

## Questions for Tower Climbers2

### 1. As a tower climber, what are the most significant hazards that you encounter on the job? What circumstances or conditions create or contribute to these hazards?

- **Hazards:** Falling, fatigue, injury from over exertion, stress from travel and working at heights. The climber's job is at height and outdoors so weather is also a hazard. The climber must work in all climates causing another risk to be taken into consideration. Frostbite and heat exhaustion are all factors that cause problems when working at height.
- **Circumstances:** Often time the circumstances that cause problems are when the schedule is pushing the climbers to work quickly and longer hours in the air. The deadlines need to be realistic and take into account that there are delays due to delivery and weather and other customer's schedules. This is often why inexperienced crews do much of the work because the roll outs of all the carriers happen simultaneously. Look at the auctions, all the carriers win the frequencies at the same time so they all have to deploy along the same schedules. This causes the current contractors to book up very quickly. This falls into the realm of taking short cuts. If the climbers would remain tied off 100% of the time then you would think the problem would be resolved. The schedule causes them to take shortcuts. Also, a big part of this is getting paid, low pay makes for poor quality of worker, training, and lack of PPE. When the crews don't get paid, either by their owners or contractors, for any reason, they can't continue safely.
- **Conditions:** Working at heights for prolonged periods in all environments and in odd positions while moving heavy weight cause many problems. It causes the workers to over exert themselves if they don't have the right tools. The tight schedules given to the climbers due to heavy emphasis put on due dates and trying to make the hours bid. Often the job is bid skinny causing the hours to be unrealistic. If there is bad weather then that could cause issues with climbing or if you delay the climb then the schedule will be impacted causing the climbers to try to get done in less time by rushing, taking shortcuts, or working extremely long days, even in the dark. The stress is caused by the extensive travel and the worry of training new workers at height. It becomes tough to worry about yourself and your greenhorn.

### 2. What steps do you take, at this time, to complete your work safely? What safety-related work practices do you think should be in place?

- Currently employed is the 100% tie off, training, and practice. That along with logging the high time and drive time of each climber.
- There should be 100% ties off rule, required training for all workers on site for tower work, tower safety, and rescue. First Aid and CPR should be standard. All drive and high time should be logged and kept on record. All practice of tower rescue should be logged and kept on record. All certifications should be required and kept on record. I think that the customer should require all the records they can. All customers should require a safety audit for all tower work to be done by independent companies. This should be the customer's responsibility!

### 3. What safety rules and work practices are provided to you, and who provides you with that information?

- In the safety handbook there is a list of rules, 100% tie off, notes about the drug tests, and safety practices for the worker. There is also a safety manual from Comtrain that is passed around. There is also a list of safety practices from OSHA and the insurance company about heavy lifting.
- The handbook is distributed by the foreman and HR.

- Potential safety issues would be reported to the foreman or lead on site.
  - You would report all incidents to your immediate supervisor.
4. Who assigns and oversees your work? Who provides your training and checks your equipment? When at a jobsite, to whom would you report a potential safety issue?
- The department head or a project manager assigns and oversees the work from a high level. In the field, at a tower site, there is a foreman or a crew lead that oversees the work and maintains the schedule and safety practices. Someone from HR, the safety person, oversees the training and certifications.
5. What specific steps do you think employers can take to make tower work safer?
- I think that companies that do safety audits work best. They have a person come out to the sites randomly to inspect the crew and offer ways to improve safety without being a jerk. I think that practice makes perfect so by getting the crew or crews together once a month to practice rescue and safety and talk about how they do things is a big help. I believe that annual training is very important to keep everyone up to speed.
6. How, and to what extent, does the design or configuration of towers, and equipment installed on towers, affect your ability to complete your work safely?
- It plays a major role. There are times you can't figure out how to stay tied off to go to the next level. Or you have nothing safe to anchor to. Monopoles are very difficult to maintain a safe anchor. Sometimes on a monopole, or other towers staying tied off is harder because the safe points are no near. Many times there should be a safety climb on the towers and monopole but it is either broken, lose, faulty, or not installed.

## **Training and Certification**

7. Tower hands/climbers, please describe the training and certification required for your job. Employers, please describe the types of training and certification you require for your employees.
- When I started the only requirement was a training class. After I ran the department then we need the training, updates annually, CPR, First-Aid, and OSHA 10.
8. What commercial training programs are currently available? What are the topics covered by the programs? Are the programs adequate to prepare employees to work safely on communication towers?
- There are so many programs now, but how many are good? Tower Safety, Safety One, and Comtrain are the standards in the industry.
  - Topics covered: OSHA rules and regs, anchorage points, rescue, climbing systems, PPE equipment and requirements, proper positioning, overview on rigging, tools used, knots, hazard assessment, lifelines, controlled descent, and more.
  - They are adequate to get you started if you actually climb the tower and rescue someone, this is a very important part of training.
9. Is there a need for a standardized, industry-wide training or certification program?
- Yes!!!
10. From your perspective given your role in the contracting chain, what does a tower climber need to know to do his or her job safely?
- I believe there are different roles at the tower. All people on the site should know rescue, first aid, CPR, and OSHA regulations. The climbers should know all that and the scope of work, more rescue techniques, rigging required for their job, and basic rope access. The ground

people should know the scope of work, communication signs to the tower guy, and all the equipment they are using, like a winch. All should know the PPE, rope, hazard assessment, and the schedule. The foreman or crew lead should know the job, estimated time, and schedule along with all the above mentioned. All should know if their cell phone works and where the first aid kit is located on the site. They should also know where the site book is showing where the nearest hospital or med center is and directions to the site. There is more but this is a good start.

11. How do employers evaluate employees to ensure that they have been adequately trained especially when employees receive their training or certification elsewhere? How do companies determine if employees are proficient in the topics covered by the training or if re-training is necessary? Do employers offer site-specific training that addresses specific types of towers and equipment?

- Evaluation: most employers don't do any evaluation except asking if the work is completed and if they pass the drug test. When I ran the crews I would get together for practices and evaluate what they could do that way.
- Proficiency: The foreman makes that decision normally.
- Training: most don't due to related costs. They wait until the climber gets to one of those sites, like from self supporters to monopoles, when they arrive they figure it out. In an ideal world they would train on all types.

12. For employers who contract out work (e. g., carriers, and turfing vendors), what contract language or oversight mechanisms do you use to ensure that work is done by trained and/or certified workers?

- Requirements of certifications of the people on the job, updated and a verification of the certs.
- A safety audit should be built in where a company goes out to do random audits of the crews doing the work and grade them or offer corrections or make recommendations to their customers. Require that the people on site all show or can verify their certifications. With smart phones today the company could ask for proof of certs or at least their company could send it to the person doing the audit.

### **Suitability for Work**

13. Are employees directly engaged in tower work assessed for physical fitness? If so, how? Are physical fitness requirements and assessments addressed in contracting agreements?

- Not in most cases, many are just asked if they can climb and asked to do a drug test.
- What should be offered is a complete physical because this is a physical job that requires endurance.

14. What physical limitations should employers be aware of when assigning an employee communication tower work? What hazards might be associated with such limitations, and how could those hazards be mitigated?

- It's a physical job requiring strength, sight, hearing, and common sense. If an employee is short any one of those qualities then there is danger to that person and the workmates. If all the physical parts are intact then the common sense can be taught through apprenticeship and experience.

### **Hazards and Incidents**

15. Falls: Falls are currently the leading cause of fatalities among communication tower workers. OSHA believes that many falls result from the improper use of fall protection equipment or the failure to use any fall protection equipment at all.

a. How are employers addressing fall hazards?

- 100% Tie off.

b. Are employers providing appropriate fall protection equipment to employees? Is it maintained and replaced when necessary?

- Many are and most of them do maintain it. It varies from company to company and many make that decision based on budget.

c. What factors contribute to employees failing to use fall protection while climbing or working?

- Common sense and safety. If someone is not using it then they are not trained properly or the company did not provide it or they are stupid. Probably a combination of all 3.

d. Are there situations in which conventional fall protection (safety nets or personal fall arrest systems) is infeasible? What alternatives can employees use for fall protection in those situations?

- There can be situations like that and each one should be treated as a one off. They should always be able to use some type of fall protection. If there is a situation like that at a tower site then the owner should put something in to make sure the worker is safe. It would be a hazard once but then safe for every worker after that.

e. What are the ways in which fall protection systems or anchorage points on communication towers can fail? How can these failures be prevented?

- Often times they are not installed. If there is a cable grab, they need to be maintained and inspected. Preferable annually but every 3 years would be good. Anchor points, if installed, should also be inspected every 3 years. Climbing pegs should be inspected and replaced as needed.

f. Should OSHA require built-in fall protection measures on new towers? Existing towers? Would such a requirement enhance worker safety?

- Definitely on new towers, there is no reason not to. On existing tower I believe so, but it would be an expensive venture. Perhaps on all tower built in the last 5 or 10 years would be reasonable.

16. Structural issues: When new equipment is added to communication towers, the additional loading of the tower has the potential to overload or destabilize the structure. Older towers may need additional reinforcements to maintain their structural integrity as new equipment is added to them. Communication tower collapses have resulted in numerous fatalities in the past two years. Which contractual party bears responsibility for ensuring that any structural work on the tower—such as modification or demolition—is done safely from a structural perspective? What steps are employers currently taking to prevent collapses?

- **Responsibility:** That lies with the team, the tower owner, the structural engineer, the customer, and the crew doing the work. The customer needs to require that the structural engineer not only provides the loading requirements and the upgrades, but also a procedure to do the upgrade. The tower owner needs to approve the plan, and the tower crew needs to understand and sign off that they can do the work properly.

- **Steps taken** – Most companies are reviewing the upgrade plans and verifying their steps with their given experiences. The crews and structural engineers need to be on the same page.

17. Hoisting materials and personnel: Base-mounted drum hoists are often used to hoist materials and personnel to working heights on communication towers. Hazards arise if hoists that are not rated for lifting personnel are used for that purpose. OSHA is aware of incidents in which hoists have failed under such conditions. Also, overloading material hoists and improper rigging procedures can result in loads striking the tower structure or workers located on the tower. OSHA knows of several deaths in the past two years that have resulted from these types of incidents.

a. When are personnel hoists used?

- In my experience, rarely.

b. What types of hazards are associated with personnel and material hoists? What are the best practices for safely managing those hazards?

- You need to have the proper winch and a good operator.

c. How are capstan hoists used in tower work? In what types of operations can they be used safely?

- In my experience, to raise equipment, and I have never had a problem with one as long as the operator is qualified and paying attention. They can be used safely if inspected and the operator is qualified.

d. What are the most common types of rigging hazards that occur on communication tower worksites? What can employers do to eliminate or minimize those hazards?

- Often, people don't know the load rating of the block or they choose a poor termination point for the block. Also, rope needs to be inspected. I have seen rope failures due to crappy rope. It needs to be inspected and replaced. There should always be spare rope available for any job. Winch failures happen, although I have never had that problem because we maintained our winches, but they do fail and usually at the worst of times. One more thing, all the workers need to pay attention. If one worker rigs the tower for a light load and then the ground crew tries to pull a heavy load, bad things happen.

e. Are there methods, other than the use of a hoist or a crane that can be used to lift material and personnel at a communication tower? Which methods and procedures are the safest?

- If you can't pull it up by hand or carry it, I don't see another way to get it up there. Maybe someday drones will be strong enough to carry payloads.

f. What are the roles of different levels of the contracting chain in managing rigging and hoisting activities?

- Not sure I understand the question, contracting chain confuses me. However, on site I can explain the onsite work. Guys on the tower choose the anchor point, knowing what they expect to pull up. They also anchor it based on load, obstructions, mounting location on the tower, and access. Then the block is attached to the tower using straps, steel cable, or carabiners. Then, depending on the weight of the load the ground crew will operate the winch or pull it up. The ground team is responsible for attaching the load to the rope/cable properly not only so it can be held on the way up but also so it can be positioned properly for the attachment of the item to the tower.

They need to plan out how to rig it so that the equipment can swing into the tower with the attachment points where they need to go, or at least very close. Then there is a tag line on the ground. A rope is attached to the load to make sure that the load is swinging out from the tower and does not hit anything on the way up. The tag line is there to insure that the load flies in the direction that you need it to go. It is also there so control the load in the wind. Wind is a huge factor. You do not want to destroy anything that belongs to someone else nor do you want to destroy your load.

18. Radio Frequency Hazards: Much research has been done on the health effects of overexposure to radio frequencies. General health effects reviews have found that high levels of exposure to radio frequencies may result in burns. In addition, the link between exposure to radio frequencies and cancer, reproductive diseases, and neurological effects has not been thoroughly explored.

a. What methods are employers using to protect workers from overexposure to radio frequency?

- Several things, site and tower inspections looking for dangers like Sirius/XM and antennas and broadcast. This should be part of the hazard assessments and a requirement. Also, RF exposure meters, like the NARDA.

b. Is there a need for employers to institute comprehensive radio frequency monitoring programs on communication tower worksites? What would a good program look like?

- Yes, it would be simple, add it to the hazard assessment, require RF safety training, and assign each climber a RF exposure meter with the requirement that they have it on their body at all times. They would need to be trained to use the meter properly and they would need to keep the batteries charged. It should be a require part of all climbers PPE.

19. Weather: Communication tower workers work outside during all seasons, and in all climates. They can be exposed to heat, cold, wind, snow, and ice. Storm conditions can quickly arise when workers are at elevation, and it can be difficult to descend the tower quickly.

a. What are the specific weather-related hazards to which communication tower workers are exposed?

- Hot - Heat exhaustion, sun stroke, dehydration, severe sun burn.
- Cold – frostbite, hypothermia, numbness and stiffness causing climbing difficulties.
- Lightning, always a risk, most climbers are usually off the tower or safely attached to the tower during a storm, but still a risk.
- Ice - Falling ice is a risk, could fall on the ground people. Climbing an icy tower should never be done but some people break the ice off as they go up.
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b. How does a crew monitor and respond to changing weather conditions, including storms?

- Weather report, smart phone apps, and simply look at the sky.

20. Fatigue: OSHA believes that fatigue can affect communication tower workers in several ways. Climbing a communication tower is physically demanding, and OSHA is concerned that fatigue due to exertion can be hazardous for tower workers. Accelerated work timelines can also result in tower workers working very long hours. And OSHA understands that communication tower workers may travel long distances to reach remote worksites, which can result in workers being fatigued before they even begin work.



a. What hazards are faced by a worker who finds it physically challenging to perform expected tasks, such as climbing a tower or performing a self-rescue? What impact can this have on other crew members?

- Falling is the biggest risk for everyone. If a climber is getting tired to the point where they can't get down, then they need to be rescued. Many times the climber can tie off, drink some water, and rest. The workmates should be aware of the condition of the climber but if they are not paying attention then they will be responsible for the rescue. IF the climber is too tired to climb, he probably shouldn't attempt self rescue, but controlled descent is easier than climbing so it may be a viable alternative.

b. What are the common causes of worker fatigue at communication tower worksites?

- Long days, heavy lifting, extreme weather.

c. What are the effects of fatigue on tower worker safety, and what types of incidents occur as a result of worker fatigue?

- If a worker gets too tired they make mistakes, not only the obvious physical mistakes like falling or dropping things, but mental mistakes and miscalculations. Not only for that day but they will be hurting for the next day or 2 and should be grounded so they don't continue to be at risk. This puts more work on the workmates to perform. If all 4 crew members are climbers, then they should shuffle the work on those long days even if they alternate climbing duties daily. They should log their high time to make sure this happens.

**21. Other common hazards:**

a. What other hazards are present in communication tower work, and what types of incidents are resulting from those hazards? What can be done to protect employees from those hazards?

- Bee stings, allergies, snake bites, spider bites, over exertion, crushed limbs, broken bones, Carpal tunnel, long term RF exposure, auto accidents, stress due to being away from home causing depression, stress of working a high rick job, bird poop, chemicals, long term sun exposure.

b. What are some health and safety considerations involved in working with communications equipment installed on non-dedicated tower structures, such as water towers, buildings, silos, electrical transmission towers, etc.?

- Each structure has a dedicated risk, there are too many to mention and each structure should be looked into individually. I will list a few here.
- Water Towers – many people don't realize how the water tower slopes off so they should be tied off 100% of the time when working there. Also, climbing up some of them you are in a confined space which could have problems.
- Electrical tower – must be certified to work on these, the risk of shock is too great.
- Buildings – safety issues, poorly maintain rooftops, should have a wall or rail or the climber should be tied off, bird poop piles up in many of these, trip hazards, low overhead in some areas, hi RF areas.
- Silos – usually remote, not always structurally sound, environmental issues, animal and insect issues

**Contracting and Work Oversight**

22. Describe your role in the contract chain and the key safety-related provisions typically included in your contracts. How do contracting parties oversee or enforce those provisions?

- Currently I help put together large offers that will require contractors to deploy large communication systems. Usually with larger companies a project manager will

manage the contractor and follow through the work with them from inception to close out.

**What are the consequences if a party fails to fulfill those contractual requirements?**

- If they do not present the certifications and safety plans they do not get the work. If they send uncertified people out to the site and the contractor hears about it they are not paid.

**23. What characteristics of past safety performance does your company use in selecting potential contractors and subcontractors?**

- Review contractor's safety record as well as the required material.

**What safety-related criteria does your company use in this selection process?**

- Ask for certifications up front but that is it. We should be asking for the safety and rescue plan as well.

**24. Are safety-related factors considered in determining whether to remove a contractor/subcontractor from an ongoing project or from future selection processes? If so, what specific factors are considered?**

- Yes, safety record and feedback from the end customer, landlord/tower owner and the PM. The subs employees are usually very honest and their feedback is also taken. If the feedback is very negative, then they are removed.

**25. What are the ways in which the multi-leveled contracting environment (i.e., where entities such as the carrier, tower owner, turfing vendor, subcontractor, and contractors hired by the subcontractor all have some role in the project) impacts employee safety at communication tower worksites?**

- As margins are added, the price that the actual crew doing the work is very low. It takes money to provide training and PPE to employees. It also adds delays to the schedules because the work required passes through many hands before it is released to the company doing the work. Compressed schedules cause the installers to rush increasing the chances of making mistakes.

**26. What practices might companies in the contracting chain adopt to encourage communication and coordination among employers at tower work sites? What obstacles stand in the way of communication and coordination between different parties in the contracting chain?**

- Many contractors are afraid to let the end customer or master contractor talk to the end worker but this should not be the case. There should be NDAs in place that allow the turf vendor or contractor to act as a placement company and open communication showing the certifications from the people on the field to the end customer. The obstacles are fear that the other contractors will steal the sub contractors. The other fear is that there could be confusion with all of the information being shared. There needs to be a way to streamline the information from the end customer to the work crew. Then, streamline the information from the field back to the end customer. It all comes down to program management.

### **Economic Issues**

**27. The Agency seeks information on the number and size of firms that are engaged in communication tower work and on the number of employees employed by those firms.**

- The companies that I deal with are mostly 30 to 50 employee companies.

**28. The Agency seeks information about wage and turnover rates for employees who work on communication towers. The Agency is also interested in information about the experience possessed by workers currently doing communication tower work. Are they usually experienced**



in this type of work? Are there many new or inexperienced employees working on communication towers?

- Experience - From what I see the experienced crews are doing the tower building and structural upgrades. The tower crews doing antenna and line installations are usually the less qualified people. These crews are usually less experienced and paid less. There are many inexperienced crews doing cell deployments and there will be again when the work picks up.
- Payment – for carrier deployments they usually get paid from \$15 to \$30 an hour. For heavier tower work they generally get paid over \$35/hour depending on experience.
- General - I have personally talked to many tower techs that have worked in the business for less than 2 years, they are just learning the job and the issue is that they often are on a crew with the same experience and that is not the structure that we should have in the field.

29. What types of equipment are used in tower work and how often is this equipment repaired and/or replaced?

- Tools, winches, PPE, rope, cranes, vehicles, so much more.
- It should all be maintained, repaired, and replaced as needed.

30. The Agency seeks information from all employers in the contracting chain about the extent to which employees directly engaged in tower work are covered by workers' compensation and/or an employer liability insurance policy.

- I have worked on all sides. Insurance is handled by HR or finance. I do not have the best insight into this issue.

### **Tower Design**

31. Can towers be designed and built with elevators for lifting personnel or materials? Can towers be built with booms or davits aloft to aid in hoisting materials?

- Yes.

32. How would elevators or davits affect productivity/efficiency, e.g., the amount of time spent on the tower? How would elevators or davits address or cause any safety hazards at the site? For example, would elevators or davits address hazards related to employee fatigue?

- Elevators - They would make the job easier and more efficient, when they work. Often the elevators fail and when they do they create a bigger risk.
- Booms – a built in boom is a good idea as long as all the crews working on the tower understand the weight and load rating for the boom because if they overload it or rig it improperly they could take the entire tower down or cause harm to themselves.

33. What are the industry standards for providing fall protection anchor points on new towers?

- Today climbers ties off to what they can. Most towers today have a ladder or climbing leg to get up the tower.

### **Regulatory/Non-Regulatory Approaches**

34. What would be the advantages and disadvantages of an OSHA standard that covers both construction and maintenance activities on communication towers?

- Advantages - I believe that it would be welcome to most people in the industry. It would be great to have a standard that all designers could work with from the start. Then working on a common tower could be standardized.

- Disadvantages – the tower owners will not want to pay the extra money and they will request that the requirements will be a reasonable improvement without adding extensive cost.

35. What effects have the North Carolina and Michigan regulatory approaches had on work practices and climber safety in those states?

- Don't know.

36. Should an OSHA standard be limited to work performed on communication towers, or should it also cover towers used for other purposes?

- It would be a good idea to cover all towers that have a commonality for the workers.

37. If OSHA does not initiate a dedicated rulemaking for work on communication towers, what other types of regulatory actions might be necessary and appropriate?

- Require and enforce PPE requirements. Require and enforce tower safety requirements. Continue to crack down on unsafe work incidents. Continue to investigate poor work practices by employers.

38. What non-regulatory approaches could OSHA take to address hazards faced by employees working on communication towers?

- I believe that in depth reports released to the public covering all tower accidents be made available to communication workers on a dedicated website and newsletter so that all in the industry have the opportunity to view the results of every investigation for all tower related accidents.