This MCAI may be found in the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA–2015–0827.

(2) For service information identified in this AD, contact Bombardier, Inc., 400 Côte-Vertu Road West, Dorval, Quebec; H4S 1Y9, Canada; telephone 514–855–5000; fax 514–855–7401; email thd.cfr@aero.bombardier.com; Internet http://www.bombardier.com. You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425–227–1221.

Issued in Renton, Washington, on April 6, 2015.
John P. Piccola, Jr.,
Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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Communication towers can range from 100 to over 1000 feet tall. Increasingly, antennas are being installed on structures other than communication towers, e.g., on water towers, on electrical and telephone poles, and on the roofs of buildings. These alternative structures are often used in more densely populated areas where the construction of large communication towers is impractical or impossible, e.g., due to zoning restrictions.

The construction and maintenance of communication towers is highly specialized work. This work often involves workers climbing the towers via ladders or being hoisted to workstations on the towers via base-mounted drum hoists. To erect new towers, workers lift tower sections or structural parts using a base-mounted drum hoist, with or without a gin pole. Workers can also use cranes to raise tower sections. Towers are constructed piece by piece; workers bolt each section into place before raising the next section. Non-erected construction activities can include reinforcing the structure, upgrading antennas, and installing new antennas on existing towers (referred to as colocation). Workers also climb towers to perform maintenance activities such as painting structural steel members, changing light bulbs, and troubleshooting malfunctioning equipment. During the performance of work activities involving communication towers, workers are exposed to a variety of serious hazards, including fall hazards, hazards associated with structural collapses, struck-by hazards, hazards associated with worker fatigue, radio frequency hazards, hazards associated with inclement weather (including extreme heat and cold), electrical hazards, and cut and laceration hazards due to the use of sharp, heavy tools and materials.

Work on communication towers often involves complex business relationships among multiple companies. Many communication towers are owned by dedicated tower companies, rather than broadcast or cell phone companies (carriers). The tower companies then lease space on the towers to wireless carriers. When a carrier needs to undertake a large-scale installation or upgrade project, it will contract with a construction management company (called a “turfing vendor”). The turfing vendor typically hires specialized subcontractors to perform specific elements of the project, and those subcontractors further contract with other companies to perform some of the work. It is not uncommon to have as many as six or seven layers of subcontractors between the carrier and the company that employs the workers who actually perform the work (or certain parts of the work). This business structure poses challenges to setting and enforcing safety rules and ensuring the well-being of employees.

In this RFI, OSHA is seeking information about the causes of the employee injuries and fatalities that are occurring among employees working on communication towers. The Agency is also seeking comments on safe work practices for communication tower activities, training and certification practices for communication tower workers, and potential approaches the Agency might take to address the hazards associated with work on communication towers.

B. Hazards and Incidents

A search of OSHA’s Integrated Management Information System (IMIS) database for both fatal and non-fatal incidents involving communication towers revealed 107 incidents from 2003 through 2013 (Docket ID OSHA–2014–0018–08–01). These incidents resulted in 91 fatalities and 17 injuries. Most of the fatalities (79) were due to falls. Structural collapses killed an additional eight people. Three fatalities involved electrocutions, and the last fatality was due to an employee being struck by a load while working on the tower. According to the IMIS data, falls were also the leading cause of injuries among communication tower workers, with 13 of 17 injuries resulting from falls (Docket ID OSHA–2014–0018–01). 2013 was the deadliest year for communication tower workers since 2006. According to 2013 OSHA incident investigation reports, there were a total of 15 incidents resulting in 13 fatalities (as well as 3 injuries that required hospitalization). Of the 15 incidents identified in the 2013 reports, 11 involved falls, and of those falls, 9 were fatal. Structural collapses accounted for two fatalities, and two fatalities were the result of employees being struck by suspended materials while working on a tower (Docket ID OSHA–2014–0018–01).

The leadership of the Department of Labor, OSHA, and the Federal Communications Commission (FCC) recently organized and participated in a workshop on communication tower work for industry stakeholders and government agencies. The event, held on October 14, 2014, included two panel discussions with representatives from tower climber advocacy organizations, the owner of a tower erection company, media representatives, carrier representatives, a tower owner representative, and a government relations liaison for a wireless infrastructure industry group. The first panel focused on the causes of tower climber fatalities and ways employers can prevent such fatalities. The second panel focused on industry-wide solutions that can be implemented by carriers, tower owners, and turfing vendors. Chairman Thomas Wheeler of the FCC and Secretary of Labor Thomas Perez spoke at the event and called for the agencies and industry stakeholders to collaborate in an effort to identify best practices and steps that the industry can take to address the hazards faced by communication tower workers. A video recording of the event can be found at http://www.fcc.gov/events/workshop-tower-climber-safety-and-injury-protection.

C. Training and Certification

Given the highly specialized and dangerous nature of the work that tower workers perform, employee training and preparation are critical. Many companies provide training to tower climbers. These training courses typically last two to five days and consist of a classroom component and a practical training component, with a final assessment of skills and knowledge. Topics covered during these courses typically include: fall protection procedures, climbing safety and planning, hazard assessments, and basic emergency and rescue protocols. Upon successful completion of these courses, participants receive a certification card from the company that provided the training. Although there is no standard threshold for certification, most companies that issue certification cards assert that their certifications meet standards in the National Association of Tower Erectors (NATE) Tower Climber Fall Protection Training Standard as well as other applicable standards from OSHA, the American National Standards Institute (ANSI) and the American Society of Safety Engineers (ASSE).
Recently, there have been some developments in employee training and preparation resulting from government and industry collaboration. The Department of Labor’s Employment and Training Administration (ETA) has developed a registered apprenticeship program for tower climbers in collaboration with a board of stakeholders. The goal of the Tower Industry Registered Apprenticeship Program (TIRAP) is to provide an industry-wide standard of training and employee development. The founding documents for TIRAP were signed on October 14, 2014.

D. Applicable OSHA Standards

At present, OSHA standards do not provide comprehensive coverage of communication tower construction activities. OSHA’s standards for fall protection in construction (29 CFR 1926, subpart M), which generally require the use of fall protection at heights of six feet and greater, will apply in some situations, although those standards do not cover the erection of new communication towers (see 29 CFR 1926.500(a)(2)(v)). Fall protection requirements for the construction of new communication towers can be found in 29 CFR 1926.105, which requires the use of safety nets when workplaces are more than 25 feet above the ground or water surface, or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical (see 29 CFR 1926.105(a)). Additionally, communication tower construction activities are exempt from OSHA’s requirements for steel erection activities (29 CFR 1926, subpart R); subpart R does not cover electrical transmission towers, communication and broadcast towers, or tanks (29 CFR 1926.750(a)).

Maintenance work on communication towers is governed by OSHA’s general industry standards at 29 CFR part 1910. There are a number of general industry standards that apply to communication tower maintenance activities. Most specifically, the telecommunications standard at 29 CFR 1910.268 applies to the work conditions, practices, means, methods, operations, installations and processes performed at telecommunications field installations, such as communication towers (see 29 CFR 1910.268(a)(1)). A key provision in the telecommunications standard is §1910.268 applies until such employees have received proper training. The telecommunications standard also contains requirements for fall protection (see 29 CFR 1910.268(g)). Paragraph (g) of §1910.268 generally requires employers to provide, and ensure the use of, safety belts and straps when work is performed at positions more than 4 feet above ground, on poles, and on towers (see 29 CFR 1910.268(g)(1)).

When existing standards do not apply to a particular hazard at a communication tower worksite, employers still have a duty to protect employees under the General Duty Clause (section 5(a)(1)) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 654(a)(1)), which requires each employer to “furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.” OSHA has used the General Duty Clause in some cases involving accidents on communication towers. For example, in March of 2014 OSHA issued a General Duty Clause citation in a case involving a double fatality caused by improper rigging on a communication tower. OSHA found that the employer was aware of, but failed to follow, industry standards and practices for safely rigging the jump line block for the gin pole.

E. Consensus Standards and State Standards

There are several consensus standards that address hazards in the erection, construction, and maintenance of communication towers. The Telecommunications Industry Association standard TIA–222–G, Structural Standard for Antenna Supporting Structures and Antennas (Docket ID OSHA–2014–0018–03), addresses the structural design elements associated with the fabrication of new, and the modification of existing, antenna-supporting structures. The TIA–1019–A standard, Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas (Docket ID OSHA–2014–0018–05), addresses the loading of communication towers under construction and the use of specialized equipment, including gin poles, hoists, and temporary guys. There is an ANSI standard currently under development, ANSI A10.48, which will address safety practices for the construction and maintenance of communication towers. This standard may be approved within the next two years.

Two states have dedicated standards governing communication tower construction and maintenance. These states, North Carolina and Michigan, promulgated communication tower standards following multi-fatality incidents. North Carolina’s standard (Docket ID OSHA–2014–0018–03), which became effective in 2005, covers the construction, alteration, repair, operation, inspection and maintenance of communication towers (see 13 NCAC 07F.0600 et seq.). It includes provisions for employer responsibilities, fall protection and fall protection systems, non-ionizing radiation, hoists and gin poles, and employee training. The Michigan standard (Docket ID OSHA–2014–0018–02), promulgated in 2009, governs construction, alteration, repair, operation, inspections, maintenance, and demolition activities on communication towers (see Michigan Administrative Code R 408.42901 et seq.). It contains provisions on fall protection, emergency response protocols, training, training certification, hazard identification, hoists, hoisting personnel, gin poles, catheads, and capstans. Washington State is planning to update its telecommunications standard and held stakeholder meetings on the subject in July, 2014.

III. Request for Data, Information, and Comments

OSHA is seeking information to aid it in evaluating the hazards that workers face on communication towers. The Agency seeks information on: the types of hazards that communication tower workers encounter; the types of incidents (both fatal and non-fatal) that occur as a result of exposure to those hazards; and the best methods employers can use to address those hazards. The Agency identifies specific issues on which it is seeking comment later in this section of this RFI.

OSHA requests comments from wireless carriers and all parties involved in the contracting chain, including turfing vendors, engineering firms, tower owners, tower construction and maintenance companies, and field staff, e.g., tower technicians who perform work on the towers. Based on its review of the information provided by the public in response to this RFI—and other OSHA research activities—the Agency will determine what additional actions, if any, to take to address hazards associated with work on communication towers. Commenters should identify the role they play with respect to the performance of work on communication towers and be as detailed as possible in their comments.
Questions for Tower Climbers

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?

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?

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

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?

5. What specific steps do you think employers can take to make tower work safer?

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?

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.

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?

9. Is there a need for a standardized, industry-wide training or certification program?

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?

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?

Suitability for Work

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

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?

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?

Hazard 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?

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

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

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?

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

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

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?

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, overloaded 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?

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

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

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

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?

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

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 frequencies?

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

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?

2While the questions under this heading are specific to tower climbers, OSHA strongly encourages tower climbers to consider and respond to all questions in this Request for Information.
b. How does a crew monitor and respond to changing weather conditions, including storms?

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?

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

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

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?

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.?

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

23. What characteristics of past safety performance does your company use in selecting potential contractors and subcontractors? What safety-related criteria does your company use in this selection process?

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?

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?

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?

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.

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?

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

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.

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?

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?

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

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?

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

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

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?

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

Authority and Signature

This document was prepared under the direction of David Michaels, Ph.D., MPH, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor. It is issued pursuant to sections 3704 et seq., Public Law 107–217, 116 STAT. 1062 (40 U.S.C. 3704 et seq.); sections 4, 6, and 8, Public Law 91–596, 84 STAT. 1590 (29 U.S.C. 653, 655, 657); 29 CFR part 1911; and Secretary of Labor’s Order No. 1–2012 (77 FR 3912 (Jan. 25, 2012)).

Signed at Washington, DC, on March 27, 2015.

David Michaels,
Assistant Secretary of Labor for Occupational Safety and Health.

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