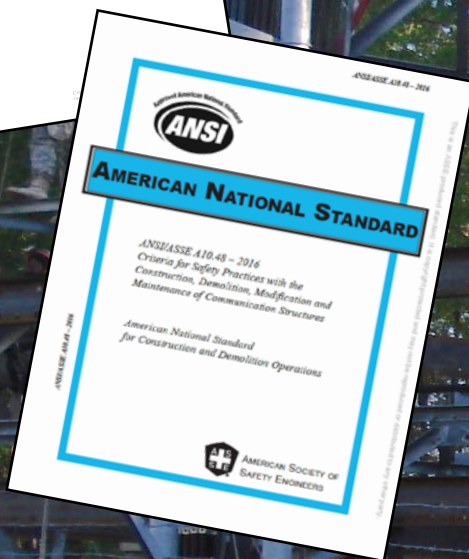




# PLANNING ADVISORY NOTICE



# Introduction to New Telecommunications Construction Standards: **ANSI/TIA-322** and **ANSI/ASSE A10.48**



**It has long been understood that OSHA has an interest in the development of standards and/or regulations to ensure safety.** It is important to note that OSHA may use consensus standards in an enforcement action where OSHA standards do not address a particular hazard. Through a coordinated and collaborative effort led by the Telecommunications Industry Association (TIA) and the American Society of Safety Engineers (ASSE), along with key industry organizations supported by the National Association of Tower Erectors (NATE), the telecommunications industry has proactively responded to major shifts in construction practices driven by rapidly evolving technology advancements and infrastructure demands related to construction, installation, alteration, and maintenance activities on communications structures to progress and facilitate quality work while ensuring the safest work practices. Two of the monumental products of these joint efforts are the introduction of the ANSI/TIA-322, *Loading, Analysis, and Design Criteria Related to the Installation, Alteration and Maintenance of Communication Structures* and the ANSI/ASSE A10.48, *Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures* Standards which together will succeed and replace the existing ANSI/TIA 1019-A Standard on January 1, 2017, as the general consensus standards related to construction planning and implementation for communications structures including antenna and antenna supporting structures, broadcast and other similar structures supporting communication related equipment.

This is truly a great time for our industry and it is important to have an understanding of some of the history to understand how this industry is continually working to improve quality and safety through the consensus standards development.

The ANSI/TIA-1019, published in 2004, represented the first uniform engineering and operational use construction standard for highly specialized lifting devices known as gin poles used for installation and alterations

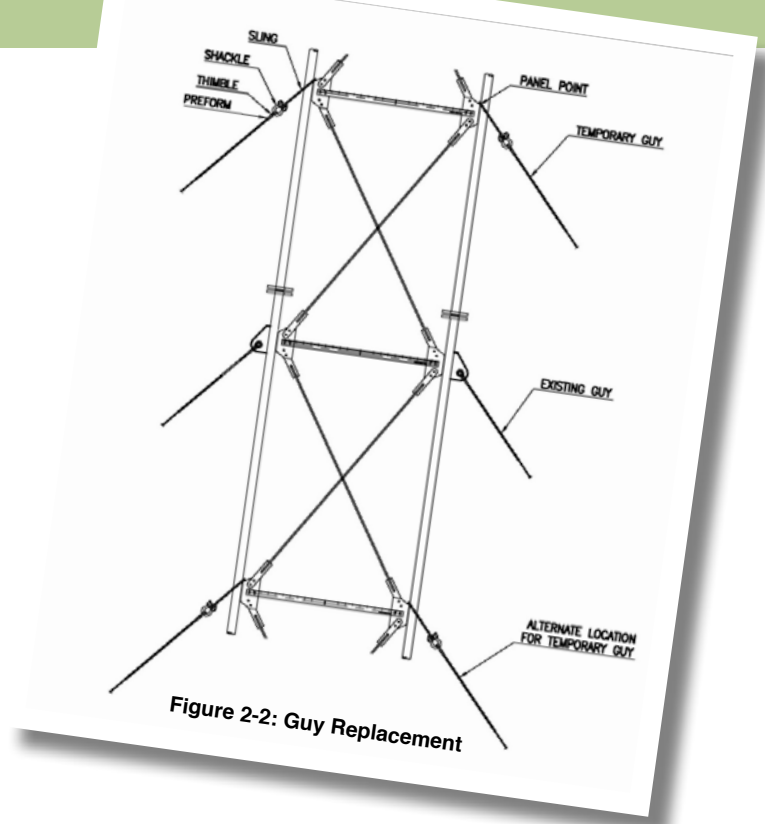


Figure 2-2: Guy Replacement

on antennas and antenna supporting structures. This standard was developed by leading experts representing TIA and NATE through a partnership with OSHA to drive construction safety initiatives within the industry. Prior to this standard, it was extremely challenging for engineers and contractors to have a common means to discuss the gin pole and its use. The use of this standard made it clear that we as an industry should emphasize each of the critical roles of the engineer, contractor, owner and regulator in the construction process. As such, the ANSI/TIA-1019 evolved into the ANSI/TIA-1019-A in 2011. This improvement was an incredible step by the industry of improving communications between engineers and contractors and also allowing owners to have a standard to point to that would enable a safe work environment while improving the quality of work.

ANSI/TIA-1019-A is a **combined** standard covering loading, analysis and design criteria for engineers involved in construction activities, along with work procedures, rigging practices and operational use for contractors (aka means and methods). This combined standard was a significant first step combining both analysis and design with operational use into a single standard, but pertinent content and specific roles

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and responsibilities for various construction activities between the contractor and engineer proved to be difficult to locate and clearly identify in practical application. As the industry continued to understand the need to improve training and to ensure that communication between each participant in the construction process was effective, continued development and evolution of the ANSI/TIA-1019-A Standard was needed.

Several meetings in St. Louis were held to discuss splitting TIA-1019-A into two principal areas of focus. As a result, separate standards were developed to allow current advancements in engineering and construction practices to be tailored to these two distinct disciplines while providing greater clarity and content to all vested stakeholders supporting construction planning and implementation. While the content in each standard is focused on each discipline, together they are a holistic representation of the telecommunications industry construction environment. Construction related loading, analysis and design requirements for engineers providing these services are now contained in the ANSI/TIA-322, *Loading, Analysis, and Design Criteria Related to the Installation, Alteration and Maintenance of Communication Structures*, while the construction means and methods provisions for contractors are now covered in the ANSI/ASSE A10.48, *Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communication Structures*. It was the consensus of the St. Louis meeting participants that both standards consistently remain in sync.

It should be noted that general conformance to all minimum construction requirements set forth in the ANSI/TIA-1019-A are satisfied or exceeded through proper application of the minimum criteria now established within the ANSI/TIA-322 and ANSI/ASSE A10.48 standards. Overall, the ANSI/TIA-322 and ANSI/ASSE A10.48 build upon core engineering and accepted safe work practice concepts presented in the ANSI/TIA-1019-A with expanded and focused content to facilitate greater understanding and improved communications between engineers and contractors when planning and assessing tower construction activities.

Content within the ANSI/TIA-322 and ANSI/ASSE A10.48 standards are not intended to address every aspect and consideration required for all constructions activities that may be encountered on a given jobsite, but do provide a direct reference to some of the most common additional standards that may be needed such as ANSI/ASME B30 series, ANSI/ASSE A10 series, and ANSI/ASSE Z359 among others.

It is critical that safe, quality, and successful construction practices start with training and are implemented by properly identifying and planning the required construction activities. Contractors performing construction services on telecommunications sites are required to determine the applicable Construction Class in accordance with the ANSI/ASSE A10.48 based upon the following three considerations, and to provide or engage required personnel in the development, review, and implementation of the rigging plan:

1. Scope of work (SOW);
2. Maximum gross load being hoisted when implementing lift systems which are directly attached to the structure; and
3. Means and methods (including construction sequencing and duration).

These considerations will dictate the minimum construction class and corresponding rigging plan requirements including the minimum personnel which must be provided or engaged by the contractor in the development, review, and implementation of their rigging plan. It should be noted that all construction activities performed on communications structures (regardless to the type of activity) must have a rigging plan completed defining the responsibilities within the project.

A crucial part of the collaborative effort between the contractor (A10.48) and the engineer (TIA-322) is establishing and maintaining sound communication. For example, while the contractor is developing a Class IV rigging plan, thought must be given to the creation of the documents that will be used to assist the engineer's understanding of the work to be performed.

In some instances, the rigging plan will not convey all of the information required to permit the engineer to complete a proper review of the structure's reaction to the imposed construction loadings and/or reduction to the structure's load carrying capabilities from the work being performed. This communication can be any of the following: more concise discussion between the contractor and engineer; a written narrative; a drawing; or all three means of communication. It then becomes the engineer's responsibility to review loads induced



by the rigging plan and any additional information supplied to determine how it will impact the structure. If clarity is still not achieved, the engineer must discuss the rigging plan in more detail with the contractor to gain a better understanding of the nature of the rigging plan and its ultimate impact upon the structure.

It is very important to note that the contractor works with ASSE A10.48 to generate the means and methods that is represented by their rigging plan. The engineer, utilizing TIA-322, assesses the construction loads induced and/or reduced structural strength, based upon information provided in the contractor's rigging plan, to review the tower. An engineer's attempt to understand the impact of the rigging plan and pursuing a discussion with the contractor to ensure that the engineer has gained all of the necessary information should not be construed as an engineering review or approval of the means and methods, i.e. process and procedures, outlined in the rigging plan.

Similarly, the contractor does not become part of the engineering review of the structure as a result of the Class IV communication process. While the contractor is not required to use TIA-322 to complete their rigging plan and the engineer is not required to use ASSE A10.48 to complete their review of the structural impact resulting from the construction activities, a basic understanding of both standards is encouraged.

The following table provides basic guidelines which must be reviewed by the contractor when determining the appropriate construction class:

Minimum Construction Class	Minimum Level of Responsibility	Scope of Work	Max Gross Lifted Load for Lift Systems Attached to Structure	Means and Methods
I	Competent Rigger	No impact to supporting structure's strength or stability	350 lbs	Normal/routine construction methods; Planned rigging forces minor in comparison to supporting structure strength; Excludes the use of gin poles or other sophisticated lifting devices
II	Competent Rigger	No impact to supporting structure's strength or stability	500 lbs	Normal/routine construction methods; Planned rigging forces minor in comparison to supporting structure strength
III	Competent Rigger and Qualified Person	No impact to supporting structure's strength or stability; All work outside of the stated scope for Classes I, II, and IV; New structure and/or foundation work	2,000 lbs	All work activities involving cranes or other external lifting devices not attached to the structure
IV	Competent Rigger, Qualified Person and Qualified Engineer	Activities involving reduced supporting structure's strength or stability; Removal of structural members or unique appurtenances; Structure decom/decomposition	Above 2,000 lbs	Custom or infrequent construction methods; Special engineered lifts; Unique situations

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Our industry is encouraged by OSHA's support of industry efforts to develop consensus standards to help ensure a quality and safe working environment on each and every work site. It is important for everyone in our industry to recognize that OSHA has and will most likely continue to use consensus standards to ensure safety. Proper utilization of the ANSI/TIA-322, ANSI/ASSE A10.48 and other applicable standards specific to the construction activities performed results in reduced construction costs through planning, better procedures, increased risk identification and mitigation, and substantial improvements to overall construction safety and work quality. ■

Standards can be purchased at:

- **ANSI/TIA 322:** Available from IHS by visiting [https://global.ihs.com/home\\_page\\_tia.cfm?&rid=TIA](https://global.ihs.com/home_page_tia.cfm?&rid=TIA) or calling 1-877-413-5187
- **ANSI/ASSE A10.48:** Available from NATE by visiting [https://natehome.com/ANSI\\_ASSE\\_A10-48\\_Standard\\_order/](https://natehome.com/ANSI_ASSE_A10-48_Standard_order/)

