Before the

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

Washington, DC 20210

In the Matter of:

Request for Information-	) Docket No.
	)
Communication Tower Safety	) OSHA–2014–0018
	)

COMMENTS OF
THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

I. Introduction

The Telecommunications Industry Association ("TIA") appreciates this opportunity to submit input to the Occupational Safety and Health Administration ("OSHA") regarding communication tower safety.[1]

TIA is a trade association serving its hundreds of information and communications technology ("ICT") manufacturers, vendors, and supplier company members through policy advocacy, as well as the writing and maintaining of numerous open voluntary consensus industry

[1] *See*, OSHA Request for Information Communication Tower Safety, OSHA–2014–0018, 80 Fed Reg. 72, (April 15, 2015); Pages 20185-20189 ("RFI")

standards and specifications, and the formulation of technical positions. TIA is accredited by the American National Standards Institute ("ANSI") to develop voluntary industry standards for a wide variety of telecommunications products and sponsors more than 70 standards formulating committees. These committees are comprised of over 1,000 volunteer participants, including representatives from manufacturers of telecommunications equipment, service providers, and end-users, as well as local, state, and federal government entities.

The member companies and other stakeholders participating in these committees and subgroups have produced more than 3,000 standards and technical papers that are used by companies, consultants, and governments to produce interoperable products around the world. TIA's standards development activities have both a national and global reach and impact.

TIA's standards committees create open consensus-based voluntary standards for numerous facets of the ICT industry, for use by both private sector interests and government. Among other areas, TIA's standards committees develop protocols and interface standards relating to current U.S. government technology priorities such as public safety communications, data center cabling, and emergency communications infrastructure in areas including fiber optics, public and private interworking, telecommunications cable infrastructure, wireless and mobile communications, multimedia and voice over internet protocol ("VoIP") access, as well as vehicular telematics.

II. Structural Standard for Antenna Supporting Structures and Antennas; ANSI/TIA-222, Revision G

TIA Engineering Committee TR-14 ("TR-14") develops standards that affect the design, fabrication and production of antenna towers. TR-14's specifications allow carriers to effectively and reliably relay communications via antenna towers. As the industry's support structures continue to age, reliability and maintenance issues will be crucial to the longevity of the industry's infrastructure. The committee is also involved in developing standards for the minimum loading requirements for towers under construction, alteration or maintenance, and addressing specialized equipment such as gin poles, frames, hoists and the temporary supports necessary to safely complete those tasks under the supervision of competent persons.

One of TR-14's most well-regarded Standards is ANSI/TIA-222, Revision G, Structural Standard for Antenna Supporting Structures and Antennas. The Standard provides the requirements for structural design and fabrication of new, and modification of existing, structural antennas, antenna-supporting structures, structural components, guy assemblies, insulators and foundations. The Standard is referenced in the International Building Code ("IBC") and as such has acceptance by building officials. Its design philosophy changed to limit state design from allowable stress design. It also considers topography that may affect structure performance with respect to wind, e.g., atop a hill or mountain. ANSI/TIA-222-G also expands on the safety requirements and received recognition from the IBC.

The objectives of the TIA Standards, i.e., ANSI/TIA-222-G, ANSI/TIA-1019-A and ANSI/TIA-322 are to create a stable structure. TIA Standards are developed via consensus from

a diverse cross section of industry representative/stakeholders. All Standards are created in a transparent manner that incorporates member and public comments. Every TR-14 Standard is subjected to continuous improvement that delivers revisions via addendums, new standard versions and when necessary public commentary from the TR-14 leadership via a number of communication channels.

The current revision, "G", of ANSI/TIA-222 became effective January 1, 2006, and is the successor to EIA-RS-222 Standard introduced in 1959 developed by TIA's Committee on Microwave Relay Systems for Communications. It provided a uniform method of specifying and calculating tower designs. These standards applied to steel transmitting antennas and to supporting towers.

Some important existing ANSI/TIA-222-G requirements include:

- Safety climb devices are required for all new structures greater than 10 feet unless otherwise specified due to interference with antenna systems.
- A standardized safety climb cable diameter (3/8") has been stipulated to prevent climbing safety equipment mismatch. This has also allowed for consistency in training of employees.
- Acceptable climber anchorage attachments are illustrated in the ANSI/TIA-222. Climber anchorage attachments are not limited to engineered anchorages, as many communication structures inherently have additional anchorage features.
- Strength and Dimensional requirements are provided for climbing facilities including engineered and inherent anchorage points.
- The means for a procurer to request additional anchorage points exists. Language to clarify how to specify the type and location of additional attachment points is being reviewed for the next revision (ANSI/TIA-222-H).

- Climbing facilities dimensional requirements are a function of climber skill level. Requirements for non-skilled climbers (skill levels developed in cooperation with the National Association of Tower Erectors ("NATE") representatives) are more stringent than OSHA 1910.268.
- ANSI/TIA-222 requires an engineer to complete an analysis in accordance with the standard and the analysis must be rigorous (comprehensive) prior to modification of the structure.

Work is underway within TIA Engineering Committee TR-14 to define changes for the next revision of ANSI/ TIA-222. Planned changes are to align the Standard with the latest version of ASCE-7.[2] Use of 3 second gusts instead of "fastest-mile wind" speeds and the use of load reduction factor design instead of allowable stress design will be incorporated. Other anticipated changes include: seismic loading considerations, safety facilities, foundations, and analysis of existing structures.[3]

Although ANSI/TIA-222-G Annex I already outlines inherent fall protection anchor points for new towers, additional provisions for climber access and anchorages will be included in ANSI/TIA-222-H. For example a modification to the design requirements to a monopole will increase the number and placement of attachment points at monopole ports which will be issues in 2016 with an industry notification of any changes to be issued prior to publication.

As part of the continuous improvement process and in response to industry developments, TIA TR-14 is also working with the ASSE A10.48 committee to consolidate all means and methods criteria into an ASSE A10.48 Standard and all loading analysis and design

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[2] *See,* American Society of Civil Engineers ("ASAE"), MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES 7, available at http://ascelibrary.org/page/books/s-standards

[3] *See,* RFI at question 33.

criteria related to the installation, maintenance and alteration of communication structures into the new ANSI/TIA-322 Standard.[4] The development of these Standards is ongoing and has been a collaborative process including the development of common terms, communication requirements, and construction-related responsibilities. The net result of the publication of both standards will be an increase in appropriate content, a broadening of the scope of topics addressed, and further clarification of the demands on and roles of industry participants.[5]

III. Recommendations from TIA

In response to many of the questions posed by the Request for Information, TIA makes several general responses. First, better education and training are appropriate, especially regarding existing standards requirements. Second, documentation of contractor and employee competency would better ensure the existence of the necessary skill set. Finally, improved oversight, combined with better communications with relevant stakeholders, is appropriate.

TIA supports greater dissemination of contractor knowledge regarding the existence and use of previously-developed design/construction standards. Similarly, contractors must be made aware of existing and developing construction hazards to ensure competency and accountability there are existing licensing requirements that could be reviewed for adoption by the telecommunications industry. The State of Florida is an example of such a licensing scheme. In addition the Department of Labor has worked to establish Telecommunications Industry Registered Apprenticeship Program ("TIRAP") to establish the proper credentialing for

[4] See, American Society of Safety Engineers ("ASSE"), Communication Tower Erection A10.48 (under development)

[5] TIA also anticipates that the North Carolina and Michigan regulatory approaches on work practices will be addressed by ASSE 10.48 committee for review and potential incorporation in the next revision of the Standard.

employees for both new, apprentice, and existing. In addition the industry in conjunction with NATE and other associations, has established the National Wireless Safety Alliance ("NWSA"), which is exploring and developing assessments to enhance tower safety.

The industry must continue to work to come together with these initiatives to ensure a proper understanding of the roles and responsibilities of all participants. If there is a movement towards certification, a transitional period to allow the education and training of the contractor and employees must be established, uniform, and supported.

More specifically:

- Employee certification and training – TIA supports requiring that each employee is competent to perform their designated role during the construction process.
- Outreach – TIA has worked with TIRAP to review the interpretation of the standards and is currently working with TIRAP on a video series to improve the industry understanding of the standards.

  TIA specifically recommends the following:

  - Every participant in the construction/modification process should understand the role of the Standards. It is critical that the employee understand the specific requirements in the Standards, and have competency in the means and measures, such as what a rigging plan is and when it should be used, and when an engineer should be consulted.
  - TIA firmly believes continuing education is needed for contractors regarding their responsibility to inspect climbing facilities prior, incorporating as personal protective equipment ("PPE"), and tagging out deficient climbing facilities, while providing proper notice to the structure owner
  - Contractors should communicate to owners when a construction activity may impact the climbing facility and should participate in determining a safe course of action prior to construction.

- Oversight - TIA supports use of the existing consensus based Standards, i.e., requiring a rigging plan, qualitative review of contractor knowledge of Standards, and worker training. The ANSI/TIA-222 Standard is part of the IBC and has been adopted by local jurisdictions as the ruling Standard for the design of communication structures. ANSI/TIA-1019-A is not directly referenced in IBC, since IBC does not generally address means and methods related to construction. ANSI/TIA-1019-A should be considered for use by owners through their agreements with their contractors. A number of vertical real estate and build-to-suit companies are working diligently on this effort.
- Notification processes - TIA supports the appropriate recognition of structural hazards in work environments which are often not recognized, i.e., when to stop and consult a qualified engineer, and/or to inform the owner of issues impacting climbing facilities. TIA urges greater communication and knowledge about operations issues.
- Inspections – Post-modification inspections need to be completed to ensure that the modifications are properly installed. In addition, it should be verified that the climbing facilities are not adversely impacted by the installation of new equipment or other modifications to the structure.

B. Elevators, Booms & Davits

The RFI asks if towers can be designed and built with elevators for lifting personnel or materials.[6] Although a number of tall towers, i.e., broadcast structures, have elevators, it is less common for structures below 750 feet in overall height. The TR-14 committee is reviewing how the standards may accommodate other climbing assist devices in cooperation with the leadership of ASSE 10.48. Future revisions will address obstructions and other issues that degrade access to the climbing facilities, including issues that contribute to climber fatigue.

[6] *See,* RFI at question 31.

The RFI also asks if towers can be built with booms or davits aloft to aid in hoisting materials.[7] TIA has the following concerns and recommendations regarding the management and use of these devices:

- Contractor training on the proper use of existing portable equipment, as well as appropriate structural review and inspection may be a better solution.
- Will the davits/booms be properly maintained?
- Will constant exposure to the elements reduce the function and reliability of the davit/boom when compared to portable equipment? There is a concern that fatigue as a result of constant exposure to wind will reduce the reliability of the equipment. Fatigue cracks can be very difficult to discover without the appropriate level of expertise and experience.
- Locating a davit or boom at the top of a structure will not assist in work at lower elevations due to obstructions that may exist between the top of the tower and elevation at which the work is being engaged, thereby negating the access promised by the davit or boom.

TIA has additional concerns regarding whether "elevators or davits affect productivity/efficiency, e.g., the amount of time spent on the tower."[8] TIA wishes to note that at lower elevations, i.e., the majority of structures, elevators would be of minimal benefit and could actually be a hindrance to construction. In addition, many existing structures are not designed for the loading of an elevator. TIA would also like to respond to the question of whether "elevators or davits address or cause any safety hazards at the site?" In the majority of maintenance and modification applications, placing a davit/boom at the top of the structure would require an employee to climb to the top of the structure and spend a large amount of time inspecting and rigging the davit/boom prior to initiating work that is often completed at lower elevations.

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[7] Ibid

[8] *See,* RFI at question 32

Using portable equipment positioned at lower elevations is more efficient and less time-consuming. Improving general knowledge about, condition, and use of portable equipment/rigging will have an immediate impact upon worker fatigue/safety. It is important to note that permanent attachment of davits/booms may overload existing structures that were not designed to accommodate additional equipment.

VI. CONCLUSION

For the foregoing reasons, TIA urges OSHA to act consistently with the recommendations above. TIA is encouraged by the meeting it held with OSHA and invites OSHA to participate in the development cycle of the TIA Standards and is open to all stakeholders directly or through the public comment period. The TIA TR-14 also offers an opportunity for all interested parties to submit TIA standards specific questions for review.

Respectfully submitted,

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