Approved by General Counsel

TR-14 Meeting Report

Date(s): 05/29/2013 - 06/14/2013

Location: Virtual (conference call, web conference, etc.)

Approved: 08/09/2013

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Steering Non-Formulating Committee Meeting Report
For TR-14 (http://www.tiaonline.org/all-standards/committees/tr-14)

Date: May 29, 2013 (Steering Committee Meeting)

Location: Teleconference

Attendants: John Erichsen, PE, SE, Chair
Mark Malouf, PE, Vice-Chair
Bryan Lanier, PE, SE, Secretary
David Brinker, PE, SE, Editorial Committee
John Wahba, PhD, PE, Editorial Committee
Stephen Yeo, PE, Editorial Committee
Marianna Kramarikova, Manager, Technology & Standards

Meeting during this time commented on the following issues:

- Update by Mark Malouf regarding subtask committees. Note official email kickoff announcement including subcommittee listings, change proposals etc. went out to appropriate committee members on April 29. Progress of each task group is listed below:

  1. Initial conference call created, but never completed.
  2. Initial introductions have been made, no conference call yet.
  3. Preliminary conference call with list of objectives.
  4. Introductions have been made, initial conference call scheduled for June 7.
  5. Initial conference call and introductory emails have been made, lots of design ideas amongst group.
  6. Initial conference call has been made.
  7. No comments yet.
  8. Couple of conference calls have been completed, list of objectives started, specifically for modifications and requirements of a feasibility vs. rigorous structural analysis.
  9. Initial conference call made, list of items to discuss is being created.
  10. Initial conference call made.
  11. No comments yet.

- John's visit to the CCI Engineering Forum

  Main comment is fatigue is a concern amongst many in attendance. Discussion amongst steering committee on how to implement fatigue requirements into current task groups. Discussion is to continue.

- Comments by Marianna regarding meeting agenda for upcoming quorum. Specifically:

- Disposition of ANSI/TIA-222-G-2. Motion to reaffirm the ANSI document, with 3 votes needed: 1. Open existing project 2. Initiate a ballot 3. Approve Publication.
- Proposal for Project Initiation of ANSI/TIA-222-G-5. Motion to seek approval of the committee to open project for ANSI/TIA-222-G-5.
- Disposition of ANSI/TIA-222-H. Following motions are necessary:
  - Seek Committee approval for ANSI/TIA-222-H for an ANSI ballot.
  - Officially create working groups / subtask committees for various portions of document. Mark as already unofficially completed this task.
- Reapproval of TR-14.7 San Antonio TX (March 29, 2011) meeting report. Specific motions include:
  - Correct current verbiage from "SWA Design Addendum approved to go to public ballot" to "SWA Design Addendum ANSI/TIA-222-G-4 approved for project initiation."
  - Correct current verbiage from "Monopole Flange Design Addendum approved to go to public ballot" to "Monopole Flange Design Addendum ANSI/TIA-222-G-3 approved for ANSI project initiation."
- Meeting notice for calls must be distributed 24 days prior to 1st day of the meeting and meeting agenda must be distributed 14 days prior to 1st day of the meeting.

- Agenda will be started for next full meeting. Will need to generate a quorum list with companies and individuals present, along with effective way to record attendees. Electronic means may / may not be appropriate.

- Gain in membership of various individuals / firms:
  - Krupakaran Kolandaivelu, NB&C Engineering Services, LLC (http://www.networkbuilding.com/)
  - Martin Piercey, Pier Structural Engineering Corporation (http://www.p-sec.ca/)

FAQ Requests and Clarifications

- Section 2.6.5.2 "Velocity Pressure Coefficient"
  Question: Shall "z" in the equation be based on mid-height of panels of lattice structures or is it a centroid location of lattice structures panel?
  For example if the length of panel (Bracing type = X-Brace) is 10 ft then z should be = 5 ft or based on the centroid location.

  Per Section 2.6.5.2 the Velocity Pressure Coefficient may be based on the mid-height of the section. The intent was to allow a simplified method for determining wind loads compared to requiring the calculation of the centroid of the section.

- Categories: Section 4.0 - Design Strength of Structural Steel,

Section 4.9.9: I'm using this section to calculate the tension capacity of a solid round guy anchor shaft. For this case the V/n factor is 0. For the value of Phi Rnt this section refers me to Section 4.9.6.1. Under this section for a solid round un-threaded anchor shaft I assume An can equal Ag. Fub is defined as the specified minimum tensile strength. This description alludes to Fub=Fy but I believe the intent was for Fub to = Fu. Can you verify that per 4.9.6.1 the guy anchor rod tension capacity is .8*Fu*Ag?

Section 4.9.9 is intended to apply to anchor bolts (Anchor Rods per latest AISC terminology). Section 4.6.3 applies to guy anchor shafts.

- Categories: Section 2.0 - Loads

  Section 2.6.6.4 - Rev-G provides a simplified method of calculating Kzt that differs from the method provided in Figure 6-4 of ASCE7. The resulting wind pressures when using the Rev-G method are often significantly higher than those calculated using the ASCE7 method. Is it acceptable to use ASCE7 wind pressures instead of defaulting to Rev-G wind pressures when Kzt>1?

  Per Section 2.6.6.2 Category 5 allows the use of site-specific investigation. A.2.6.6 states that ASCE 7-02 is an acceptable methodology for determining wind speed-up criteria.

- Categories: Section 4.0 - Design Strength of Structural Steel

  Which is the unbraced length to consider, according to section 4.5.4.2, for tubular pole structures where sections differ in diameter and/or thickness?

  Section 4.5.4.2 is intended to be applied to latticed tower members. Unbraced length does not enter into the calculations of strength for tubular pole structures per Section 4.8.2.

- Categories: Section 15 – Existing Structures

  I am a commercial building reviewer for the City of San Antonio. My question is related to cell tower collocations. San Antonio requires that a building permit is secured before the work is started. Typically, the applicant submits a structural analysis of the existing cell tower using TIA 222- Rev G as the standard. We recently had an engineer prepare a structural analysis report for the replacement of antennas on an existing cell tower using TIA 222-F as the standard. He has stated that conformance to 3108.1 of the 2012 IBC and TIA 222-G is not required. Can you please advise?

  Per Section 15.4 Revision F may be used to determine if there is a significant change in loading for Class I and II structures in which case the required modifications must be determined in accordance with TIA-222-G. A Revision F analysis may be used for demonstrating conformance to TIA-222-G when the changed condition is not significant (increase in strength requirements ≤ 5%).

- Categories: Section 2.0 - Loads

  Does section 2.8.2 Limit State Deformations of ANSI/TIA 222-G apply to the tower structures, or does it apply to appurtenances only?

Section 2.8.2 Limit State Deformations applies to the structure.

If this displacement limit applies to tower sections, in the case of a stealth monopole tower would the 3% limit be applied over the whole height of the tower (tower+stealth section) or should it be applied over just the stealth section?

The 3% limit applies to the entire structure including the stealth section.

Can section 2.8.2 also be applied to a TIA-222-F structural analysis since currently this code does not include any displacement limits?

Revision F deflection limitations are left to the discretion of the engineer or owner.

- Categories: Section 4.0 – Design Strength of Structural Steel

  Table 4-6 provides slenderness requirements for horizontal members, specifically at the bottom, that are usually considered as redundant members. Two slenderness checks are required, H1/rmin and 2H1/rout. Question is, if the diagonal members are continuous through the crossover point and at least one of the legs the redundant member is connected to is in tension, is the intent for the 2H1/rout to be applicable? Or would the H1/rmin be satisfactory? The intent here seems to be for 2H1/rout is to account for tower legs were both legs connected to the redundant member are in compression (e.g. guyed tower) and all bracing in the bay would be in compression too. Would this be a correct assumption or is 2H1/rout applicable for all cases?

  The third figure in Table 4-6 is intended for the condition of non-continuous diagonals. Per Section 4.5.2.1 the out of plane buckling resistance of the horizontal need only be considered when a continuous horizontal is used to provide support at the cross-over point.

- Categories: Section 2.0 - Loads

  Where it has been suggested in previous posts that topography factors shall be determined in the worst case wind direction. Can the combination of topography factors and exposure factors in specific wind directions be looked at differently for each wind direction or must the worst case topography and worst case exposure apply in all wind directions?

  One Exposure Category is to be used for all directions per Section 2.6.5.1. The topographic factor can be direction dependent when Topographic Category 5 is used.

- Categories: Annex C

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One thing I recently noticed was in Table C1, pg 199, for 210 deg Cm should be -0.1086 and not +0.1086. I'm pretty sure this has not been addressed in any addendum. However, this is pretty minor.

This will be corrected in a future publication of the Standard.

TIA-222-G / H Change Proposals

- Proposal by Gregg Fehrman regarding section 7, specially guy assemblies verbiage.
- Proposal by Gregg Fehrman regarding Ca and Ka relationship with respect to transitional flow zone.
- Proposal by John Erichsen regarding appendix C, stress from microwave tie-backs.
- Proposal by Adam Jones and James Ruedingler regarding antenna equipment loads / design strength requirements.

This meeting was conducted in accordance with the TIA Legal Guides and Engineering Manual.