

Planning Advisory Notice



ANSI/TIA-1019-A Standard: Roles in the Construction Process

The March/April 2013 PAN introduced some of the concepts detailed in the ANSI/TIA-1019-A Standard for installation, alteration and maintenance of antenna supporting structures and antennas. This month's PAN will delve into the construction process, defined by the contractor that will be completing the modification of the existing structure or erection of a new structure, as well as the engineering services that may be required from a qualified engineer to ascertain the static strength and stability of the structure.

First, the roles of the contractor and engineer must be understood. The contractor is in sole control of the means and methods used to modify the structure. The qualified engineer provides an engineering service that evaluates the strength and stability of the structure based upon information obtained from the rigging plan established by the contractor which outlines the means and methods in accordance with the standards that apply to the scope of work (SOW). There is a definitive line of separation between the responsibilities of the engineer and contractor that must be maintained unless an engineer explicitly takes on both roles simultaneously, and enters into an agreement to become a supervising engineer.

When a contractor receives a request for quotation for the modification of a structure based upon a rigorous structural analysis report, the contractor must first establish the rigging class based upon the SOW, safety requirements and the ANSI/TIA-1019-A definitions. The person completing this task on behalf of the contractor is required to be trained as either a competent rigger or a qualified person, depending on the complexity of the planned construction.

The complexity of construction is outlined using various construction classes as defined in ANSI/TIA-1019-A, with the least complex defined as Class I and the most complex as Class IV. A competent rigger may prepare rigging plans for Classes I and II but a qualified person is required to prepare rigging plans for Classes III and IV. A qualified engineer may be required to be involved by the qualified person for Class IV construction to evaluate the strength and stability of the structure.

The following definitions are provided in ANSI/TIA-1019-A:

Competent Rigger:

A person knowledgeable and experienced with the procedures and equipment common to the

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Construction Classifications

Class	Description	Minimum Level of Responsibility
I	The scope of work does not affect the integrity of the structure and the proposed rigging loads are minor in comparison to the strength of the structure, but not exceeding rigging forces greater than 650 lbs.	Competent Rigger
II	The scope of work involves the removal or the addition of appurtenances, mounts, platforms, etc. that involve minor rigging loads in comparison to the strength of the structure, but not exceeding rigging forces greater than 1,000 lbs.	Competent Rigger
III	Rigging plans that involve work outside the scope of Class I, II or IV construction.	Qualified Person
IV	The scope of work involves custom or infrequent construction methods, removal of structural members or unique appurtenances, special engineered lifts, and unique situations.	Qualified Person with Qualified Engineer

communication structures industry and trained to identify hazards with authorization to take prompt corrective measures.

Qualified Person:

A person knowledgeable and experienced in the communication structures industry capable of developing rigging plans and who has successfully demonstrated the ability to coordinate construction related to the communication structures industry.

Qualified Engineer:

A professional engineer who is knowledgeable and experienced in the communication structures industry.

Once the rigging class has been determined, the qualified person creates a rigging plan, based upon the SOW, structure, and safety requirements. A rigging plan is a set of procedures and techniques that may include a requirement for temporary

supports to complete the transformation of the existing structure into the modified structure. For this discussion, a modified structure may be the addition/replacement of antennas, lines and mounts or the replacement/modification of structural components. The creation of the rigging plan is the representation of the means and methods used to complete the transformation of the structure in accordance with the SOW.

ANSI/TIA-1019-A Defines a Rigging Plan as:

A systematic and detailed presentation showing the equipment and procedures required for a construction process that will provide for the safety of personnel and for the stability of the structure and lifted components.

It is the sole responsibility of the contractor to create the rigging plan (means and methods). Some rigging plans can be used repetitively when the construction process is also repetitive, e.g. installing the same

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antenna on multiple structures of similar shape and size. The reuse of a rigging plan repetitively occurs most often for projects classified as construction Class I and II.

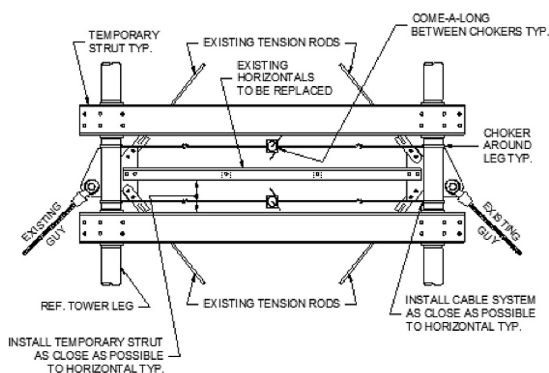
When the contractor determines that the rigging plan is for a construction Class IV project, they must engage the services of a qualified engineer in accordance with ANSI/TIA-1019-A when there are strength or stability concerns of the structure during the construction process. The qualified engineer is then engaged by the contractor to provide engineering services related to the strength and stability of the structure. The engineering services are a single or series of evaluations of the structure in different static or stationary configurations using the construction duration defined in the rigging plan to determine if each static configuration is compliant with ANSI/TIA-1019-A and ANSI/TIA-222.

Once the qualified engineer has reviewed the single or series of static cases presented in the rigging plan, the engineer can approve the static loading conditions outlined by the rigging plan or provide feedback to the competent rigger. Feedback is often

required if the rigging plan does not achieve the required stability as defined by ANSI/TIA-222 for the construction duration prescribed in the rigging plan and outlined in ANSI/TIA-1019-A. In this situation, the engineer will provide recommendations that will allow the qualified person to adjust or revise the rigging plan. The revised rigging plan is then presented to the engineer again to confirm that the revised plan is compliant with the engineering requirements. It is very important to understand that the feedback provided by the engineer is intended to assist the qualified person to make changes in the rigging plan. All feedback provided by the qualified engineer should be documented in an engineering report. Providing this information is not establishing or controlling the means and methods proposed to complete the construction, as this is the sole responsibility of the contractor. The safety of personnel is the primary responsibility of the contractor and this responsibility is never to be delegated.

Once the rigging plan is completed, the control of the rigging plan is transferred to the competent rigger in the field. In some instances, the competent rigger is also the qualified person. The competent rigger may find conditions in the field do not match the rigging plan provided. In these instances, the rigging plan may need to be revised. No work may proceed until the on-site competent rigger has reviewed and confirmed the rigging plan matches the field conditions.

The evaluation by the competent rigger includes reviewing the physical requirements outlined in the rigging plan such as the condition of the structure, the equipment to be used, and the means/methods that will be used to operate the equipment. It also includes



This diagram depicts one possible approach that can be used during the replacement of key structural members.

a review of the weather conditions outlined in the rigging plan during the duration of the construction process to ensure that the limitations of the rigging plan are not violated. And most importantly, the competent rigger must evaluate the rigging plan to confirm it will not create unsafe conditions for its employees or others.

Why is a rigging plan reviewed by a competent rigger if it was created by a qualified person? First, field conditions may not match the conditions outlined in the rigging plan. Obstacles may exist. Safety equipment, i.e. safety climb or ladders, may not be available or functional.

More importantly if a rigging plan is used repetitively, the only person to confirm that the rigging plan applies to the specific construction project is the competent rigger. The competent rigger is the last person to confirm the rigging plan is appropriate for the construction being implemented.

Finally, the competent rigger is fully responsible for training crew members in the installation, rigging and modification processes. This training is key to ensuring that the SOW is properly applied to the structure in a safe manner and that the system is installed and functions as designed. ■