

Tower Climber Safety

By Joel Deis

Certified in Tower Climbing Safety & Rescue

Did you know that according to the Department of Labor's Bureau of Labor Statistics, tower climbers and erectors have the most dangerous job in America? In 2004, the death rate per 100,000 workers was 115.2, placing the profession above commercial fisherman (think "Deadliest Catch" crab fisherman) and logging workers. Why is tower climbing such a dangerous job? Communication towers are designed to be extremely efficient structures, in some cases, rising to over 2000 feet in height. This efficiency comes at a cost, as there are many towers that do not provide the climber with adequate climbing facilities and proper tie-off points. Additionally, working on a tower is often very difficult since there are typically no work platforms for the climber to work from. These difficulties, along with working in an environment where the climber can run into extremely high winds, icy tower members, aggressive birds and stinging insects, creates a lot of risk for the climber.

There are several rules governing the tower climbing industry as set forth by OSHA, so why does this profession remain so dangerous? Generally, this is because of inadequate training, insufficient equipment, improper use of equipment and more typically, a combination of all three. In many cases, proper training and good judgment can greatly improve the safety of the climber. OSHA requires that climbers utilize 100% tie-off. This means that whenever a climber is more than 6 feet above the ground, they must wear a full-body harness that is tied off in at least one suitable location at all times. Using a safety cable climb when available, or using two or more lanyards when moving on the tower achieves the 100% tie-off requirement. Utilizing two lanyards when climbing allows the climber to have one lanyard attached to the tower while the second lanyard is moved to a new location along the climber's path. Below you can find a table showing the required tower climber equipment as well as additional, highly recommended, equipment. All tower climbers should have these items in their bag:

Tower Climber Safety Equipment Checklist

Item	Required/Recommended
<input type="checkbox"/> Full-Body Harness Designed For Tower Climbing**	Required
<input type="checkbox"/> Dual Leg Shock Absorbing Lanyard or Equivalent	Required
<input type="checkbox"/> Safety-climb Cable Attachment Device (Cable Grab)	Recommended
<input type="checkbox"/> Head Protection – Climbing Helmet	Required
<input type="checkbox"/> Hand Protection – Gloves	Required
<input type="checkbox"/> Foot Protection – Steel-Toed Boots (rigid sole recommended)	Required
<input type="checkbox"/> Eye Protection – Clear or Tinted Glasses	Recommended
<input type="checkbox"/> First Aid Kit	Required
<input type="checkbox"/> Two-Way Radio	Recommended
<input type="checkbox"/> Positioning Lanyard	Recommended
<input type="checkbox"/> Several OSHA Approved Carabineers	Recommended
<input type="checkbox"/> Pair of Binoculars	Recommended
<input type="checkbox"/> RF Detector	Recommended

**Note: OSHA FORBIDS the use of a body belt or a tree trimming belt as a part of the climber's fall arrest system.



Every tower climber should perform a cursory inspection on the tower before they begin climbing. Below is a checklist that shows items that typically need to be checked before the climber attempts to climb the tower.

Pre-Climb Tower Inspection Checklist

- Perform a visual observation of the tower using binoculars to check for loose or missing hardware.
- Perform a visual observation of the tower using binoculars to check for any climbing obstructions.
- Perform a visual observation of the tower using binoculars to check for any other climbing hazards such as bird roosts, insect nests, ice on tower, etc.
- Inspect “point of daylight” on guy anchor rods for signs of decay (guyed towers only).
- Inspect turnbuckles for proper installation and verify that the proper number of threads are showing (guyed towers only).
- Check the tension of the guy wires and ensure they are within their proper tension range (guyed towers only).
- Check guy preforms and thimbles for signs of damage (guyed towers only).
- Check the verticality of the tower.

The telecommunications industry has adopted a standard for the design and construction of telecommunications towers known as the TIA-222-G. This standard states that all towers over 10 feet must be equipped with a safety-climb cable. The photograph below shows an example of a tower that has a climbing ladder with a safety-climb cable installed.



Photo 1-Tower Climbing Ladder with Safety-climb Cable

This document has outlined just a few of the things that a tower climber must consider before they climb a tower. Before anyone climbs a tower they should attend a reputable tower climbing training course and become well versed in the OSHA regulations that pertain to the tower construction industry. The information and tables in the document are intended to be used for reference purposes only and should not be used without thorough training, climbing experience and good judgment. The Engineering Specialties Group has prepared this document to illustrate some of the concepts a climber should consider before they climb a tower.

Feel free to contact the author with any questions, comments or to receive additional information at JoelD@EngineeringSpecialtiesGroup.com.

