

Higher likelihood  
of incidents for  
fatigued workers

17 hrs

Awake = impairment  
equivalent to  
0.05% BAC

13%

Of workplace  
injuries attributed  
to fatigue

# Fatigue Risk Factors

## Long Shifts

Shifts over 10 hours significantly increase fatigue risk. Extended overtime compounds the effect over consecutive days.

## Inadequate Sleep

Adults need 7–9 hours of quality sleep. Chronic sleep debt accumulates and cannot be fully recovered in one night.

## Night & Rotating Shifts

Working against your natural circadian rhythm disrupts sleep quality and reduces alertness during critical hours.

## Monotonous Tasks

Repetitive, low-stimulation work reduces mental engagement. Vigilance drops sharply after 20-30 minutes of monotony.

## Physical Demands

Heavy manual labor, heat exposure, and dehydration accelerate physical fatigue and slow reaction times.

## Personal Factors

Sleep disorders, medications, poor nutrition, and off-duty activities (second jobs, caregiving) all contribute to fatigue.

# Fatigue Countermeasures

## Sleep Hygiene

Maintain a consistent sleep schedule. Dark, cool, quiet bedroom. Avoid screens 1 hour before bed. Limit caffeine after 2 PM.

## Hydration & Nutrition

Dehydration accelerates fatigue. Drink water throughout the shift. Eat balanced meals — avoid heavy, sugary foods.

## Strategic Breaks

Take breaks every 2 hours minimum. Short 10-15 minute rest breaks restore alertness more than you think.

## Report Fatigue

If you're too tired to work safely, speak up. It's not weakness — it's the same as reporting any other hazard.

## Supervisor Awareness

Watch for signs in your crew: yawning, slow reactions, irritability, errors. Intervene before an incident occurs.

## Buddy System

Look out for each other. A coworker may not realize how impaired they are — fatigue affects self-assessment.

# Fatigue Warning Signs & Impairment Scale

## Warning Signs of Fatigue

- Frequent yawning or heavy eyelids
- Difficulty concentrating or focusing
- Slower reaction times
- Increased irritability or mood changes
- Making unusual mistakes or errors
- Microsleeps (nodding off briefly)
- Forgetting tasks or procedures
- Poor decision-making and judgment

## Fatigue vs. Alcohol Impairment

| Hours Awake | Equivalent BAC       |
|-------------|----------------------|
| 17 hours    | ~0.05%               |
| 20 hours    | ~0.08% (legal limit) |
| 24 hours    | ~0.10%               |
| 36 hours    | ~0.14%               |

After 17 hours awake, your impairment level equals having a blood alcohol content of 0.05% — enough to significantly slow reaction time.

# Quiz / Discussion

**Q1: Being awake for 17 hours equals impairment at what BAC level?**

A: 0.05% BAC — enough to significantly impair reaction time and judgment.

**Q2: Name three warning signs that a coworker may be fatigued.**

A: Yawning, difficulty concentrating, slower reactions, irritability, making unusual mistakes, microsleeps.

**Q3: What should you do if you feel too fatigued to work safely?**

A: Report it to your supervisor immediately. Fatigue is a workplace hazard like any other.

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# Fire Prevention on the Jobsite

Ref: 29 CFR 1926.150–155 — Fire Protection and Prevention

[Company Name]

[Date]

TOOLBOX TALK

## WHY THIS MATTERS

---

**4,000+**

Structure fires at construction sites reported annually in the United States

**\$300M+**

Annual property damage from fires on construction and renovation sites

**37%**

Of construction fires are caused by hot work operations (cutting, welding, brazing)

# Common Fire Causes on Construction Sites

---

## IGNITION SOURCES

- Hot work: welding, cutting, brazing, soldering — sparks can travel 35+ feet
- Electrical faults: overloaded circuits, damaged cords, temporary wiring
- Temporary heating devices placed too close to combustibles
- Smoking in unauthorized areas
- Improperly discarded rags soaked with solvents or oils

## FUEL SOURCES & CONDITIONS

- Flammable liquids: gasoline, solvents, adhesives, paints stored improperly
- Combustible construction materials: lumber, insulation, packaging
- Accumulated trash, sawdust, and debris on site
- Compressed gas cylinders stored near heat sources
- Poor housekeeping is the #1 contributing factor to fire spread

# Fire Extinguisher Use & Response

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## P.A.S.S. TECHNIQUE

- P — PULL the pin to unlock the extinguisher
- A — AIM the nozzle at the base of the fire, not the flames
- S — SQUEEZE the handle to release the extinguishing agent
- S — SWEEP side to side at the base until the fire is out
- Stand 6-8 feet from the fire; back away facing the fire area

## FIGHT OR EVACUATE?

- ONLY fight a fire if: it is small (trash can size), you have a clear escape route, the extinguisher is rated for the fire type, and you are trained
- EVACUATE if: fire is spreading, room fills with smoke, you are unsure, or extinguisher is empty/ineffective
- Always alert others and call 911 before attempting to fight
- Know your site evacuation routes and assembly points

# Hot Work Permit & Housekeeping Requirements

| Requirement           | Standard          | Key Details                                                                   |
|-----------------------|-------------------|-------------------------------------------------------------------------------|
| Hot Work Permit       | Required          | Written permit for all welding, cutting, brazing operations                   |
| Fire Watch            | 30 min minimum    | Trained person monitors area during and 30 min after hot work                 |
| Extinguisher distance | Within 25 ft      | Fully charged, correct type extinguisher within travel distance               |
| Flammable storage     | Approved cabinets | Max 25 gallons per cabinet; away from ignition sources                        |
| Combustible clearance | 35 ft radius      | Remove or cover combustibles within 35 ft of hot work                         |
| Daily cleanup         | End of shift      | Remove trash, oily rags, and debris daily; rags in metal containers with lids |

# QUIZ / DISCUSSION

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1

**What does P.A.S.S. stand for when using a fire extinguisher?**

Answer: Pull the pin, Aim at the base of the fire, Squeeze the handle, Sweep side to side.

2

**How long must a fire watch be maintained after hot work is completed?**

Answer: A minimum of 30 minutes after hot work operations have ended to ensure no smoldering material remains.

3

**Name two conditions where you should evacuate rather than fight a fire.**

Answer: Any two of: the fire is spreading rapidly, the room is filling with smoke, you don't have a clear escape route, the extinguisher is empty or ineffective, or you are untrained.

# ATTENDANCE SIGN-OFF

Fire Prevention on the Jobsite

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*By signing above, I confirm that I attended this toolbox talk and understand the material presented.*

FORBES SAFETY SOLUTIONS

# PORTABLE GENERATOR SAFETY

Carbon Monoxide, Electrical Hazards & Safe Operation

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Ref: 29 CFR 1926.405 | OSHA/NIOSH Generator Safety Guidance

TOOLBOX TALK

## KEY STATISTICS

**~70 Deaths/Year**

From carbon monoxide poisoning linked to portable generators

**900+ ER Visits/Year**

CO poisoning incidents involving portable generators

**#1 Generator Hazard**

Carbon monoxide — odorless, colorless, and deadly

*Source: U.S. Consumer Product Safety Commission (CPSC)*

# CARBON MONOXIDE & PLACEMENT

- NEVER operate a generator indoors, in garages, basements, or any enclosed/partially enclosed space
- Place generators at least 20 feet from buildings with exhaust directed away from doors, windows, and vents
- CO is odorless and colorless — you cannot detect it without a monitor
- Early CO poisoning symptoms: headache, dizziness, nausea, confusion, weakness
- Advanced symptoms: loss of consciousness, brain damage, death — can occur in minutes
- Use battery-operated CO detectors in nearby occupied spaces when generators are running
- If anyone shows CO symptoms, move to fresh air immediately and call 911

# ELECTRICAL HAZARDS & GFCI PROTECTION

- Always use a Ground Fault Circuit Interrupter (GFCI) when connecting tools or equipment
- Properly ground the generator per manufacturer instructions and 29 CFR 1926.405
- Never plug a generator directly into a building's wiring (backfeeding) — use a transfer switch
- Inspect power cords for damage before each use — replace frayed or cut cords immediately
- Keep generators dry; do not operate in rain or wet conditions without proper cover
- Never overload a generator — know the wattage rating and total connected load
- Use heavy-duty, outdoor-rated extension cords with adequate wire gauge

# FUEL HANDLING & STORAGE

- Turn off the generator and let it cool completely before refueling — fuel on a hot engine can ignite
- Store fuel in approved containers away from the generator and any ignition sources
- Never store fuel indoors or near occupied buildings
- Keep a fire extinguisher rated for flammable liquids (Class B) near the generator at all times
- Do not smoke near generators or fuel storage areas
- Inspect fuel lines and connections for leaks before starting
- Follow manufacturer lockout/tagout procedures for maintenance and repairs

## QUIZ — TEST YOUR KNOWLEDGE

**Q1: How far from buildings should a portable generator be placed?**

*A: At least 20 feet away, with exhaust directed away from doors, windows, and vents.*

**Q2: Why must you use a GFCI with a portable generator?**

*A: To protect against electrical shock from ground faults in connected equipment.*

**Q3: Why should you never refuel a generator while it is running?**

*A: Fuel spilled on a hot engine can ignite and cause a fire or explosion.*

# SIGN-OFF SHEET

## Portable Generator Safety

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# GHS / HAZARD COMMUNICATION & SDS READING

Understanding Chemical Labels, Pictograms, and Safety Data Sheets

*Reference: 29 CFR 1910.1200 | Globally Harmonized System (GHS)*

FORBES SAFETY SOLUTIONS

## KEY STATISTICS

**50,000+**

Hazardous chemicals used in  
U.S. workplaces

**32M**

Workers potentially exposed  
to chemical hazards annually

**16**

Standardized sections in  
every Safety Data Sheet

## GHS PICTOGRAMS — THE 9 HAZARD SYMBOLS

**Flame** — flammable gases, liquids, solids, aerosols, and self-reactive substances

**Flame Over Circle** — oxidizers that can cause or intensify fire

**Exploding Bomb** — explosives, self-reactive chemicals, and organic peroxides

**Skull and Crossbones** — acutely toxic substances — fatal or toxic if swallowed, inhaled, or through skin contact

**Corrosion** — causes severe skin burns, eye damage, or corrodes metals

**Health Hazard (person)** — carcinogens, mutagens, reproductive toxins, respiratory sensitizers, organ toxicity

**Exclamation Mark** — irritants, narcotic effects, skin sensitizers, acute toxicity (less severe)

**Gas Cylinder** — compressed, liquefied, dissolved, or refrigerated gases under pressure

**Environment** — aquatic toxicity — hazardous to the aquatic environment (not mandatory under OSHA)

## SDS 16-SECTION FORMAT — KEY SECTIONS

**Section 1** — Identification — product name, manufacturer, emergency phone number

**Section 2** — Hazard(s) Identification — GHS classification, signal word, pictograms, hazard & precautionary statements

**Section 4** — First-Aid Measures — symptoms, required treatment by route of exposure (inhalation, skin, eye, ingestion)

**Section 8** — Exposure Controls / PPE — permissible exposure limits (PELs), engineering controls, required PPE

**Sections 9–11** — Physical/chemical properties, stability/reactivity, and toxicological information

**Sections 14–16** — Transport, regulatory, and other information including revision date

## EMPLOYEE RIGHTS AND CONTAINER LABELING

**Right to Know** — every employee has the legal right to access SDS for any chemical in their workplace

**SDS Location** — SDS binders or digital access must be available at all times during the shift — know where yours are

**Container Labels Must Include** — product name, signal word (Danger or Warning), GHS pictograms, hazard statements, and precautionary statements

**Secondary Containers** — must be labeled with product name and hazards when transferred from the original container

**Never Remove Labels** — defaced or missing labels must be replaced immediately — an unlabeled container is a violation

**Training Requirement** — employers must train workers on HazCom at hire and whenever a new chemical hazard is introduced

## KNOWLEDGE CHECK

Which SDS section tells you what PPE is required when working with a chemical?

- A) Section 2 — Hazard Identification
- B) Section 4 — First-Aid Measures
- C) Section 8 — Exposure Controls / PPE
- D) Section 11 — Toxicological Information

**Answer:** C) Section 8 — Exposure Controls / Personal Protective Equipment.

# GHS / HAZCOM & SDS READING — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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FORBES SAFETY SOLUTIONS

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# HAND & POWER TOOL SAFETY

29 CFR 1926.300-307 | 29 CFR 1910.242-244

TOOLBOX TALK

[Company Name]

[Date]

# WHY THIS MATTERS

Tools Are Involved in Hundreds of Thousands of Injuries Every Year

**110K**

**Hand Tool ER  
Visits / Year**

Workers sent to the  
emergency room annually

**400K**

**Power Tool ER  
Visits / Year**

Injuries from power tools  
requiring medical treatment

**510K+**

**Total Annual  
Tool Injuries**

Combined hand and power  
tool injuries each year

Source: Bureau of Labor Statistics / U.S. Consumer Product Safety Commission

# HAND TOOL SAFETY

| CATEGORY               | KEY PRACTICES                                                                                                                                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inspection & Condition | <ul style="list-style-type: none"><li>• Inspect all tools before each use</li><li>• Remove damaged tools from service immediately</li><li>• No mushroomed heads on chisels or wedges</li></ul>                                  |
| Proper Use             | <ul style="list-style-type: none"><li>• Use the right tool for the job — no improvising</li><li>• Proper wrench sizing — never use cheater bars</li><li>• Keep cutting tools sharp (dull = more force = less control)</li></ul> |
| Carrying & Storage     | <ul style="list-style-type: none"><li>• Carry tools in a belt or bucket, not pockets</li><li>• Never carry tools loose in hands while climbing</li><li>• Store tools properly — designated racks and boxes</li></ul>            |
| Housekeeping           | <ul style="list-style-type: none"><li>• Return tools to proper storage after use</li><li>• Keep work area clear of unused tools</li><li>• Secure tools at height to prevent dropped objects</li></ul>                           |

# POWER TOOL SAFETY

| CATEGORY                | KEY PRACTICES                                                                                                                                                                                                         |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Guards & Safety Devices | <ul style="list-style-type: none"><li>• All guards must be in place before operation</li><li>• Never remove or bypass safety guards</li><li>• Trigger locks — use and verify function</li></ul>                       |
| Electrical Safety       | <ul style="list-style-type: none"><li>• Use grounded or double-insulated tools only</li><li>• Inspect cords for damage before each use</li><li>• GFCI protection required on construction sites</li></ul>             |
| Powder-Actuated Tools   | <ul style="list-style-type: none"><li>• Only certified/trained operators may use</li><li>• Treat like a loaded firearm — never point at anyone</li><li>• Test fire into approved material before each shift</li></ul> |
| General Rules           | <ul style="list-style-type: none"><li>• Disconnect power before changing accessories</li><li>• Keep cords clear of cutting path and heat</li><li>• Never carry a tool by its cord</li></ul>                           |

# PPE REQUIREMENTS FOR TOOL USE

| TASK / TOOL             | EYE      | FACE SHIELD | HEARING   | GLOVES         |
|-------------------------|----------|-------------|-----------|----------------|
| Grinding / Cutting      | Required | Required    | Required  | Task-specific  |
| Drilling / Hammering    | Required | Recommended | As needed | Task-specific  |
| Powder-Actuated Tools   | Required | Required    | Required  | Required       |
| Hand Tools              | Required | As needed   | As needed | Task-specific  |
| Saws (circular, recip.) | Required | Recommended | Required  | Anti-vibration |

*Always match gloves to the task — cut-resistant for sharp materials, anti-vibration for power tools, leather for hot work.*

# QUIZ / DISCUSSION

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## 1 What should you do before using any tool on the jobsite?

Answer: Inspect it. Check for damage, defects, or wear. Remove damaged tools from service immediately — never use a defective tool.

## 2 Why is using a dull cutting tool more dangerous than a sharp one?

Answer: A dull tool requires more force to cut, reducing control and increasing the chance of the tool slipping and causing injury.

## 3 Who is permitted to operate a powder-actuated tool?

Answer: Only workers who have been trained and certified on that specific tool. Treat it like a firearm — never point at anyone.

# TOOLBOX TALK SIGN-OFF

Hand & Power Tool Safety

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# HEAT ILLNESS PREVENTION

OSHA Heat NEP & State Standards (CA, TX, AZ, NM)

---

Presenter: \_\_\_\_\_

Date: \_\_\_\_\_

# WHY THIS MATTERS

- Heat killed at least 211 workers between 2017 and 2022, and those numbers significantly undercount the true toll — many heat deaths are recorded as heart attacks or falls (EPI/BLS data).
- An estimated 28,000 workplace injuries per year are directly linked to working on hot days, affecting virtually every industry including indoor work (GW/Harvard 2025 study).
- Injury risk starts climbing at a heat index of 85°F and rises steeply above 90°F. By the time it "feels hot," you're already in the danger zone.
- New and returning workers are at the highest risk. Over 50% of heat-related deaths occur in a worker's first few days on the job.
- States like California, Arizona, Texas, and New Mexico have specific heat regulations. Know your state's trigger temperatures and required rest breaks.

# HEAT STROKE vs. HEAT EXHAUSTION

- HEAT EXHAUSTION: Heavy sweating, cold/clammy skin, weak pulse, nausea, dizziness, headache. The body is still trying to cool down. Move to shade, cool water, loosen clothing.
- HEAT STROKE: Body temp above 103°F, hot/red/DRY skin (sweating has stopped), rapid strong pulse, confusion, slurred speech, loss of consciousness. THIS IS A MEDICAL EMERGENCY — call 911 immediately.
- The critical difference: heat exhaustion is the warning, heat stroke is the failure. If you miss the warning, you're fighting for someone's life.
- Water-Rest-Shade is the rule. Drink water every 15-20 minutes even if you don't feel thirsty. By the time you're thirsty, you're already behind on hydration.
- Acclimatization protocol: New workers or those returning from 7+ days off must ramp up over 14 days — start at 20% workload on day 1 and increase by no more than 20% per day.

# FIELD PROCEDURES & EMERGENCY RESPONSE

- Buddy system is mandatory in high-heat conditions. Never let someone work alone — confused workers don't recognize their own symptoms.
- Pre-shift planning: Check the heat index forecast. Above 80°F, increase water and shade. Above 90°F, implement mandatory rest cycles. Above 105°F, consider rescheduling work.
- Provide cool (not ice cold) drinking water at the rate of 1 quart per hour per worker, positioned within easy walking distance. No water = no work.
- Shade or air-conditioned rest areas must be available when temps exceed trigger levels. Workers showing ANY symptoms must be relieved immediately — do not wait for them to ask.
- Emergency action: If someone shows heat stroke signs (confusion, no sweating, hot skin), call 911 immediately, move them to shade, apply cold water/ice to neck, armpits, and groin. Do not give fluids if unconscious.

# DISCUSSION QUESTIONS

*Take 5 minutes to discuss with your crew:*

1. How much water have you actually drunk today? Could you point to where the nearest water and shade station is right now?
2. Do we have any new workers on the crew this week? Are they on an acclimatization schedule?
3. What's the difference between heat exhaustion and heat stroke — and what do you do for each?
4. Who is your buddy today? Would you know if they were starting to show symptoms?

# ATTENDANCE SIGN-OFF

Date: \_\_\_\_\_ Topic: Heat Illness Prevention Presenter: \_\_\_\_\_

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# Housekeeping on Construction Sites

[Company Name]

[Date]

## Why This Matters

25%

Of all workplace  
injuries involve  
slips, trips & falls

#1

OSHA violation  
cited on  
construction sites

3x

Higher fire risk  
with poor  
housekeeping

# Key Hazards from Poor Housekeeping

## Slips, Trips & Falls

Debris, spills, uneven surfaces, and cluttered walkways cause the most common construction injuries

## Fire Hazards

Accumulated waste materials, oily rags, and blocked fire exits dramatically increase fire risk

## Puncture Wounds

Protruding nails are the #1 cause of puncture wounds on job sites — boards must be de-nailed or stacked safely

## Delayed Emergency Response

Blocked aisles and cluttered exits prevent quick evacuation and slow emergency responder access

## Pest & Health Issues

Improperly stored food waste and standing water attract pests and create unsanitary conditions

# Housekeeping Best Practices

## Clear Walkways

Maintain unobstructed paths at all times. Remove debris, cords, and materials from travel routes immediately.

## Material Storage

Stack materials neatly and securely. Keep stored items away from edges, walkways, and overhead power lines.

## Scrap & Waste Removal

Remove waste materials regularly throughout the day. Don't let debris accumulate — use designated waste areas.

## Nail Management

Bend or remove protruding nails from lumber immediately. Never leave boards with nails facing upward.

## Tool Organization

Return tools to designated areas after use. Never leave tools on scaffolds, ladders, or elevated surfaces.

## Dumpster Management

Keep dumpster areas clear. Don't overfill containers. Schedule regular pickup to prevent overflow.

# End-of-Shift Cleanup Checklist

All walkways and stairways clear of debris

Tools returned to storage or gang boxes

Scrap materials removed to designated waste area

Protruding nails bent or removed from lumber

Electrical cords coiled and stored properly

Flammable materials stored in approved containers

Dumpsters and waste bins not overfilled

Work area swept and materials stacked securely

# Quiz / Discussion

**Q1: What is the #1 cause of puncture wounds on construction sites?**

A: Protruding nails in lumber and scrap boards.

**Q2: Name three hazards that result from poor housekeeping.**

A: Slips/trips/falls, fire hazards, puncture wounds, delayed emergency response, pest issues.

**Q3: When should cleanup occur — only at end of shift?**

A: No — housekeeping should be ongoing throughout the day, with a thorough cleanup at end of shift.

# ATTENDANCE SIGN-OFF

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FORBES SAFETY SOLUTIONS

# LADDER SAFETY

Toolbox Talk | 29 CFR 1926.1053

[Company Name]

[Date]

# WHY THIS MATTERS

22,710

Ladder injuries treated  
in emergency rooms  
annually (BLS)

161

Fatal falls from ladders  
per year in the U.S.  
(BLS Census of Fatal Injuries)

#1

Falls are the leading  
cause of death in  
construction (OSHA)

## Falls are an OSHA "Focus Four" Hazard

Ladder-related incidents account for a significant share of fall injuries and fatalities on construction sites. Most ladder accidents are preventable — caused by improper setup, wrong ladder selection, overreaching, or failure to inspect before use. Following OSHA standards and basic safe practices saves lives.

# LADDER TYPES, RATINGS & SETUP RULES

## Ladder Types & Duty Ratings

| Type                    | Rating      | Capacity |
|-------------------------|-------------|----------|
| Type IAA — Special Duty | Extra Heavy | 375 lbs  |
| Type IA — Industrial    | Extra Heavy | 300 lbs  |
| Type I — Industrial     | Heavy Duty  | 250 lbs  |
| Type II — Commercial    | Medium Duty | 225 lbs  |
| Type III — Household    | Light Duty  | 200 lbs  |

*Construction requires Type I, IA, or IAA*

## Setup Rules (Extension Ladders)

- 4-to-1 ratio: For every 4 ft of height, set the base 1 ft out from the wall
- Extend 3 feet above the landing or upper support point
- Secure the top of the ladder to prevent displacement — tie off or have a spotter
- Set on a firm, level surface — never on boxes, barrels, or unstable ground
- Lock all spreaders and extension locks before climbing
- Face the ladder when ascending or descending — always

# THREE-POINT CONTACT & PRE-USE INSPECTION

## Three-Point Contact Rule

**Always maintain three points of contact when climbing or descending:**

- Two hands + one foot, or
- Two feet + one hand
- Do NOT carry tools or materials in your hands while climbing — use a tool belt, hoist line, or bucket
- Never overreach — keep your belt buckle between the side rails
- Move one hand or foot at a time
- Grip the rungs, not the side rails (better grip if foot slips)

## Pre-Use Inspection Checklist

**Inspect BEFORE EVERY USE — remove defective ladders from service immediately**

- Check rungs/steps for cracks, bends, corrosion, or missing components
- Verify locking mechanisms (spreaders, extension locks) engage fully
- Look for grease, oil, mud, or wet/slippery surfaces on rungs and feet
- Check safety feet / pads — must be intact and non-slip
- Ensure all labels (duty rating, safety instructions) are legible
- Metal ladders: check for dents, bends, or damage to rails
- Fiberglass ladders: check for chips, cracks, or UV degradation

# COMMON VIOLATIONS & WHEN NOT TO USE A LADDER

## Common OSHA Violations

- Using a damaged or defective ladder
- Not extending 3 ft above the landing point
- Setting up at wrong angle (too steep or too shallow)
- Standing on the top cap or top rung of a stepladder
- Using a metal ladder near electrical hazards
- Overloading — exceeding the duty rating (body weight + tools + materials)
- Placing on uneven or unstable surfaces
- Using a ladder horizontally as a scaffold plank

## When NOT to Use a Ladder

Use scaffolding or an aerial lift instead when:

- Work requires both hands for an extended period
- Task duration exceeds 15-30 minutes at height
- Heavy materials or tools must be brought up
- Work height exceeds ladder capacity or safe reach
- Multiple workers need simultaneous elevated access
- High wind conditions or adverse weather
- Work is near power lines (use fiberglass + maintain clearance, or use a non-conductive lift)

# QUIZ / DISCUSSION QUESTIONS

## 1. What is the correct setup angle for an extension ladder?

*Answer: 4-to-1 ratio — for every 4 feet of height, the base is 1 foot away from the wall*

## 2. What does "three-point contact" mean, and why is it important?

*Answer: Always maintain two hands and one foot, or two feet and one hand on the ladder. It prevents falls caused by loss of balance.*

## 3. Name two situations where you should use scaffolding or an aerial lift instead of a ladder.

*Answer: When work requires both hands for extended periods, when task duration exceeds 15-30 min, when heavy materials must be transported, or when multiple workers need access.*

# ATTENDANCE & SIGN-OFF

Ladder Safety | [Date] | [Company Name]

| #  | Printed Name | Signature | Date |
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# LOCKOUT/TAGOUT (LOTO)

29 CFR 1910.147

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Presenter: \_\_\_\_\_

Date: \_\_\_\_\_

# WHY THIS MATTERS

- Failure to control hazardous energy kills an estimated 48 workers per year and causes 17,690 lost-workday injuries (NSC 2023 data).
- OSHA estimates that proper compliance with the LOTO standard would prevent 120 fatalities and 50,000 injuries every year.
- LOTO violations are consistently in OSHA's Top 10 most cited standards. "I thought the power was off" has been the last thought of too many workers.
- Hazardous energy doesn't just mean electrical. Hydraulic lines hold pressure, springs store mechanical energy, pipes carry steam, and chemical reactions continue after shutdown.
- Every incident investigation involving uncontrolled energy comes back to the same root cause: someone skipped a step because they were in a hurry.

Source: [OSHA LOTO Fact Sheet](#)

# ENERGY TYPES & ISOLATION PROCEDURES

- Six energy types to control: ELECTRICAL (disconnect and verify zero energy), MECHANICAL (block/secure moving parts), HYDRAULIC (bleed lines and block), PNEUMATIC (bleed air pressure), THERMAL (allow cool-down or insulate), CHEMICAL (drain, purge, or neutralize).
- Every piece of equipment must have a written, machine-specific LOTO procedure. Generic procedures get people killed — each machine has unique energy sources and isolation points.
- The isolation sequence: (1) Notify all affected employees, (2) Shut down equipment using normal stopping procedure, (3) Isolate ALL energy sources, (4) Apply YOUR lock and tag, (5) Verify zero energy state.
- Verification is the most skipped and most critical step. After lockout, attempt to start the equipment. Test circuits with a meter. Bleed trapped pressure. Verify. Every. Time.
- Tags are NOT locks. A tag is a warning device only — it does not physically prevent operation. Every worker in the danger zone must apply their own lock.

# GROUP LOTO & CRITICAL RULES

- Group LOTO: When multiple crews work on the same equipment, a primary authorized employee coordinates lockout. Each worker still applies their own lock to a group lockbox.
- Shift change protocol: The outgoing shift cannot remove their locks until the incoming shift has applied theirs. There must be zero gap in protection.
- NEVER remove another person's lock. The only person who removes a lock is the person who put it on. If they left site, follow the employer's specific lock-removal procedure with supervisor authorization and documented verification.
- Try-out procedure after maintenance: Ensure all workers are clear, all tools removed, guards replaced, then remove locks in reverse order. The primary authorized employee removes the last lock.
- Annual inspections of LOTO procedures are required. An authorized employee who does NOT normally use the procedure must review it. Document the review with names, dates, and equipment covered.

# DISCUSSION QUESTIONS

*Take 5 minutes to discuss with your crew:*

1. Can you name all the energy sources on the equipment you're working with today? Are you sure you've got them all?
2. When was the last time you actually tried to start a machine after locking it out to verify zero energy?
3. Have you ever been pressured to skip LOTO because the job would "only take a minute"? What happened?
4. If you found a lock on equipment with no tag or an unreadable tag, what would you do?

# ATTENDANCE SIGN-OFF

Date: \_\_\_\_\_ Topic: Lockout/Tagout (LOTO) Presenter: \_\_\_\_\_

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FORBES SAFETY SOLUTIONS

# NIGHT WORK & LOW-VISIBILITY SAFETY

Illumination, High-Visibility Clothing & Fatigue Management

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Ref: 29 CFR 1926.56 (Illumination) | ANSI/ISEA 107

TOOLBOX TALK

## KEY STATISTICS

### 2x Higher Fatality Rate

Night-shift construction workers face roughly double the fatal injury risk

### Class 2 Minimum

High-visibility garments required for all construction workers near traffic

### 5 Foot-Candles

Minimum illumination required for general construction areas per OSHA

*Source: OSHA, ANSI/ISEA 107, BLS Fatality Data*

# LIGHTING REQUIREMENTS

- OSHA 29 CFR 1926.56 sets minimum foot-candle requirements by work area:
- General construction areas and concrete placement: 5 foot-candles minimum
- General construction plants and shops: 10 foot-candles minimum
- Indoor warehouses, corridors, hallways, and exit ways: 5 foot-candles minimum
- First aid stations, offices, and shops: 30 foot-candles minimum
- Position temporary lighting to eliminate dark spots, shadows, and glare
- Secure all temporary lighting fixtures to prevent them from falling or being knocked over

# HIGH-VISIBILITY CLOTHING & EQUIPMENT

- ANSI/ISEA 107 Class 2 garments minimum for all workers in low-visibility conditions
- Class 3 garments required for flaggers working at night (full body visibility)
- Hi-vis garments must include retroreflective striping — not just fluorescent color
- Replace garments when retroreflective material is faded, torn, or dirty enough to reduce visibility
- Equip all mobile equipment with retroreflective markings and functional lighting
- Use cones, delineators, and barricades with reflective sheeting to mark hazard zones
- Ensure backup alarms and strobe lights are operational on all equipment used at night

# FATIGUE, COMMUNICATION & AWARENESS

- Night shift workers have elevated fatigue risk — schedule regular breaks and rotate tasks
- Recognize fatigue warning signs: difficulty concentrating, slow reactions, irritability, microsleeps
- Communication is harder at night — use radios, hand signals with illuminated wands, and spotters
- Brief crews on changed site conditions before each night shift begins
- Wildlife awareness: nocturnal animals (snakes, rodents, insects) are more active — watch your step
- Maintain clear access to emergency routes and ensure they are well-lit at all times
- Report any lighting failures, dark areas, or visibility concerns immediately to your supervisor

## QUIZ — TEST YOUR KNOWLEDGE

**Q1: What is the minimum foot-candle requirement for general construction areas?**

*A: 5 foot-candles, as required by OSHA 29 CFR 1926.56.*

**Q2: What class of high-visibility garment must flaggers wear during night work?**

*A: Class 3 garments, which provide full-body visibility with retroreflective striping.*

**Q3: Name two strategies for managing fatigue during night shifts.**

*A: Schedule regular breaks and rotate tasks to keep workers alert and reduce error risk.*

# SIGN-OFF SHEET

Night Work & Low-Visibility Safety

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# Overhead Power Line Awareness

Ref: 29 CFR 1926.1408 | 29 CFR 1926.416(a)

[Company Name]

[Date]

TOOLBOX TALK

## WHY THIS MATTERS

---

~60

Workers die annually from power line contact — electrocution is one of OSHA's Fatal Four

10 ft

Minimum clearance distance from overhead power lines under 50kV for all equipment and workers

53%

Of power line fatalities involve cranes, boom trucks, and aerial lifts making contact

# Clearance Distances & Hazard Recognition

---

## MINIMUM CLEARANCE BY VOLTAGE

- Up to 50kV: minimum 10 feet clearance for equipment, loads, and personnel
- 50kV to 200kV: minimum 15 feet clearance
- 200kV to 350kV: minimum 20 feet clearance
- 350kV to 500kV: minimum 25 feet clearance
- Over 500kV: 25 ft + 5 ft for each additional 100kV — or as determined by utility

## HAZARD RECOGNITION

- LOOK UP before you set up — survey every work area for overhead lines
- Power lines may sag in hot weather, increasing contact risk
- Assume all lines are energized unless the utility confirms de-energization in writing
- Electricity can arc — you do NOT have to touch the line for electrocution to occur
- Metal ladders, scaffolding, long pipes, and rebar can all conduct electricity

# Equipment Operations & Spotter Requirements

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## WORKING NEAR POWER LINES

- Designate a qualified spotter when operating cranes, boom trucks, or aerial lifts near lines
- Spotter must have a clear view of the clearance zone and be in constant communication
- Use range-limiting devices or proximity alarms when available
- Post warning signs at site entry points identifying overhead hazards
- Create a pre-work plan with clearance distances mapped for each overhead line

## DE-ENERGIZATION & ALTERNATIVES

- Best option: request utility to de-energize and ground the line
- If de-energization not possible: insulating barriers or line covers installed by the utility
- Use non-conductive tools and equipment when working near energized lines
- Barricade the area and establish restricted zones around overhead lines
- Maintain minimum distances even for stored materials and equipment staging

# If Equipment Contacts a Power Line

| Step | Action              | Critical Details                                                                                         |
|------|---------------------|----------------------------------------------------------------------------------------------------------|
| 1    | Stay in the cab     | The cab and tires provide insulation — you are safest INSIDE the equipment                               |
| 2    | Warn others         | Shout to everyone: stay back at least 35 ft from equipment                                               |
| 3    | Call 911            | Request power company and emergency services immediately                                                 |
| 4    | Do NOT exit         | Do not step out or touch the ground while touching the equipment                                         |
| 5    | If fire forces exit | Jump clear — both feet together, not stepping out. Do NOT touch equipment and ground simultaneously      |
| 6    | Hop away            | Keep feet together and hop/shuffle at least 35 ft away to avoid step potential (ground voltage gradient) |

# QUIZ / DISCUSSION

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1

**What is the minimum clearance distance from overhead power lines under 50kV?**

Answer: 10 feet for all equipment, loads, and personnel. This distance increases with higher voltage levels.

2

**If your equipment contacts a power line, what should you do first?**

Answer: Stay inside the cab. The equipment and tires provide insulation. Call 911, warn others to stay back at least 35 feet, and wait for the utility to de-energize the line.

3

**If you must exit equipment that has contacted a power line (e.g., due to fire), how do you exit safely?**

Answer: Jump clear with both feet together — never step out. Then hop or shuffle with feet together at least 35 feet away to avoid step potential electrocution from the ground voltage gradient.

# ATTENDANCE SIGN-OFF

Overhead Power Line Awareness

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*By signing above, I confirm that I attended this toolbox talk and understand the material presented.*

# Personal Fall Arrest System (PFAS) Inspection

Pre-Use Inspection Requirements for Harnesses, Lanyards & SRLs

Ref: 29 CFR 1926.502(d), ANSI Z359.11

# Why PFAS Inspection Matters

**395**

Fatal falls in construction in a recent year — many involving failed or uninspected fall protection

**100%**

PFAS must be inspected before EVERY use — no exceptions

**1 Fall**

After a single fall arrest event, the entire PFAS must be removed from service permanently

# Inspecting Your Harness

- Check all webbing for cuts, frays, burns, chemical damage, abrasion, and pulled stitching — run the webbing through your hands inch by inch
- Inspect D-rings (dorsal, sternal, side): look for cracks, distortion, corrosion, sharp edges, and proper movement
- Examine all buckles: ensure they lock and release properly, check for deformation, corrosion, and missing components
- Verify labels are legible: manufacturer, model, date of manufacture, and standards compliance (ANSI Z359.11) must be readable
- Check grommets and hardware attachment points for looseness, corrosion, or damage
- Inspect all stitching — especially load-bearing bar-tack stitching — for broken threads, pulled seams, or UV degradation

# Inspecting Lanyards & Self-Retracting Lifelines

- Lanyards: check webbing or cable for cuts, kinks, frays, burns, abrasion, and corrosion along the entire length
- Snap hooks: verify the gate locks properly, the keeper spring returns fully, and there is no corrosion or distortion
- Shock absorber pack: inspect the outer cover for tears or deployment indicators — if the pack shows signs of activation, remove from service
- Self-Retracting Lifelines (SRLs): extend and retract the line fully — it should retract smoothly without sticking or jerking
- Check the SRL housing for cracks, dents, and corrosion — inspect the mounting bracket and swivel for damage
- Verify the SRL label: check manufacture date, inspection date, and that annual competent-person inspection is current

# Removal from Service, Storage & Documentation

- Remove from service IMMEDIATELY after any fall arrest event — the harness, lanyard, and all connectors must be destroyed or returned to manufacturer
- Remove from service if you find any visible damage: cuts, frays, deformation, corrosion, label illegibility, or broken stitching
- Remove expired equipment per manufacturer guidelines — do not exceed the recommended service life
- Store PFAS in a clean, dry, cool area away from chemicals, UV light, moisture, and sharp objects
- Never hang equipment on nails or sharp hooks — use wide hangers or storage bags
- Document every inspection: date, inspector name, equipment serial number, condition, and pass/fail determination

# Knowledge Check

**Q1: How often must a personal fall arrest system be inspected?**

*A: Before every use — a pre-use inspection is required each time the equipment is put on.*

**Q2: What must happen to a harness and lanyard after they arrest a fall?**

*A: They must be immediately removed from service — the entire system must be destroyed or returned to the manufacturer.*

**Q3: Name three things to check when inspecting a harness.**

*A: Webbing for cuts/frays, D-rings for cracks/distortion, and buckles for proper locking — plus legible labels and intact stitching.*

# PFAS Inspection — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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# Pinch Points & Crushing Hazards

Recognizing and Avoiding Compression Injuries on the Job

Ref: 29 CFR 1910.212, 29 CFR 1926.300

# The Danger of Pinch Points

**125K+**

Hand and finger injuries occur  
in U.S. workplaces each year  
— many from pinch points

**#2**

Hand injuries rank as the  
second most common  
workplace injury type across  
all industries

**80%**

Of pinch point injuries are  
preventable with proper  
guarding and awareness

# Where Pinch Points Occur

- Between two moving parts: gears, rollers, belt drives, and chain sprockets
- Between a moving part and a stationary object: press rams, closing doors, swing-radius of excavators
- Rotating equipment: drill presses, lathes, augers, and power take-offs (PTOs)
- During material handling: setting steel, lowering loads, stacking pipe, closing gates and tailgates
- Between the ground and moving equipment: tracks, outriggers, and lowering platforms
- Always ask: 'Where could my hands, fingers, or body get caught between two objects?'

# Machine Guarding & Hand Placement

- Never remove or bypass machine guards — they are engineered barriers between you and moving parts
- If a guard is missing or damaged, stop work and report it immediately — do not operate the equipment
- Keep your hands and fingers away from pinch points — use push sticks, pliers, or other tools to feed material
- Be aware of hand placement when guiding loads, closing doors, or connecting components
- Use lockout/tagout (LOTO) procedures before reaching into any area with moving parts for maintenance or clearing jams
- Barricade pinch point areas where workers could inadvertently enter the danger zone

# Glove Selection & Body Positioning

- Wear cut-resistant or impact gloves when handling materials with pinch hazards — they provide critical protection
- NEVER wear gloves near rotating equipment (drills, lathes, grinders) — gloves can catch and pull your hand in
- Know the difference: gloves protect from pinch/crush between objects, but create entanglement hazards with rotating parts
- Position your body to avoid the line of fire — never place any body part where it could be caught if equipment shifts
- Maintain situational awareness: watch for swing radius of equipment, moving conveyors, and closing mechanisms
- Communicate with coworkers before moving loads or operating equipment to ensure everyone is clear of pinch points

# Knowledge Check

**Q1: Name two locations where pinch points commonly occur on a job site.**

*A: Between two moving parts (gears, rollers) and between a moving part and stationary object (press rams, closing doors).*

**Q2: When should you NOT wear gloves around equipment?**

*A: Near rotating equipment such as drills, lathes, and grinders — gloves can catch and pull your hand into the machine.*

**Q3: What should you do if a machine guard is missing or damaged?**

*A: Stop work immediately, do not operate the equipment, and report the missing guard to supervision.*

# Pinch Points & Crushing Hazards — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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# RESPIRATORY PROTECTION AWARENESS

Selecting, Fitting, and Using Respirators on the Jobsite

*Reference: 29 CFR 1910.134*

FORBES SAFETY SOLUTIONS

## KEY STATISTICS

**5M+**

U.S. workers required to  
wear respirators on the job

**#4**

29 CFR 1910.134 is the 4th  
most cited OSHA standard

**90%**

Of respiratory injuries are  
preventable with proper  
protection

## WHEN RESPIRATORS ARE NEEDED AND TYPES AVAILABLE

**When Required** — whenever engineering controls alone cannot reduce airborne contaminants below the PEL or when IDLH conditions exist

**Filtering Facepiece (N95)** — disposable half-mask that filters particles; does not protect against gases or vapors

**Half-Face Respirator** — reusable mask covering nose and mouth; accepts cartridges for particulates, gases, or combination

**Full-Face Respirator** — covers entire face including eyes; provides higher protection factor and splash protection

**PAPR** — Powered Air-Purifying Respirator — uses a blower to pull air through filters; ideal for extended wear

**SCBA** — Self-Contained Breathing Apparatus — supplies clean air from a tank; required for IDLH and unknown atmospheres

## FIT TESTING, SEAL CHECKS, AND FACIAL HAIR

**Fit Testing Requirement** — every tight-fitting respirator user must pass an initial fit test and annual retest per 29 CFR 1910.134(f)

**Qualitative vs. Quantitative** — qualitative uses taste/smell agents; quantitative uses instruments to measure leakage — both are OSHA-accepted

**User Seal Check — Every Time** — positive and negative pressure seal checks must be performed each time the respirator is donned

**Facial Hair Prohibition** — beards, stubble, or sideburns that interfere with the seal are prohibited for tight-fitting respirators

**Medical Evaluation** — a physician or licensed healthcare professional must clear a worker medically before respirator use

**Documentation** — fit test results, medical clearances, and training records must be maintained by the employer

## CARTRIDGE SCHEDULES, IDLH, AND MAINTENANCE

**Cartridge Change Schedules** — employer must establish a change schedule based on contaminant type, concentration, humidity, and breathing rate

**End-of-Service Indicators** — some cartridges have ESLI; if not, a written change schedule is mandatory — never rely on smell alone

**IDLH Situations** — Immediately Dangerous to Life or Health — requires SCBA or airline respirator with escape bottle

**Buddy System** — at least one standby person must be present outside the IDLH area with rescue equipment

**Inspection and Storage** — inspect before and after each use; store in a clean, sealed container away from contaminants and sunlight

**Never Alter Equipment** — do not modify respirators, remove valves, or use unapproved parts — doing so voids NIOSH certification

## KNOWLEDGE CHECK

How often must a user perform a seal check on a tight-fitting respirator?

- A) Once per shift
- B) Only during the annual fit test
- C) Every time the respirator is put on
- D) Weekly

**Answer:** C) Every time — a positive and negative pressure seal check is required each time the respirator is donned.

# RESPIRATORY PROTECTION AWARENESS — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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# Rigging Safety Fundamentals

Ref: 29 CFR 1926.251 — Rigging Equipment for Material Handling

[Company Name]

[Date]

# WHY THIS MATTERS

---

50+

Workers killed annually in  
crane and rigging-related  
incidents in construction

#1

Cause of rigging fatalities:  
being struck by a falling load  
due to rigging failure

60°

At a 60° sling angle, capacity is  
only 87% of rated — angle  
always affects capacity

# Sling Types & Selection

---

## SLING TYPES

- Wire Rope: high strength, good for heavy loads, heat-resistant, but inspect for broken wires and kinks
- Synthetic Web: lightweight, won't mar loads, wide bearing surface — avoid near heat, chemicals, sharp edges
- Alloy Steel Chain: excellent for high-heat and abrasive environments, durable — heavy to handle
- Synthetic Round Slings: flexible, lightweight, protect load finish — vulnerable to cuts and UV damage

## HITCH CONFIGURATIONS

- Vertical Hitch: single leg, straight pull — 100% of rated capacity
- Choker Hitch: sling wraps around load and through itself — 75% of rated capacity
- Basket Hitch: sling cradles the load with both ends on hook — up to 200% of rated capacity (with balanced load at 90°)
- Always verify hitch type matches the load shape, center of gravity, and weight

# Sling Angle Capacity Chart

| Sling Angle    | Capacity Factor | Example: 10,000 lb Rated Sling                       |
|----------------|-----------------|------------------------------------------------------|
| 90° (vertical) | 100%            | 10,000 lbs                                           |
| 60°            | 87%             | 8,700 lbs                                            |
| 45°            | 71%             | 7,100 lbs                                            |
| 30°            | 50%             | 5,000 lbs                                            |
| Below 30°      | DO NOT USE      | Sling stress exceeds safe limits                     |
| —              | Rule            | Never use slings at angles below 30° from horizontal |

# Inspection, Signals & Safe Practices

## SLING INSPECTION — REMOVE FROM SERVICE

- Wire rope: 6+ broken wires in one lay, kinking, crushing, bird-caging, corrosion, heat damage
- Synthetic web: cuts, tears, snags, acid/chemical burns, melting, excessive wear, missing labels
- Chain: stretched or bent links, cracks, gouges, excessive wear (10%+ reduction)
- All slings: missing or unreadable capacity tags, prior unauthorized modifications

## SAFE RIGGING PRACTICES

- Know the load weight — never guess; check shipping docs, calculate, or use a scale
- Use tag lines to control load movement — never guide loads by hand
- Learn standard hand signals; use a qualified signal person
- NEVER stand under a suspended load — the #1 rigging safety rule
- Inspect all rigging equipment before each shift

# QUIZ / DISCUSSION

---

1

**What is the capacity factor of a sling used at a 45-degree angle?**

Answer: 71% of the sling's rated capacity. A sling rated at 10,000 lbs can only safely lift 7,100 lbs at a 45° angle.

2

**Name two conditions that require a wire rope sling to be removed from service.**

Answer: Any two of: six or more broken wires in one lay, kinking, crushing, bird-caging, corrosion, heat damage, or a missing/unreadable capacity tag.

3

**What is the single most important rule in rigging safety?**

Answer: Never stand under a suspended load. If the rigging fails or the load shifts, anyone underneath is at risk of fatal injury.

# ATTENDANCE SIGN-OFF

Rigging Safety Fundamentals

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*By signing above, I confirm that I attended this toolbox talk and understand the material presented.*

FORBES SAFETY SOLUTIONS

# SILICA DUST EXPOSURE

Toolbox Talk | 29 CFR 1926.1153

[Company Name]

[Date]

# WHY THIS MATTERS

**2M+**

Construction workers  
exposed to silica dust  
in the U.S. annually

**100%**

Silicosis is irreversible  
and has no cure —  
prevention is critical

**#1**

Leading cause of  
occupational lung  
disease in construction

## What is Respirable Crystalline Silica?

Silica is a mineral found in concrete, brick, block, mortar, stone, and sand. When these materials are cut, ground, drilled, or crushed, tiny dust particles become airborne and can be inhaled deep into the lungs — causing silicosis, lung cancer, COPD, and kidney disease.

# OSHA PEL & COMMON EXPOSURE SOURCES

OSHA Permissible Exposure Limit (PEL): **50  $\mu\text{g}/\text{m}^3$**  (8-hour TWA)

## Where Silica Is Found

- Concrete and cement products
- Brick, block, and mortar
- Natural stone and granite
- Sand and gravel
- Engineered stone countertops
- Asphalt (contains sand/aggregate)

## High-Risk Tasks

- Cutting concrete or masonry with a saw
- Grinding or polishing concrete surfaces
- Drilling into rock, concrete, or block
- Demolition of concrete structures
- Mixing dry concrete or mortar
- Sweeping or blowing concrete dust

# REQUIRED CONTROLS (TABLE 1 COMPLIANCE)

| Task / Equipment          | Engineering Control                        | Respiratory Protection               |
|---------------------------|--------------------------------------------|--------------------------------------|
| Handheld power saw        | Integrated water delivery to suppress dust | None when controls used per Table 1  |
| Walk-behind saw           | Integrated water delivery to suppress dust | None when controls used per Table 1  |
| Jackhammer / Breaker      | Continuous water feed at point of impact   | APF 10 respirator when controls used |
| Grinder (4.5" or smaller) | Vacuum with HEPA filter attached to guard  | APF 10 respirator when controls used |
| Drill (handheld)          | Vacuum with HEPA filter or water delivery  | None when controls used per Table 1  |
| Indoor sweeping / cleanup | Wet sweeping or HEPA-filtered vacuum       | APF 10 respirator                    |

# RESPIRATORY PROTECTION & MEDICAL SURVEILLANCE

## Respiratory Protection

- Required when engineering controls alone don't reduce exposure below the PEL ( $50 \mu\text{g}/\text{m}^3$ )
- Minimum: NIOSH-approved N95 filtering facepiece (APF 10)
- Higher exposures may require half-face or full-face respirators with P100 filters
- Workers must be fit-tested annually and medically cleared before use
- Employers must have a written Respiratory Protection Program per 29 CFR 1910.134

## Medical Surveillance

- Required for workers exposed above the Action Level ( $25 \mu\text{g}/\text{m}^3$ ) for 30+ days/year
- Baseline exam within 30 days of initial assignment
- Follow-up exams every 3 years (minimum)
- Includes: medical history, chest X-ray, pulmonary function test (spirometry)
- Employer must cover all costs and provide results to the worker in writing
- Workers diagnosed with silicosis must be referred to a specialist

# QUIZ / DISCUSSION QUESTIONS

**1. What is OSHA's Permissible Exposure Limit (PEL) for respirable crystalline silica in construction?**

*Answer: 50  $\mu\text{g}/\text{m}^3$  as an 8-hour time-weighted average (TWA)*

**2. Name two engineering controls that can be used to reduce silica dust exposure when cutting concrete.**

*Answer: Integrated water delivery (wet cutting) and vacuum dust collection systems with HEPA filtration*

**3. How often must medical surveillance exams be conducted for workers exposed above the Action Level?**

*Answer: Baseline exam within 30 days of initial assignment, then every 3 years at minimum*

# ATTENDANCE & SIGN-OFF

Silica Dust Exposure | [Date] | [Company Name]

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FORBES SAFETY SOLUTIONS

# SLIPS, TRIPS, AND FALLS

Leading Causes, Prevention & Good Housekeeping

---

Ref: 29 CFR 1926.25 (Housekeeping) | 29 CFR 1926 Subpart M

TOOLBOX TALK

## KEY STATISTICS

### #1 Cause of Death

Falls are the leading cause of fatalities in the construction industry

### ~25% of All Injuries

Slips, trips, and falls account for roughly one-quarter of all workplace injuries

### OSHA Focus Four

Falls are one of OSHA's Focus Four hazards — the top causes of construction deaths

*Source: BLS Census of Fatal Occupational Injuries | OSHA*

# COMMON CAUSES OF SLIPS, TRIPS & FALLS

- Wet, oily, or greasy surfaces — spills not cleaned up promptly
- Uneven ground, potholes, or changes in floor level without markings or ramps
- Cluttered walkways with tools, materials, or debris blocking the path
- Poor lighting in work areas, stairways, corridors, and access points
- Cords, hoses, welding leads, or air lines running across walkways without covers
- Missing or damaged handrails on stairs, ramps, and elevated platforms
- Weather conditions: ice, mud, rain, and wet leaves create slippery surfaces
- Improper footwear lacking slip-resistant soles or adequate ankle support

# PREVENTION STRATEGIES

- Housekeeping: clean as you go — keep walkways clear of tools, scrap, and debris at all times
- Clean up spills immediately; use absorbent material and post wet floor warnings
- Wear proper footwear with slip-resistant, sturdy soles appropriate for the work environment
- Use three-point contact (two hands and one foot, or two feet and one hand) on ladders and stairs
- Slow down on wet, icy, or uneven surfaces — take smaller steps to maintain balance
- Cover or ramp all cords, hoses, and lines crossing walkways; use cord covers or elevate them
- Ensure adequate lighting in all work areas — request temporary lighting where needed
- Report hazards immediately: broken stair treads, missing covers, damaged guardrails, spills

# FALL PROTECTION & GUARDRAILS

- Fall protection required at 6 feet in construction (29 CFR 1926 Subpart M)
- Guardrail systems: top rail at 42" (+/- 3"), midrail at 21", toeboards at floor level
- Inspect guardrails daily — never remove or bypass them without implementing alternate protection
- Floor holes and wall openings must be covered or guarded; mark covers 'HOLE' or 'COVER'
- Personal fall arrest systems: full-body harness, shock-absorbing lanyard, and secure anchor point
- Inspect all fall protection equipment before each use — remove damaged items from service
- Training: every worker must understand the fall hazards of their specific tasks and the controls in place

## QUIZ — TEST YOUR KNOWLEDGE

**Q1: At what height is fall protection required in the construction industry?**

*A: 6 feet above a lower level, per 29 CFR 1926 Subpart M.*

**Q2: What does 'three-point contact' mean when climbing a ladder?**

*A: Always maintain two hands and one foot, or two feet and one hand, in contact with the ladder.*

**Q3: Name three common causes of slips, trips, and falls on construction sites.**

*A: Wet surfaces, cluttered walkways, and cords/hoses running across paths without covers.*

# SIGN-OFF SHEET

Slips, Trips, and Falls

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# Spotter & Backing Safety

Preventing Struck-By Incidents During Vehicle & Equipment Operations

Ref: 29 CFR 1926.601-602

Forbes Safety Solutions

# Backing Accident Statistics

**~70**

Workers struck by backing  
vehicles on construction sites  
each year

**Top 10**

Backing accidents rank among  
the leading causes of  
construction fatalities  
nationwide

**90%**

Of backing incidents are  
preventable with proper  
spotter use and safe backing  
procedures

# Spotter & Driver Responsibilities

- A spotter's sole duty is to guide the driver — never perform other tasks while spotting
- The spotter must maintain constant visual contact with the driver and remain visible at all times
- Position yourself where the driver can see you in mirrors or directly — never stand in the vehicle's path of travel
- Use standardized hand signals: stop (closed fist raised), back up (arm extended with beckoning motion), turn left/right (arm pointing direction)
- The driver must stop immediately if they lose sight of the spotter — no exceptions
- Establish a communication plan before starting: agree on signals, path, and hazards

# When Spotters Are Required & Blind Spots

- A spotter is required whenever the driver's view is obstructed, near pedestrians, in congested areas, or near excavations and drop-offs
- Common blind spots: directly behind the vehicle, right side of dump trucks, rear of loaders and excavators, all sides of large cranes
- Walk around the vehicle before backing — check for workers, tools, materials, and uneven ground (the 360-degree walk-around)
- Backup cameras and alarms are aids — they are NOT replacements for a trained spotter
- Never assume a path is clear because it was clear moments ago — conditions on active job sites change constantly

# Best Practices for Backing Safety

- Minimize backing whenever possible — plan routes that allow forward-only travel or pull-through parking
- Use a spotter for every backing operation near workers, structures, or limited-visibility areas
- Sound the horn before backing — even when a spotter is present — to alert nearby workers
- Back slowly and smoothly — maintain a speed that allows instant stopping
- Ensure all workers in the area are aware of vehicle movements and maintain safe distances
- Report any near-misses immediately — these are opportunities to prevent future incidents

# Knowledge Check

**Q1: What should a driver do if they lose sight of their spotter?**

*A: Stop the vehicle immediately and do not move until visual contact with the spotter is re-established.*

**Q2: Are backup cameras and alarms an acceptable substitute for a spotter?**

*A: No. Cameras and alarms are aids only — they do not replace a trained spotter.*

**Q3: What is the 360-degree walk-around, and when should it be done?**

*A: A complete visual inspection around the vehicle before backing to check for workers, obstacles, and hazards.*

# Spotter & Backing Safety — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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# Stop Work Authority

Every Worker's Right and Obligation to Halt Unsafe Work

Ref: OSHA General Duty Clause, ANSI Z10

# Why Stop Work Authority Matters

## #1

The General Duty Clause  
requires employers to provide  
a workplace free from  
recognized hazards

## 100%

Every worker — regardless of  
role or rank — has the right to  
stop unsafe work

## ZERO

There should be zero  
retaliation for exercising Stop  
Work Authority

# What Is Stop Work Authority (SWA)?

- Stop Work Authority (SWA) means every worker has the right AND obligation to stop work when they observe unsafe conditions or behaviors
- SWA applies to all employees, contractors, and visitors — regardless of position or seniority
- It is not limited to your own work — you can stop any task you believe poses a danger to any person on site
- SWA is a proactive safety tool, not a disciplinary action — it is designed to prevent injuries before they occur
- Organizations with strong SWA programs demonstrate that safety always takes priority over production schedules

# When & How to Invoke SWA

- Invoke SWA when you see an imminent danger, an uncontrolled hazard, or a deviation from the job plan or safety procedures
- Examples: unexpected energy source, fall protection not in use, excavation showing signs of instability, worker impairment, missing permits
- To invoke: clearly state 'I am exercising Stop Work Authority' — all work in the affected area must cease immediately
- Secure the area and notify your supervisor or the person in charge of the task
- No worker shall face retaliation, discipline, or negative consequences for invoking SWA in good faith

## After SWA Is Invoked & Management Role

- After SWA: the hazard is evaluated by the crew and supervision — identify root cause and corrective actions
- Work does not resume until the hazard has been eliminated or adequately controlled and all workers agree it is safe
- Document every SWA event: what was observed, who stopped work, what corrections were made, and the outcome
- Management must visibly support SWA — lead by example, recognize workers who use it, and never pressure resumption of unsafe work
- Build a culture where stopping work for safety is celebrated, not tolerated — SWA only works when workers trust the system
- Regularly review SWA events in safety meetings to reinforce the process and share lessons learned

# Knowledge Check

**Q1: Who has Stop Work Authority on a job site?**

*A: Every worker — employees, contractors, and visitors — regardless of position or seniority.*

**Q2: What should happen after someone invokes SWA?**

*A: All work in the affected area stops, the hazard is evaluated, corrective actions are taken, and work resumes only when all agree it is safe.*

**Q3: Can a worker be disciplined for stopping work due to a safety concern?**

*A: No. There must be zero retaliation for exercising SWA in good faith.*

# Stop Work Authority — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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# STRUCK-BY HAZARDS

OSHA Focus Four — Toolbox Talk

[Company Name]

[Date]

# WHY THIS MATTERS

Struck-by incidents are one of OSHA's "Focus Four" — the leading causes of death in construction.

~75

Fatal struck-by  
injuries per year  
in construction

~15%

Of all construction  
fatalities are  
struck-by incidents

#2

Leading cause of  
death on construction  
sites (BLS data)

# FOUR TYPES OF STRUCK-BY HAZARDS

## FLYING OBJECTS

Objects propelled through the air by a tool, machine, or explosive force. Examples: debris from grinding/cutting, nail gun projectiles, pneumatic tool fragments.

## FALLING OBJECTS

Objects that fall from an upper level. Examples: tools dropped from scaffolding, unsecured materials on elevated surfaces, bricks or concrete from demolition.

## SWINGING OBJECTS

Objects that swing and strike a worker. Examples: crane loads turning or swinging unexpectedly, a beam or panel rotating during rigging, equipment booms swinging.

## ROLLING OBJECTS

Objects that roll and strike a worker. Examples: pipes or cylinders on slopes, vehicles/equipment rolling or backing over workers, unsecured wheel-mounted equipment.

# COMMON STRUCK-BY SCENARIOS

| SCENARIO                                          | HAZARD          | KEY CONTROL                                              |
|---------------------------------------------------|-----------------|----------------------------------------------------------|
| Unsecured materials falling from elevated work    | Falling object  | Toe boards, screens, debris nets, hard hats below        |
| Equipment backing over workers on site            | Rolling object  | Spotters, backup alarms, exclusion zones, high-vis vests |
| Flying debris from cutting, grinding, or chipping | Flying object   | Face shields, safety glasses, machine guards, barriers   |
| Swinging crane loads striking workers             | Swinging object | Tag lines, never stand under loads, signal person        |
| Tools or materials dropped from scaffolds         | Falling object  | Tool tethering, toe boards, barricaded areas below       |

# PREVENTION MEASURES

## PERSONAL PROTECTIVE EQUIPMENT

- Hard hats — required in all active work areas
- Face shields and safety glasses for cutting/grinding
- High-visibility vests near mobile equipment
- Steel-toe boots in all construction areas
- Metatarsal guards when heavy objects are handled

## ENGINEERING & WORK PRACTICES

- Toe boards and screens on scaffolds
- Secure all loads — never leave materials unsecured at height
- Tag lines on all suspended loads
- Equipment backup alarms and spotters
- Never stand under suspended loads
- Tool tethering when working at height
- Barricade and sign hazardous areas below overhead work

# QUIZ / DISCUSSION

**Q1** Name the four types of struck-by hazards.

*Answer: Flying objects, falling objects, swinging objects, and rolling objects.*

**Q2** What should you always use when working near crane operations to control a suspended load?

*Answer: Tag lines — and never stand directly under a suspended load.*

**Q3** A coworker is grinding steel without a face shield. What should you do?

*Answer: Stop the task, remind them of the PPE requirement, and ensure they put on a face shield and safety glasses before resuming.*

# ATTENDANCE SIGN-OFF

*By signing below, I acknowledge that I attended and understood this Toolbox Talk on Struck-By Hazards.*

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# TRENCHING & EXCAVATION SAFETY

29 CFR 1926.650-652

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Presenter: \_\_\_\_\_

Date: \_\_\_\_\_

# WHY THIS MATTERS

- Trench collapses killed 39 workers in 2022 — the worst year in a decade. Numbers dropped to 15 in 2023 and 12 in 2024 after OSHA's zero-tolerance enforcement push.
- One cubic yard of soil weighs as much as a car — roughly 3,000 lbs. A partial collapse can pin you in seconds and crush your chest so you can't breathe.
- 85% of all trenching fatalities from 2011-2021 occurred in the construction industry (CPWR/BLS data).
- OSHA has a zero-tolerance policy for unprotected trenches: immediate inspections, willful citations, and criminal prosecution referrals.
- The average rescue time for a buried worker is 6+ minutes. The survival window for full burial is about 4 minutes. You have to get it right before anyone goes in.

Source: [OSHA Trench Safety Data](#)

**FORBES SAFETY SOLUTIONS**

# COMPETENT PERSON & SOIL CLASSIFICATION

- A Competent Person must be on site at all times when workers are in the trench. This person has the authority to shut down work immediately — no foreman override.
- The Competent Person classifies soil before any worker enters: Type A (most stable, e.g. clay), Type B (medium, e.g. crusite gravel), Type C (least stable, e.g. wet sand). When in doubt, assume Type C.
- Soil classification determines your protective system: Type A can use 3/4:1 slopes, Type B needs 1:1, Type C needs 1.5:1 — or use shoring/shielding.
- Previously disturbed soil is NEVER Type A, regardless of what it looks like. If a trench was backfilled and re-dug, default to Type B at best.
- Daily inspections are required before each shift, after rain, and after any event that could change conditions. Document everything.

# PROTECTIVE SYSTEMS & ACCESS/EGRESS

- Three protective system options: SLOPING (cutting walls back at safe angles), SHORING (hydraulic or timber supports), or SHIELDING (trench boxes). Choose based on soil type, depth, and site conditions.
- Any trench 5 feet or deeper requires a protective system unless the Competent Person determines the excavation is in stable rock. No exceptions.
- Trenches 4 feet or deeper require a ladder, ramp, or stairway within 25 feet of every worker. You should never have to walk more than 25 feet to get out.
- Never stack spoil piles, equipment, or materials within 2 feet of the trench edge. That weight can trigger a collapse.
- Water accumulation is a collapse trigger. Pump standing water before entry and monitor continuously. Rain overnight? Re-inspect before anyone goes in.

# DISCUSSION QUESTIONS

*Take 5 minutes to discuss with your crew:*

1. Who is the Competent Person on this site today? Does every crew member know who that is?
2. What soil type are we working in right now — and how was that classification made?
3. How far is the nearest exit point from where workers are in the trench? Is it within 25 feet?
4. If a wall started to crack or bulge right now, what's your immediate response?

# ATTENDANCE SIGN-OFF

Date: \_\_\_\_\_ Topic: Trenching & Excavation Safety Presenter: \_\_\_\_\_

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# Working Near Water — Drowning Prevention

Protecting Workers from Drowning Hazards on Construction Sites

Ref: 29 CFR 1926.106

Forbes Safety Solutions

# Drowning Risks in Construction

~30

Construction workers die from drowning each year in the United States

6 ft

PFDs are required when working within 6 feet of water where a drowning hazard exists

< 60s

Cold water shock can incapacitate even strong swimmers in under 60 seconds

# When PFDs & Rescue Equipment Are Required

- Personal flotation devices (PFDs) are required for all workers within 6 feet of water where a drowning hazard exists
- PFDs must be U.S. Coast Guard-approved and properly fitted — test the fit before each use
- Ring buoys with at least 90 feet of line must be available at 200-foot intervals along waterfront operations
- Rescue skiffs or boats must be immediately available where workers are over water on barges or platforms
- Swimming ability is NOT a substitute for wearing a PFD — even strong swimmers drown in workplace incidents
- Flotation devices must be provided on all barges, over-water platforms, and temporary structures above water

# Cold Water, Flash Floods & Environmental Hazards

- Cold water shock: sudden immersion in cold water triggers involuntary gasping and rapid breathing — you can inhale water in seconds
- Cold water also causes rapid loss of muscle control — swimming ability drops dramatically within 3-5 minutes
- Be alert to flash flood hazards when working in or near storm drains, culverts, channels, and low-lying areas
- Monitor weather conditions — stop work and evacuate if flooding is forecast or water levels begin to rise
- Never enter flooded areas to retrieve equipment or materials — the risk is not worth it
- Be aware of currents even in seemingly calm water — moving water exerts enormous force on the body

# Rescue Procedures & Best Practices

- Know the site rescue plan before starting work — identify rescue equipment locations, trained rescuers, and emergency contacts
- Practice 'reach, throw, row, go': first reach with a pole, throw a ring buoy, use a boat — entering the water is the last resort
- Only trained personnel should attempt in-water rescues — an untrained rescuer often becomes a second victim
- Ensure all workers near water are trained in basic water rescue and CPR/first aid
- Inspect PFDs and rescue equipment daily — replace damaged or expired gear immediately
- Post warning signs near all water hazards and brief every worker during site orientation

# Knowledge Check

**Q1: At what distance from water must workers wear PFDs?**

*A: Within 6 feet of water where a drowning hazard exists.*

**Q2: Why is swimming ability NOT an acceptable substitute for a PFD?**

*A: Even strong swimmers can be incapacitated by cold water shock, currents, or fatigue — PFDs keep you afloat regardless.*

**Q3: What is the correct rescue sequence for a worker who has fallen into water?**

*A: Reach, throw, row, then go — entering the water is the last resort and only by trained rescuers.*

# Working Near Water — Drowning Prevention — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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