Tower Climber Orientation

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Tower Climber Orientation

Introduction

*Photo Courtesy of Sioux Falls Tower & Communications

Welcome to the Tower Climber Orientation program, and thank you for considering a career in the tower construction industry. The individual pursuing this line of work should enjoy challenging, physical, exciting, breathtaking and rewarding labor.

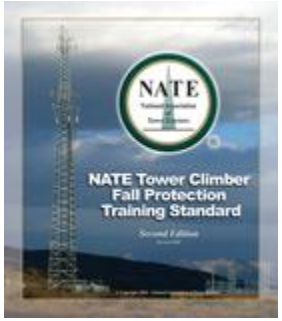
Introduction (*continued)*

Tower climbing is unique from other industries, in that before you can "go to work," you will first receive some basic training that is intended to keep you safe and prepare you for a career in the tower industry. This job is physically demanding and you will likely be required to take a physical in advance.

Tower Climber Orientation

Climber Training

You will start with a basic training program called Authorized Climber (NATE CTS/CTP). This training is designed to provide primary safety training to the climber and to allow you to understand certain regulatory compliance standards that exist. Safety is of paramount importance in this business, and the federal standards you must comply with are created to provide you with a safe work environment.



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In addition to training on federal regulations, you will also need to be well versed in your company's safety policies. Your employer should have written safety policies in the company's Safety Program for you to follow. Often, the company that contracts with your employer may have more stringent rules for different contractors with which you may be unfamiliar. Remember, OSHA standards are only minimum standards; again, this is intended to protect you, the employee, as you are climbing. You must always follow all safety rules. Safety is no accident, and cutting corners on safety can lead to a tragedy.

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OSHA, the Occupational Safety and Health Administration, works very closely with our industry, for obvious reasons. Many of the OSHA standards apply to the tower erection industry, most of which come from 29 CFR-1926, which is the Code of Federal Regulations for Construction. All regulations included in this training are for your safety and protection. Rest assured, NATE will always take a leadership role on informing the membership of new and changing safety regulations.

Tower Climber Orientation

Fall Protection Equipment – Inspection and Maintenance

You will be required to use standard equipment to perform your duties as a tower hand. You must be able to always identify all of the fall protection equipment that is needed for a particular job. You may have specific towers that require additional straps, larger lanyards or specifically designed lanyards to be able to protect you from falling. Prior to going to a job, a competent person must evaluate the structures and the environment in which you will be working.

Tower Climber Orientation

Fall Protection Equipment – Inspection and Maintenance

What will it take to truly get the job done? You will need to understand all of the parts and pieces related to your fall protection equipment. Your training will start with the full body harness including how to connect fall protection lanyards, how fall protection systems are designed and where the impacts are in relation to the body. Working more than 6 feet above the ground without being properly secured is forbidden. Your safety and fall protection equipment is intended to keep you safe while working in a potentially hazardous industry.

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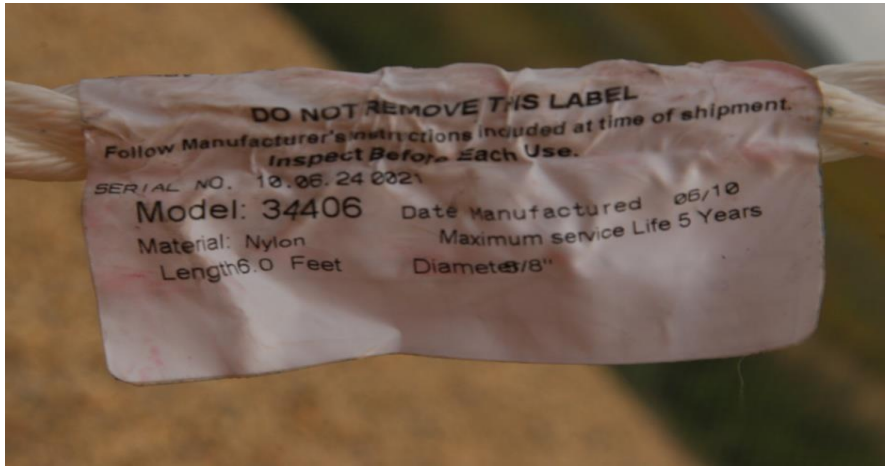
One goal of your initial training is to ensure that you completely understand your equipment, its operation and its limitations. In doing so, you will be able to safely use the equipment while on towers or in different environments.



You must pay attention to the condition of your equipment. Is the label clearly legible?

Tower Climber Orientation

Do you have holes, tears, burns or other damage to a harness? Any damage can present an unacceptable risk for you, the wearer. The manufacturer places tags on the harness that provides information such as its lifespan. Some harnesses have a 5-year life span; others may only have a 3-year life span. You need to know your equipment, how to inspect it, and what the manufacturer recommends.

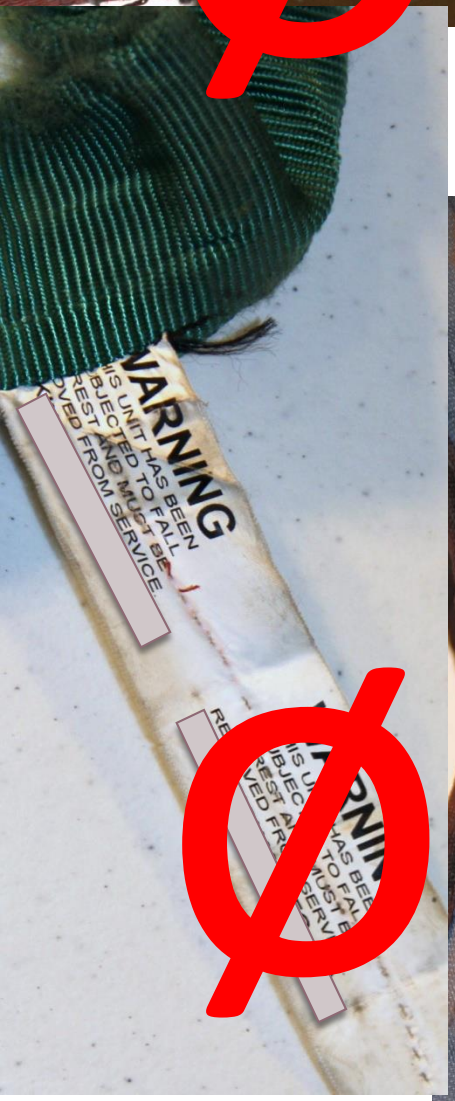
Tower Climber Orientation

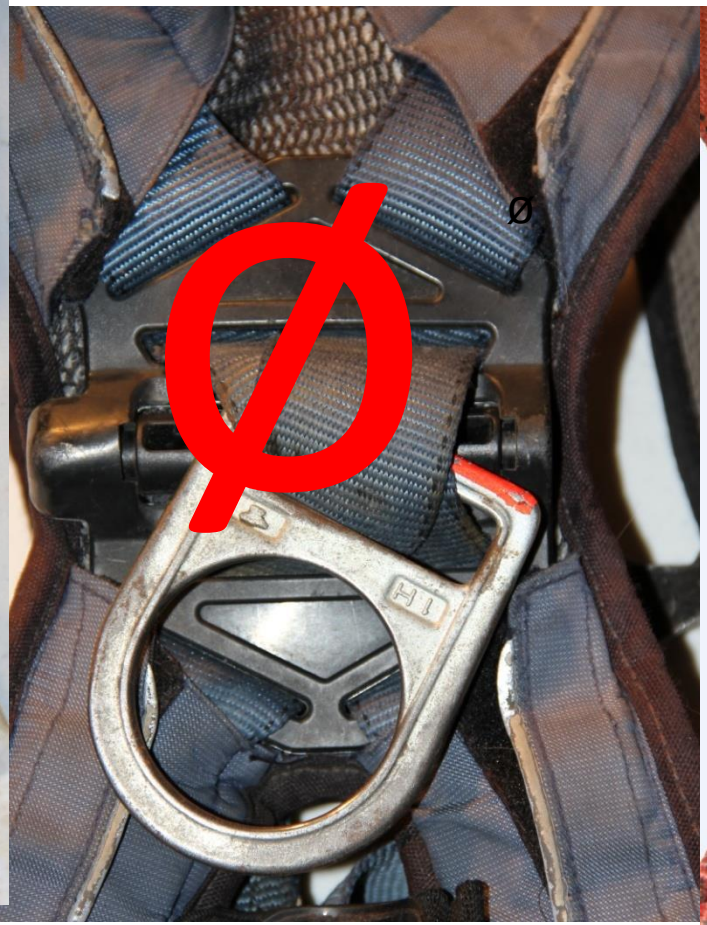
Your life rests in this safety equipment, and the need for regular inspections cannot be over-emphasized.

Your equipment should be inspected before and after **each and every use.** Through this inspection, you may identify potential failures that, if undetected, could result in a failure that may cost you your life.

Most all of your safety equipment comes with some type of written instructions. Keep these instructions in an accessible location so you can easily refer to them for critical information.

Do Not Use Defective Equipment





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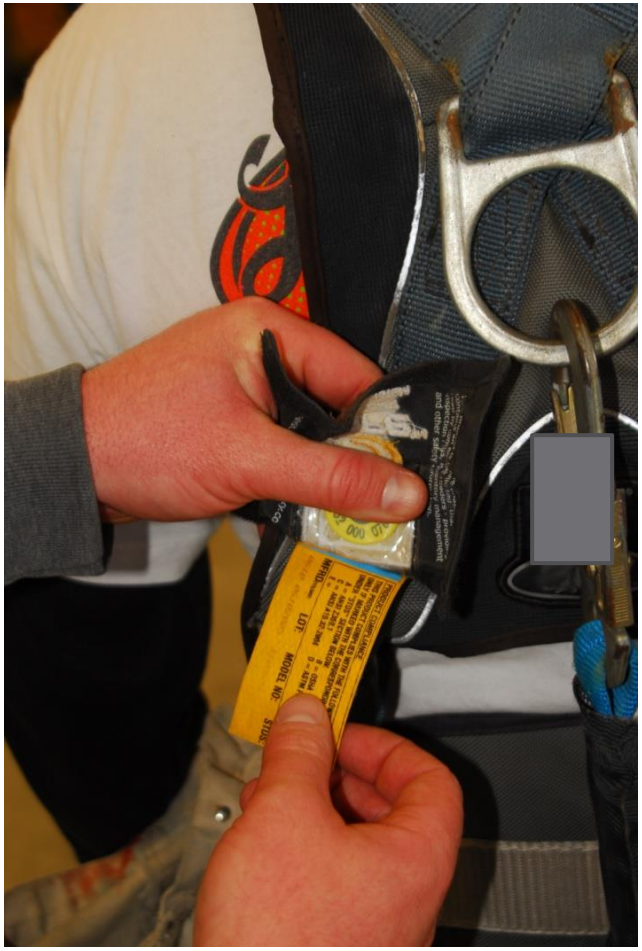
On the tags, and sometimes in the written instructions, there is additional labeling in various locations to place the record of inspection data. All inspections must be documented.



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Types of Towers

Tower work usually involves one of the following types of towers. Your employer or supervisor will help you identify each type:

- **Self-Support**
- **Monopole**
- **Guyed Tower**

*Photo Courtesy of Trisha Fribis of Mercury Communications, Inc.

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Examples of non-standard structures

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Anchorage Equipment

A portion of your orientation is to learn how to recognize anchor points.

An anchor point is the point where you attach your fall protection equipment to the tower or other structure where you will be climbing. Your fall protection equipment will support you in a vertical or horizontal position. An anchor point is a secure point of attachment for fall protection lanyards and possibly other horizontal devices depending on your work environment. You need to evaluate whether or not the anchorage point will support your full body weight if you were to fall.


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Anchorage Equipment

Safety regulations require that an anchor point is rated at 5000 lbs. per person attached to the anchor. A person weighing 310 lbs. can place up to 5000 lbs. of pressure on a fall protection device.

You must always look at the different anchor points for the tasks you will be performing when you are working on the towers.

Does the anchorage point stay in one spot when you connect it to the tower? It may produce more torque on your snap hook--the device that you have linked directly to the tower. Will you apply more pressure to the webbing if you fall at a certain angle? You may want to include devices that have padding to provide additional protection.

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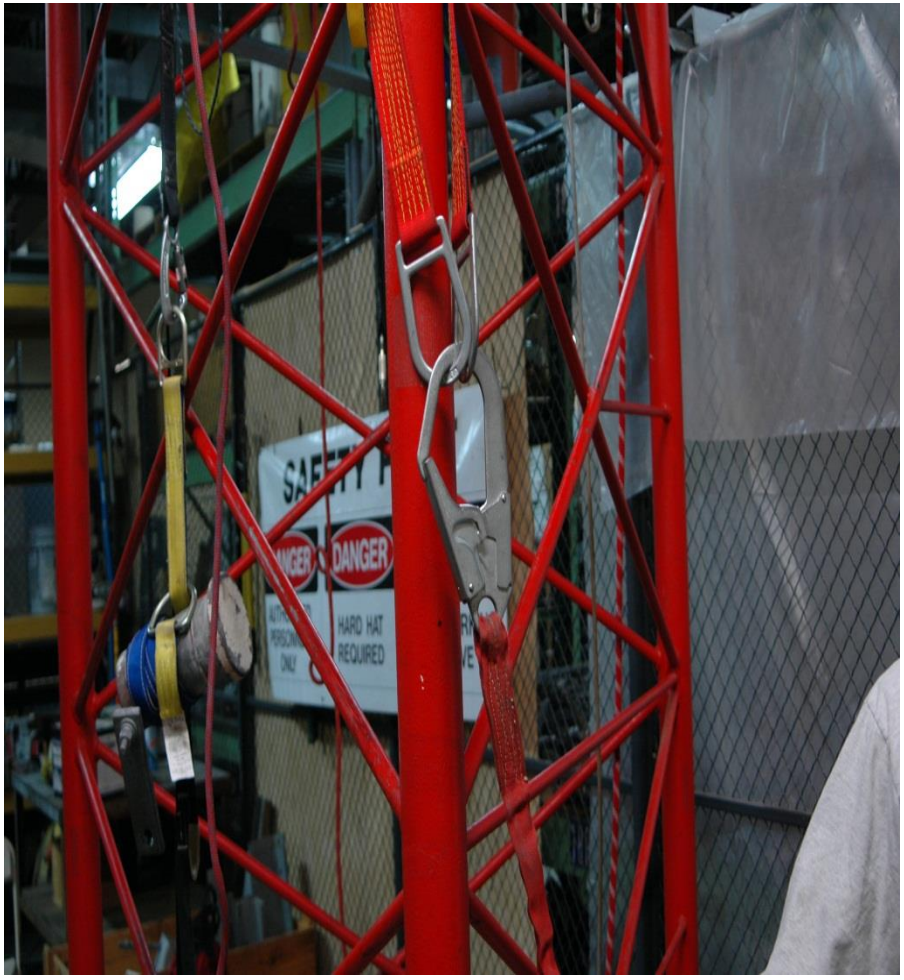
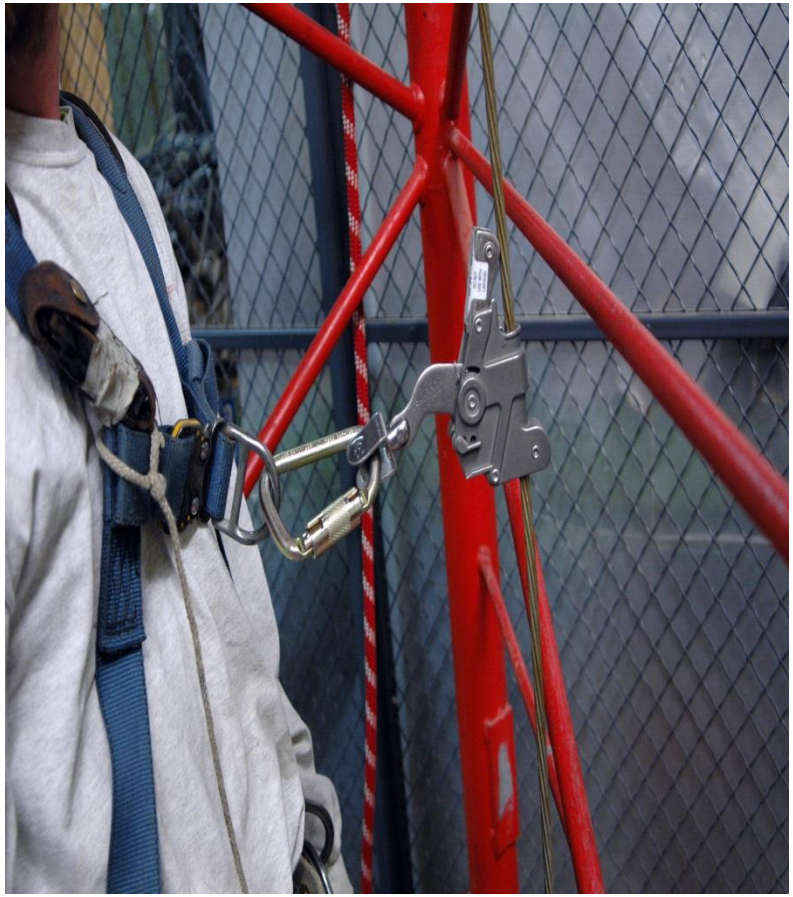
Anchorage Equipment

Disclaimer: If you have any questions, contact your supervisor or competent person to select the proper anchorage points.



Anchor Photos



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Full Body Harness

All the parts and components of the full body harness must be identified in order to understand where to attach the fall protection devices. Proper attachment prevents damage and allows it to operate as designed and intended. As you begin to understand harnesses, you will realize that there are many different manufacturers that make harnesses for specific jobs, including positioning D-rings and fall protection D-rings. Manufacturer's instructions explain the differences. It is important to understand these differences.

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Full Body Harness

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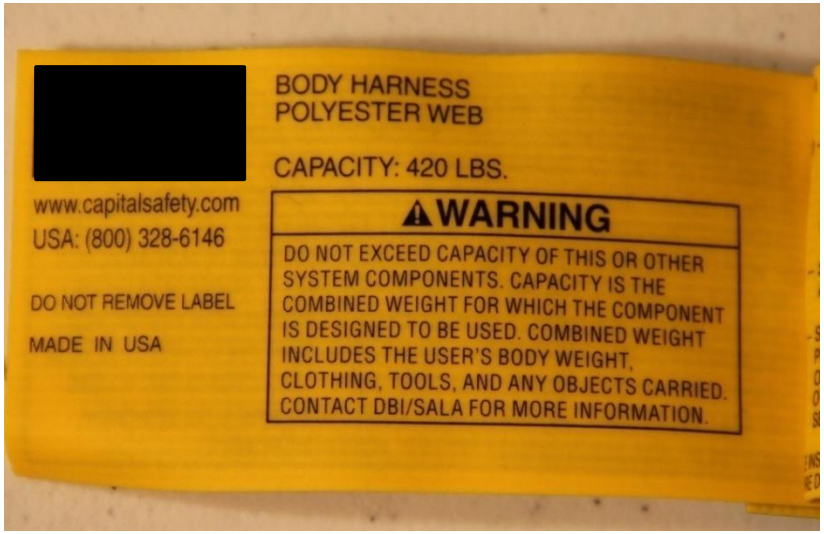
Full Body Harness

Always read the manufacturer's rating of the harness. Some will have a limit of 310 lbs. This includes the body weight, clothing and any equipment and tools you carry. Ensure your harness is properly fitted for your body size and carry load.



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Energy Absorbing Lanyards

There are many types of energy absorbing lanyards. Learn to recognize the different kinds. The energy absorbing lanyard is a flexible rope or webbing with an energy absorbing device with connectors at each end. These connect to the full body harness and for some, an anchor point on the tower.

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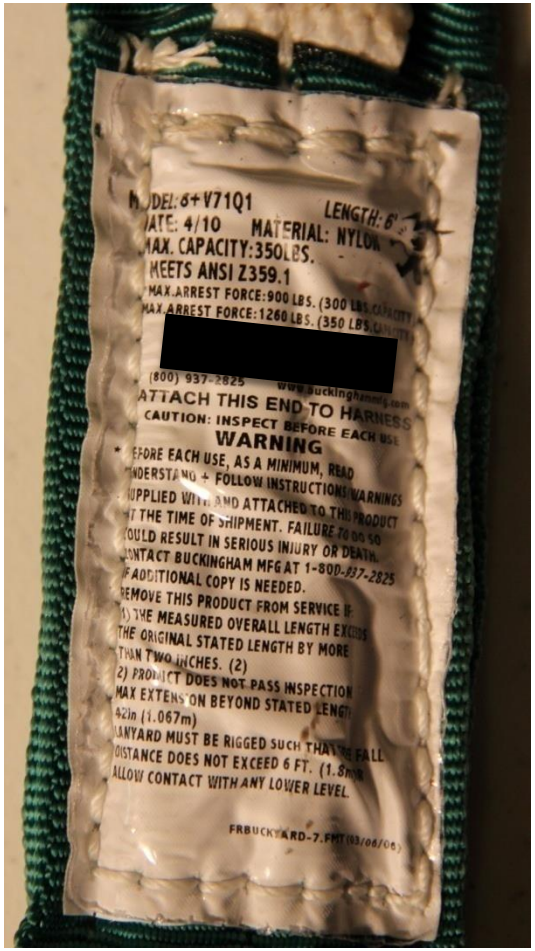
Energy Absorbing Lanyards



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Full Body Harness

- Your supervisor may choose the type of equipment for the job, or it may be dictated by company policy. Always follow OSHA regulations for fall protection on the specific jobs you are doing.
- Multiple types of self-closing/self-locking lanyards with connection devices will be used. Snap hooks must be self-closing/self-locking. Follow the manufacturer's recommendations.

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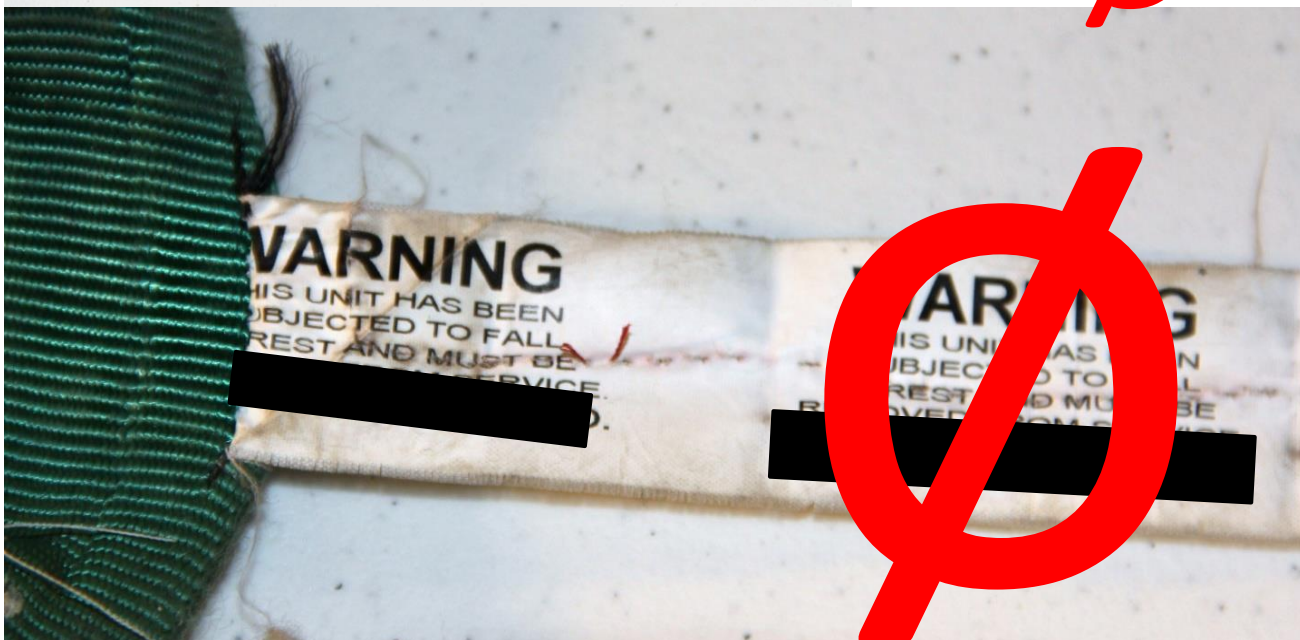
Full Body Harness

- To inspect these lanyards, look for tears, cuts and torn stitching. Do not hang on them. Do not lift things up with your life safety equipment.

- This equipment is designed to support you if you fall. If at any time you question the quality of an energy absorbing lanyard, have it inspected by a competent person or the manufacturer.

Do Not Use Defective Equipment



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Federal regulations for fall protection are to prevent a fall of more than six feet. You may have more stringent state regulations that require fall prevention of distances less than three feet. Your company should have the regulations and the proper equipment to meet the regulations of any OSHA or state regulations that may apply. With the energy absorbing lanyard of six feet, you can have a total fall distance of up to 9 ½ feet. Pay attention to what you might come into contact with, before the lanyard is stretched to its full length.

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Positioning Lanyards

A positioning lanyard allows the climber to be supported on an elevated vertical surface and to work with both hands. Horizontal issues may apply as well with these, but it gives the employee a way to utilize the system to connect to the tower and be able to work using both hands while attached with 100% secure contact points. The common practice is that you still have an energy absorbing lanyard connected to a different point on the structure than the point where the positioning lanyard is connected.

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- This provides a check and balance system for the climber, in case the point on the structure that the work position lanyard is connected to fails, a backup point protects the climber and prevents a fall.

- There are a variety of types of work positioning lanyards. Some are adjustable and some are fixed. Adjustable lanyards are engineered with a slide device that allows movement up and down on the rope line, but will not come off the ends. This allows you to adjust to different work environments and get closer to or further away in order to make it easier to work. Fixed position lanyards come in different sizes. A selection of the right size will depend on how you attach them to the tower and whether you place your body closer to or further away from the system. Again, different snap hooks can be applied to the ends, depending on the job to be performed on the tower.

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Positioning Lanyard

Always check with the manufacturer for the recommended location for the proper anchorage point connections to the positioning lanyard.

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Snap hooks, D-rings and Carabiners

There are many different types of connectors. Standard snap hooks are comprised of a hook shaped member with a closed keeper or similar arrangement. These may be manually opened to permit the access onto an object and then released to automatically close.

Tower Climber Orientation

Snap hooks, D-rings and Carabiners

As of January 1, 1998, the use of non-locking devices for fall protection and positioning is prohibited. All types of snap hooks must be auto-locking. Never force a snap hook over an object. This could cause breakage and the device would need to be removed from service.

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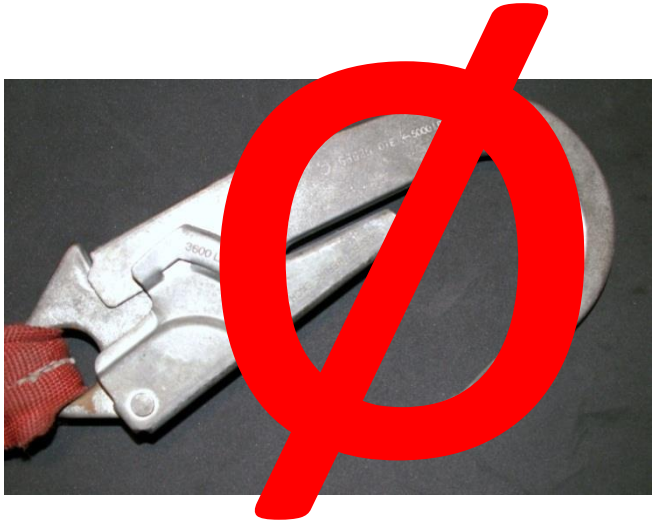

Not Closing Automatically

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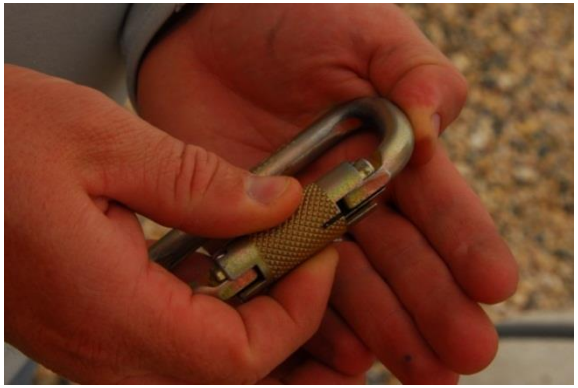
Snap hooks, D-rings and Carabiners

- Carabiners can be used in place of snap hooks.
- They must be self-closing/self-locking.
- Steel or aluminum is acceptable if within standard 5000#/KN22 weight bearing load.



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Snap hooks, D-rings and Carabiners

Examples of D-rings

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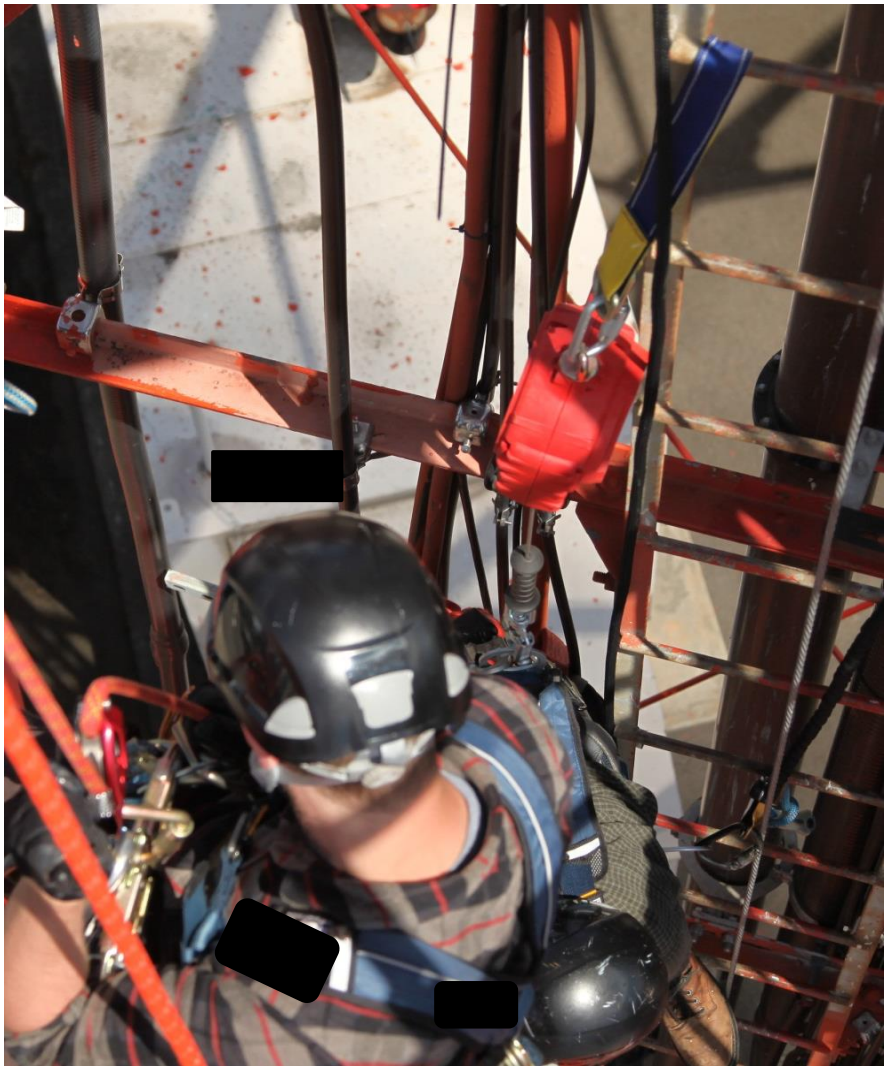
Self-retracting Life Lines

Depending on the individual situation, some companies use self-retracting life lines on towers. This allows the climber to move around and still be protected in the event of a fall. If the climber falls for any reason, the device will "arrest" itself automatically to stop the fall. Companies shall have policies in place for the use, inspection and maintenance of the self-retracting life lines.



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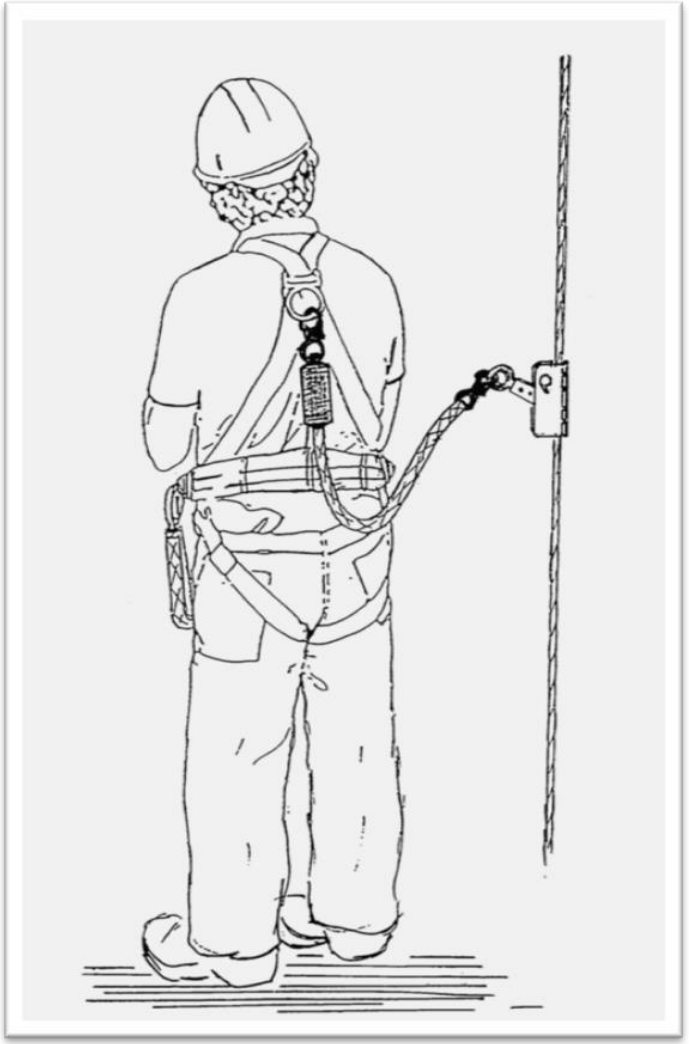
Vertical Life Lines and Rope Grabs

- A **vertical life line** is a flexible line that connects to an anchor, hangs vertically and is used for fall protection. Life lines are required to be made of synthetic fibers that will not rot or decay.
- Use engineered systems that have snap hooks with connecting devices to the end of a vertical line. Rope life line systems are rated for single person use. Do not use it for more than one person at a time. Rope grab devices are designed for different size and textures of rope.



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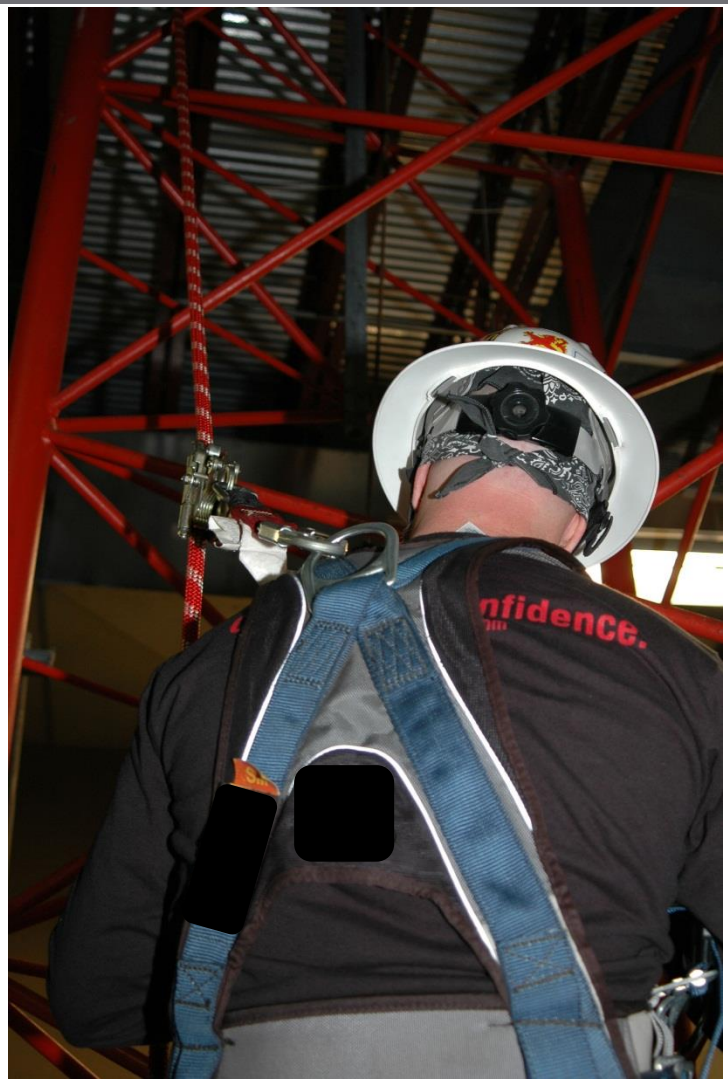
Vertical Life Lines and Rope Grabs

- Rope Life Line Systems cannot be attached directly to you. They must be attached to an energy absorbing 3 foot lanyard with compatible connections.
- They will usually trail behind you as you climb up and down.



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Ladder Climbing Systems

Ladder climbing systems provide protection with a wire grab device while ascending or descending the tower ladder. Make sure that your safety attachment device is compatible to the tower mounted system. Refer to the manufacturer's recommendations to know if the system is designed for only one person. If the system can support two people, there may be requirements for space between the climbers as well.

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Proper Climbing Techniques

When preparing to climb, you should first inspect all of the equipment and the structure. Inspect the work environment for unsafe conditions such as pending bad weather, trash and debris at the base of the tower, or remnants of past weather such as snow or ice already on the tower. Report any unsafe conditions to your supervisor, foreman or the competent person on the jobsite. You will learn to anticipate other related hazards.

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Proper Climbing Techniques

- Secure any tools or other gear that will be carried up and down the tower. Dropping equipment puts others in danger. Communicate with other climbers or people on the ground, so they can react to protect themselves.

- Basic safety equipment like a hard hat, eye protection, leather gloves, proper climbing boots, positioning lanyards and harnesses are all needed to climb safely. Your employer will set the standards of equipment needed.

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Proper Climbing Techniques

- You must maintain three points of contact at any given time while climbing, such as two hands and one foot, or two feet and one hand.
- Look ahead for the proper path and any obstacles you might encounter.
- You should be relaxed and use your legs to support your weight. You should properly pace yourself when climbing to prevent fatigue.

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Rescue

Accidents and injuries above ground level are always a concern. You will be trained in tower rescue techniques, when your employer deems you are ready for this advanced training. Rescue training prepares you by teaching rescue methods that will assist in saving the life of a co-worker, a friend or even yourself. Above ground accidents that might require a rescue can be something as serious as a system failure or as simple as an allergic reaction to a bee sting.

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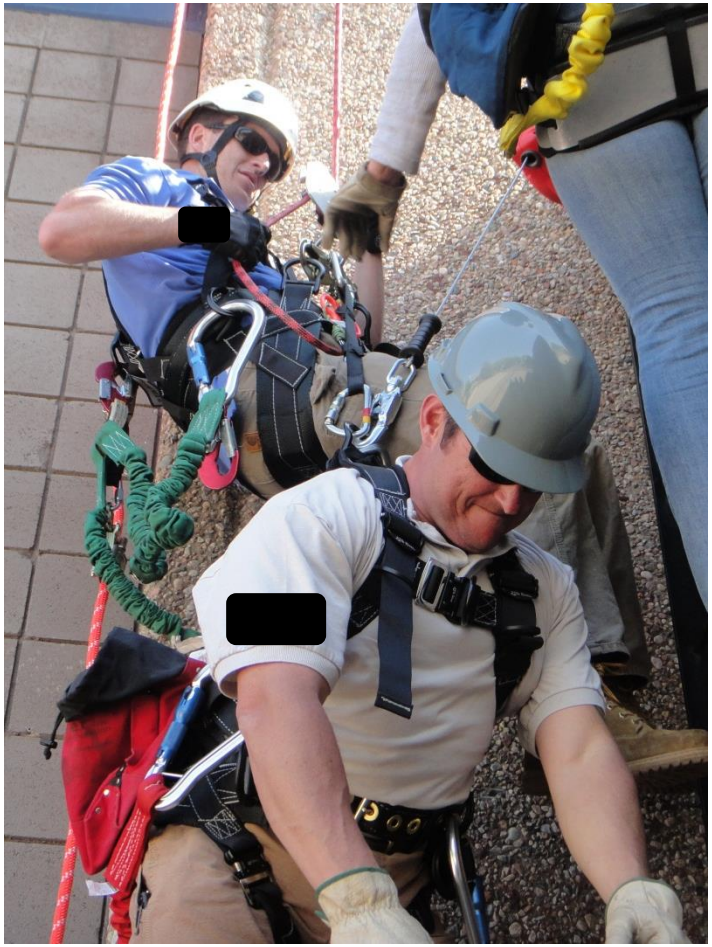
Rescue

- In a rescue situation, you may have to help a co-worker climb down the tower, or you may have to secure them and then lower them to the ground.
- Remember that emergency workers are not always skilled at climbing rescues, so it is important to have team members that are trained to rescue climbers. Common practice is no less than a minimum of two CPR/First Aid & Rescue trained employees onsite.



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- In conclusion, remember, as a new employee working at heights you need to protect yourself by understanding safety regulations, your safety equipment, your fall protection equipment and your tools. Follow the rules set by your company, as well as OSHA regulations.
- Like any occupation that involves risk, training will be a constant. Put what you learn to use. It will protect you and those around you.

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We are pleased you are considering a career in the tower industry. It is not for everyone, but those who work in it will tell you it is enjoyable, rewarding and challenging.

Qualified Contractor Evaluation Checklist

Benchmarks of Experience and Professionalism

- ❑ Appropriate insurance coverage
- ❑ Experience, references and capability to work
- ❑ Written safety program and regular safety audits
- ❑ Site-specific safety plan
- ❑ Competent person on-site

Prepared Employees

- ❑ Appropriate and documented training
- ❑ Physically able to meet job demands
- ❑ Drug tested

Safety on Site

- ❑ Conduct a hazard assessment
- ❑ Maintain good housekeeping on the job site

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Qualified Contractor Evaluation Checklist

Provide Notification and Records

- ❑ Provide an orientation and awareness program for new hires
- ❑ Maintain written records of the safety audits
- ❑ Maintain written documentation of all training as required

Follow Guidelines

- ❑ Agree that subcontractors hired will meet all the same contractor requirements
- ❑ Adhere to the provisions of OSHA Directive CPL 2-1.36
- ❑ If required to maintain OSHA 300 logs, have logs available for the past two years

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About National Association of Tower Erectors

- Experienced in establishing industry best-practices for safety since 1995;
- Voice of tower erection, service and maintenance industry; and
- Industry leader in tower safety through education and standards.

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NATE would like to recognize all past and present members who contributed to this project.

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