Fall Prevention and Fall Protection

Safety Standards

Plan for your safety during any high place work areas such as tower maintenance, roof tops and platforms.

Your job as a telecommunications technician does place you at risk for: a dangerous fall, being hit by falling objects while observing a tower crew working several feet above the ground, slipping or dropping something while moving equipment, walking and driving through dark and inclement weather conditions are a few of the obvious risks.

Hard Hats

Safety Harness

There are many practices and tools that are available to prevent persons from falling and minimizing the effects of a fall.

Using fall restraints and fall protection devices correctly
Using ladders correctly

Ensuring the use of the safety strategies presented during this presentation and training overview you will dramatically decrease both the likelihood of falling on the job and help ensure the chances that someone will be seriously injured or killed if they do fall. You will also be informed of what to look for while monitoring a contracted tower crew and individuals that may access our towers in your presence.

After the training you should be able to describe the standard fall prevention and protection practices

Identify fall protection and fall prevention tools.

Hard Hats:

The employer shall ensure that each affected employee wears a protective helmet when working in areas where there is a potential for injury to the head from falling objects. The employer shall ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.

Select effective prevention strategies for typical telecommunications situations

There are two ways to minimize the risk

1. Prevent yourself from falling
2. Protect yourself from the impact if you do fall

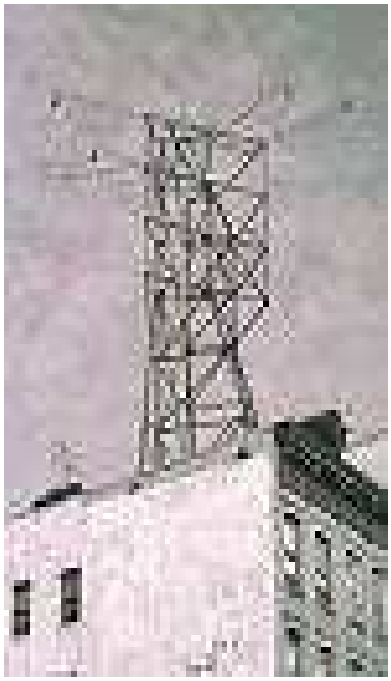
Remember: No fall prevention strategy guarantees that you never fall so the wisest course is to use both fall prevention and fall protection measures.

OSHA requires that fall protection measures be used whenever the possibility exists for someone to fall **four feet or more.**

Although your company is responsible for taking certain fall protection and prevention, most of these measures require **you to do your part**. Use PPE Correctly and make sure that others that are working near you also do their part.

Many fall protection and fall prevention measures are in your hands entirely.

A telecommunications tower may be free standing or located on a roof.



Roof Top

Platform

Typically the tower will have several communication racks near by either at floor level or on an elevated platform.

Communications Racks

Outdoor Cabinet

Most towers are accessed by a **caged ladder**. Safely getting items such as tools, cable reels, meter gauges and the like can be a challenge. **A pulley system** can rectify the problem allowing you're to clime the ladder then pull up the items needed.

Standard guardrails should protect the platform edges. There will be a gap the top of the access point. When you open the gate you may want to use a chain across the access point as a safety precaution when not in use.

Not Compliant

There should be a standard guardrail around the platform. A standard guardrail meets many **OSHA requirements and is 42 inches high with 21 inch mid-rail and a 4 inch toe board requirement is to withstand 200 pounds**

No Toe Board present

The toe board is important because it prevents you and your tools from sliding under the mid-rail. Guardrails only go so far to prevent you from falling. The presence of a guardrail does not mean you shouldn't use personal protective equipment, fall prevention or your own common sense.

Do not ever get careless at or near the edge of a guardrail and do not ever stand on any part of the toe board or railing.

Not all surfaces have guard rails – for these circumstances other protection gear and prevention measures are necessary.

Roof tops have sky lights and hatchways – OSHA requires a skylight to be guarded by a skylight screen or standard railing – OSHA requires a hatchway to be covered by a hinged hatch cover or railing including a toe board. If you notice that the appropriate equipment or protection is not installed, be sure to alert the appropriate personnel to correct the problem.

Most fall protection and prevention are considered active because they require action on someone's part to make them effective. Workers need to plan ahead to make sure they have the correct and proper **Personal Protection Equipment** (**PPE) WITH them**. Field techs jobs require that they be on location and travel more than many other people. You also need to be active in alerting the appropriate personnel to unsafe conditions you see and opportunities you see to enhance safety. In some cases this will require working with persons out side of your company such as building owners, tower owner's tower maintenance crews and contractors.

Most guard rails, gates, screen covers are considered passive because it only needs to be maintained.

TWO important safety gears regarding PPE are:
Fall Restraint and Fall Arrest

Fall restraint systems keep you from falling over an edge on into a hole

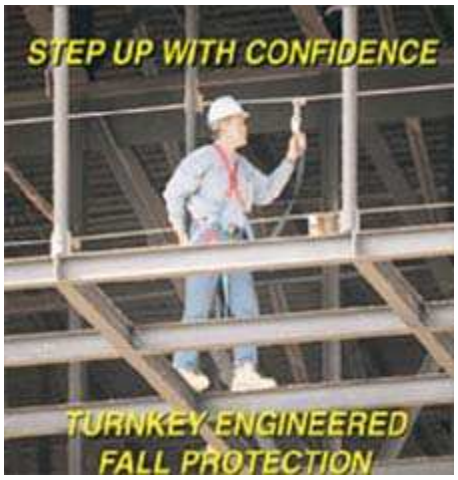
Fall arrest systems do not prevent falls they catch you if you do fall and minimize injuries

Both systems include
Body harnesses
Anchor points
Connectors

None of the systems work unless installed correctly and used properly
(Body belts are prohibited for fall protection purposes – many people still use them as part of a system however they are not recommended). Below are examples of PPE.

D-Ring

Secured to Fall Arrest System
Hard Hat missing MUST be worn



Proper Anchor Point and PPE

All though the ad states fall protection - according to OSHA - the fall protection and fall arrest systems are needed to restrict the fall and keep workers from being harmed further if they do fall.

Harnesses won't work unless they are worn correctly – Harnesses come in several styles, so familiarize yourself with types and uses. Pay particular attention to the chest strap, (sub pelvic strap- across the bottom of buttocks strap) part of Leg Straps, shoulder straps and D-Ring.

The chest strap should be snug enough to keep the shoulder straps from falling down Make sure the leg straps are snug. By placing a hand between the strap and the leg – if a fist can be made it is too loose. Remember the leg straps will move up in the event of a fall the person wearing the PPE does not want to cause additional injuries. Make sure that the sub pelvic straps are positioned correctly – make sure they are not twisted and the back is positioned just under the buttocks. Position the D-Ring between shoulder blades. The person wearing the PPE must make sure the anchor point is strong enough to hold them. **OSHA requires the anchor point to be able to with stand 5000 pounds**. Remember falls can exert tremendous force. Look for I beams and concrete columns to use for anchor points. All tower crew personnel and contractors should evaluate all of the sites to plan ahead for the best anchor points to use when on location. Consult the crew supervisor if you are in doubt whether a chosen anchor point is adequate.

NEVER use a guard rail because they are designed to withstand only 200 pounds.

The anchor point should be a high as possible. The lower the anchor point the further the crew personnel will fall. Make sure the anchor point is at least as high as the D-Ring. Stay under the anchor point as much as possible. If any personnel move away from their anchor point and fall – they could swing thus causing more injuries, plus the lanyard could be cut on a sharp object and workers could swing and hit another object.

When your anchor point is lower than you are you will not be properly protected

Make sure tower crews have the right connector for the weight and job they are doing. Their harness is only as strong as its weakest link. When purchasing connectors be sure to validate their weight limits

Appropriate connectors include:
Shock absorbing lanyards – carabineers – Beam straps

The details of using fall restraint systems depend on:
The particular equipment available
The job task

Be sure to familiarize your self with these and plan ahead so you are prepared to monitor tower crews and contractors.

Ladders cause 300 deaths per year and ½ million injuries

USE THE RIGHT LADDER FOR THE JOB Consult Ladder safety labels to find the right ladder for the job.

Do not use make shift ladders - Never stand on a box it could cause injury

Non-Compliant Ladder

Smart Dog !

Check ladders for cleanliness and condition, Use care near doorways, Never set a ladder in front of a door way. Never set a ladder behind or where a door will open into the ladder unless the door has been secured and the caution cones have been set up to secure the area while you are working near the door. Always tie the down for proper safety, use arch of foot on rungs, hold on to side rails with at least one hand, face ladder when climbing. **Use 3 points of contact 2 feet one hand or 2 hands and one foot.**

Below are many examples of ladders.






Note the tool belt and proper PPE and Anchor Point


Carry tools in a tool belt or use a pulley system to pull them up after you have climbed the ladder, have another person hand you the items after you have climbed the ladder. Workers should always plan ahead to avoid carrying anything while climbing a ladder.

Don’t reach too far while on a ladder. Never use metal ladders near electrical equipment.

Why Electricity Is Dangerous

You’ve probably been shocked before – by static electricity, like when you walk across carpet and touch a doorknob.

But a real electric shock is a lot more painful than that, and a lot more dangerous. Here's what can happen:

- Muscles tighten up, making it almost impossible to pull away from the circuit.
- Lungs constrict, making it hard to breathe.
- Heartbeat is interrupted and blood vessels tighten.
- Burns occur where the electricity enters and leaves the body.

It sounds scary, and it is - but if you remember the safety rules, you can use electricity without getting hurt.

Humans are good conductors

Did you know that the **human body is a good *conductor* of electricity**? That means that electricity flows easily through our bodies. Why? Because electricity moves quickly through water – and the human body is 70 percent water!

Another fact you need to remember is that **electricity always tries to find the easiest path to the ground**.

This picture shows what could happen if someone accidentally knocks a metal ladder against an unprotected power line:

- The ladder comes into contact with the energized power line.
- The electricity travels through the metal ladder to the man’s hands.
- The electricity quickly moves through the ladder and the man’s body, trying to find the easiest path to the ground.

The power lines around your home have a protective covering.

But it's only to protect the power line from weather – NOT to protect you from the electricity.

Accidents happen quickly

You might think that if you get shocked, you can pull away quickly and not get hurt. But **electricity travels at the speed of light**, so a person has almost no chance of pulling away.

And if the electricity is strong enough, it can cause the victim's muscles to tighten up so much he or she can't let go.

Anyone who touches someone who is being electrocuted can become part of the circuit as well. That's why you should never grab on to anyone who's been shocked.

Look for the safety label and make sure the ladder has not been altered. Check every aspect of the ladder rungs, non slip surfaces sides. Any unsafe condition should be tagged out. Make sure that pale shelves are not loose or damaged, side hinges are not rusted or bent or twisted. Avoid overhead wires.

Fixed ladders – should be shielded with a cage – make sure ladder is secured to the building or structure, standing surfaces are not bent or rusted, swing gates and protective chains are not missing. All cages are required to have a locked gate to ensure only authorized use. When ladder is open make sure the spreaders are fully extended and locked.

Extension ladders – inspect the following: extension mechanisms, Rung dogs or locks, pulley system, ropes, rail guides, braces, end caps and closures – When setting up an extension ladder face the rung dog openings toward the structure, stabilize the ladder as you extend it by placing your foot on the bottom rung after the fly section clears it.

Set up on level surfaces free of debris – If you must set on uneven ground you can use a ladder leveler or use a shovel to level out the uneven area or plant level base secure brace.

If your ladder has flexible feet: Turn them horizontal on hard surfaces – plant the feet vertical on soft surfaces by turning them at right angles to the side rails.

For ladders the height of the support determines the angle and distance of the base and the structure against which it leans. Place the ladder so it is approximately one foot out for every four feet of support point height. You need to secure ladders by staking it the base surface, tying the top of the ladder to eye bolts or have someone hold the ladder at the base.

Keep both feet and an at least one hand on the ladder. Do not get on the ladder when anyone else is on it.

Never leave a spill on any surface. A sticky spill could lead to a trip and fall. A slick spill could lead to a slip, slide and fall. Always clean up any spill with the appropriate and approved solution for the substance spilled.

Sometimes it is necessary to transport a generator a COW or fuel for the generator. Sometimes it is necessary to move and relocate equipment. It is equally important not to let objects such as tools to fall, fuel to leak, loose trailers on road ways and any objects carried in an open truck bed to fly out of the truck bed when driving.




Height is above 4 feet Safety glasses and approved gloves needed
Hard hat needed PPE required

There are moving parts and lubricants used on trailers. While it is necessary to keep hydrated especially in hot weather you should be very aware not to spill drinks or food. You should be very careful not to spill or leave residue of fuels or lubricants.

Proper fuel clean up -
Must be reported to EPA

Fuel spill fire

Slips and falls can occur while walking on ground level or when moving equipment. Always be sure to inspect the path you will take while walking or moving any equipment.

Sometimes it is necessary to move and relocate equipment. Check the area you drive through and walk through.

Falls also happen when moving equipment. You should always have assistance. Wear hard hats and safety shoes.

When moving heavy objects steel toed boots are a must. General requirements for protective foot wear: The employer shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.

Steel Toe Boots

Tail gate not closed contents may fly out. Always make sure to close the tailgate or properly secure ALL contents inside truck bed when transporting ANYTING.