



Anchor Points

On Day 3 we will focus on anchor points. Having a proper anchor point is key to any fall protection system. When we climb and work on elevated surfaces, **fall prevention and protection must always be our priority.**

“
I tie off 100% approved anchor points while outside a protected area.”

Practice sharing documents are meant to share information on process or occupational safety practices in order to help improve safety performance and awareness throughout industry. The goal is to capture and share knowledge that could be used by other companies or sites when developing new safety practices or improving existing ones. The practices being shared have been used by an industry member, but this does not mean they should be used or that they will produce similar results at any other site. Rather, it is an option to consider when implementing or adjusting programs and practices at a site. This remains true even if a practice sharing document uses mandatory language, such as shall, must, never, etc., which only reflects a potential option to consider.

By themselves, the practice sharing documents are not standards or recommended practices. They are not intended to replace sound engineering judgment. They do not preclude the use of alternative methods that comply with legal requirements. A subject matter expert should be consulted prior to determining whether a practice sharing document can be used in any specific situation.

Discuss/Verify/Confirm

- Workers understand that 100% tie off means one hook must be anchored at all times
- Company requires use of fall protection at heights 6’ (2m) or greater unless local regulatory requirements are more restrictive
- The anchor point meets regulatory/ company requirements
- The position(s) of anchor points allow for 100% tie off
- Work area has been assessed for sharp edge hazards and protected where applicable

Selecting an appropriate anchor point for your fall protection system is an essential part of protecting yourself and your workers from fall hazards.

AFPM Resources

AFPM Video: Anchor Points



AFPM Resources

- What makes a good anchor point?
- Fall Protection Device: “Cheater”
- Know your Anchor Points
- Anchorage Points
- Self-Retracting Lifelines
- Horizontal Lifelines
- Vertical Lifelines
- Warning Lines

Other Industry Resources

- IOGP’s Life Saving Rules—iogp.org/workstreams/safety/safety/life-savingrules/
- Toolbox from Energy Institute—toolbox.energyinst.org/home

These resources can be used in safety meetings with your co-workers and contractors. Together we can reaffirm our commitment to safety excellence and work towards a future where every worker returns home safely at the end of the day.

Questions for Leaders and Supervisors

- What are your company’s requirements for anchor points? How do line workers access that information?
- How do you know that all workers understand what 100% tie-off means?

After reviewing the resources—test your knowledge





ANCHOR POINTS

Having a proper anchor point is key to any fall protection system. Review the guidelines below to ensure what you tie off to is adequate!



DID YOU KNOW?

INCORRECT TIE OFF/ANCHORAGE IS THE MOST COMMON FAST AUDIT FALL PROTECTION FINDING.



WHAT'S A GOOD ANCHOR?

When selecting an anchor point, it must be able to hold at least **5,000lbs** and should be as **directly overhead as possible**. Here are some acceptable anchor points:

- Horizontal and Vertical Scaffold Bars
- Structural Steel
- Engineered Anchor Points
- Non-Insulated Piping

BAD ANCHORS

Avoid Tying Off To:

- Diagonal Scaffold Components and Trigger Guards
- Fire Suppression Systems
- Insulated Piping
- Swing Gates/Ladder Rungs/Hand Rails
- HVAC Equipment
- Cable Trays/Steam Tracing



HAVE YOU EVER SEEN ONE OF THESE?

This fall protection device is called a cable pass-through anchor wrap, or commonly referred to as a "cheater" or "choker". When used properly, they are wrapped around a beam, pipe, or other structural component to create a secure anchor point. However, when not used correctly or in the right scenario, they will increase your fall distance.

WHEN USING A CHEATER:

- Should only be used as a last resort if there is no other means to tie off.
- The anchor point should be above your head.
- The device should be choked around the component you are using for an anchor (not in the basket configuration).
- They should be inspected the same as any other piece of fall protection equipment.

THINK YOU KNOW WHAT GOOD LOOKS LIKE?

Test your knowledge for a chance to win a prize!





Working at Height

Host: Because our work regularly requires us to work on elevated surfaces and climb approximately 80% of the time, fall prevention and protection must always be a priority for each of us. Falls from heights can happen in any part of the workplace, and often result in serious outcomes including disabling injuries and even death.

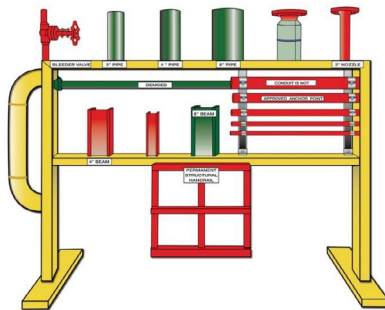
Host: Hello and welcome. I'm _____

Host:

- Fatalities caused by falls from elevation continue to be a leading cause of death for construction employees
- But one thing we can all agree on is **Those deaths were preventable.**

Host (Voice Over):

- After inspecting the harness and lanyard and making sure it is fitted correctly, we need to choose where to connect the lanyard to stop a fall
- OSHA tells us that anchorages must be able to hold 5,000 pounds
- An SUV or truck weighs from 3,500 to over 6,000 pounds
- So before you tie off, ask yourself will that hold the weight of a truck?
- In our industry, we can say some common good choices would be
 - Pipe 4 inches or larger or beams 6 inches or larger
 - Avoid connecting to
 - insulated lines,
 - conduit,
 - screw pipe,
 - valves,
 - structural handrails
 - or PVC-type lines



Know Your Anchor Points

- Safe to Use
- Unsafe to Use



Know Your Anchor Points

- Safe to Use
- Unsafe to Use

- If working on a system scaffold, some good choices would be
 - Scaffold legs, rosettes, or bearers and handrails
 - Avoid connecting to
 - Diagonal braces
 - Ladders
 - Swing gates
 - Swing gate dead legs or horizontals

Host: Thank you for watching. Have a great day and be safe.



Module: Working at Heights
Topic: Anchorage Points

Objective:

This lesson will discuss determining acceptable fall arrest anchorage points.

Key learning objectives:

- Fall protection anchorage points
- Requirements for anchorage points
- Selecting anchorage points

Group Discussion:

A personal fall protection system is only as strong as its components. Selecting an appropriate anchor point for your system is an essential part of protecting yourself and your workers from fall hazards. But how do you know what qualifies as a suitable anchorage point?

The Occupational Safety and Health Administration (OSHA) defines the parameters for a safe anchorage point as follows:

“Anchorage to which personal fall arrest equipment is attached shall be capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as part of a complete personal fall arrest system which maintains a safety factor of at least two, under the supervision of a qualified person.”

The regulation intentionally keys in on “5,000 pounds per attached employee,” because nine times out of ten a person who is not an engineer will survey a location (“eyeball” estimate) and make a good faith assessment that a particular anchorage can bear a 5,000 pound load.

Think about it this way, a single cab Ford F150 weighs 4,993 pounds so when looking for a place to tie off ask, “would this support a truck”?



Key learning knowledge check:

1. How much weight does OSHA require an anchorage point to be able to support?
2. What safety factor must a complete personal fall arrest system maintain?
3. What could you ask yourself when determining a good anchor point?

“There is no place for spectators.” We will **Break the Trend!**

Answers: 1. At least 5,000 pounds per employee attached; 2. At least two 3. Would this support single cab truck?



Module: Working at Heights
Topic: Self Retracting Lifelines

Objective:

This lesson will discuss some OSHA requirements for the safe use of Self Retracting Lifelines.

Key learning objectives:

- How to use an SRL
- SRL certification and inspection
- Rescue plans

Group Discussion:

Self-retracting lanyard/lifelines are popular devices among professionals who work at height. These fall arrest systems can save lives but they can also be dangerous if used improperly. The use of an SRL can seem easy, as it's basic functions are just like a seat belt, but it is important to pay attention to proper use.

Retractable lanyards are designed to arrest free falls within inches. The best place to use a SRL is overhead. A SRL can also attach to overhead anchor points or moveable overhead lifelines.

An SRL should not be used at your feet except in some leading edge work conditions, the SRL should remain in vertical position and should not lie on its side or it will affect the fall distance. You will need the shock pack to absorb the additional fall energy and a cable line to resist damage from a leading edge. The retractable should clearly be marked as certified for use on a leading edge.

Some retractables need recertification and some don't -- consult manufacturer's instructions for details on your SRL. A good practice would be to conduct frequent maintenance of your retractable, this will help to extend product life time, and help ensure product functionality is maximized.

A rescue plan should always be in place before using fall protection equipment. It is important to you and your employer have carefully reviewed and signed off on the plan prior to work.



Key learning knowledge check:

1. Where is the best place for using an SRL?
2. When is it OK to use a retractable at your feet?
3. Are rescue plans are still required when using an SRL?

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Answers: 1. Overhead; 2. Only in some leading edge work; 3. A rescue plan should always be in place before using fall protection equipment



Module: Working at Heights
Topic: Horizontal Lifelines

Objective:

This lesson will provide employees with an overview of horizontal lifelines and requirements of use.

Key learning objectives:

- What a horizontal lifeline is
- Uses of horizontal lifelines
- The minimum requirements for use

Group Discussion:

Horizontal Lifeline Systems, also known as HLL systems, are common in work areas lacking overhead anchor points available for personnel tie-off. In simplest form, the horizontal lifeline consists of a cable attached to two or more anchor points on an elevated work area that poses a fall risk to personnel.

When used in combination with personal protective equipment, a horizontal lifeline can arrest a fall, limiting the amount of force that is transferred both to the worker and the fall arrest system, and also serve as a fall restraint system, limiting the worker at risk, the ability to move close enough to fall over an unprotected leading edge.

While the fall restraint and fall arrest properties of horizontal lifelines make the HLL an integral part of many fall protection systems, they should only be used:

- as part of a complete personal fall arrest system,
- if it will be designed, installed, and used, under the supervision of a qualified person,
- has been inspected prior to use



Key learning knowledge check:

1. What is the simplest form of an HLL?
2. What are two things an HLL can be used for?
3. HLL's must be designed, installed and used under the supervision of whom?

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Answers: 1. A cable attached to two or more anchor points; 2. Fall arrest and fall restraint systems; 3. A qualified person.



Module: Working at Heights
Topic: Vertical Lifelines

Objective:

This lesson will provide employees with an overview of vertical lifelines and requirements of use.

Key learning objectives:

- What a vertical lifeline is
- Uses of vertical lifelines
- The minimum requirements for use

Group discussion:

A lifeline is a length of synthetic fiber or steel wire rope attached to an independent point of anchorage, and is typically used in conjunction with a fall arrest device such as a rope grab.

This type of lifeline is commonly used when the need to move long distances vertically is present with the need for fall protection while working at heights. A good example in our industry is while painting tanks, roof work or any task that requires working from a suspended scaffold or staging.

When using a vertical lifeline it is important to remember the following:

- Vertical rope lifelines shall be made of synthetic fiber rope and will be inspected prior to each use.
- Lifelines must be used with approved rope for lanyard attachment.
- Lifelines must be anchored at the top to structure capable of supporting 5,000 pounds impact loading.
- Lifelines must be protected from sharp edges, e.g. softeners.
- Softeners should be secured in place to prevent accidental displacement.
- Lifelines should not be spliced and must reach the ground or working level.
- Each person must have an individual lifeline and rope grab.
- Lifelines must be attached independent of any rigging devices.



Key learning knowledge check:

1. When are vertical lifelines commonly used?
2. What must lifelines be anchored to?
3. What must lifelines be attached independent of?

“There is no place for spectators.” We will **Break the Trend!**

Answers: 1. When the need to move long distances vertically is present with the need for fall protection while working at heights; 2. Structure capable of supporting 5,000 pounds impact loading; 3. Any rigging devices



Module: Working at Heights
Topic: Warning Lines

Objective:

This lesson will focus on the use of warning lines for workers approaching an unprotected edge.

Key learning objectives:

- Warning line materials
- Warning line distances
- Safe use practices of warning lines

Group Discussion:

Construction trades that don't do roofing work can also use warning lines to alert workers who are approaching an unprotected edge of a roof, floor, or other work surface. The warning line can be a rope, wire, or chain.

Setting up a warning line. Set up the warning line so that it keeps workers at least 10 feet back from the unprotected edge. This "setback" distance should eliminate the exposure and the risk that a worker could fall over the edge. You may need to increase the distance to eliminate the risk in some situations.



Factors such as weather, visibility, the slope and condition of the work surface, the work performed, materials handled, and the experience and supervision of the workers can increase the risk of a fall – even at a 10-foot setback. The correct setback distance eliminates the exposure and the risk of a fall.

Safe practices

- The work surface should be relatively flat with a slope of 2:12 or less.
- The warning line should be 34 to 39 inches above the work surface.
- The warning line should be rope, wire, or a chain.
- The warning line should be flagged at least every six feet.
- Stanchions that support the warning line should be able to withstand a force of at least 16 pounds, applied horizontally in the direction of the unprotected edge, without tipping over.
- No workers can enter the area between the warning line and the unprotected edge unless they are protected by a fall protection system.
- Never use a warning line as a substitute for a guardrail.

Key learning knowledge check:

1. What materials should warning lines be made of?
2. What is the minimum set back distance of a warning line?
3. What should a warning line never be used as?

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Answers: 1. Rope, wire or chain; 2. At least 10 feet back from the unprotected edge; 3. A substitute for a guardrail