

## STAC Engineering Guidelines & Practices Sub-Committee Meeting Notes

Meeting: July 27, 2016; 2:30 p.m.-3:30 p.m. EDT



Structure, Tower &  
Antenna Council  
Conseil des structures,  
pylônes et antennes

Next Call: TBD

DIAL IN INFO: Toll-free: 1-866-234-0247; Local (Toronto): 416-443-4589

Conference ID: 612392

WebEx Address:

### Action Items:

- Committee members/companies to write to Nick to express any interest in fall protection engineering training program offered by Greg Small (no obligation)
  - Please indicate cities of preference (note: costs will be lowest for Calgary and Toronto sessions)
- Carrier representatives to complete STAC Anchor Shaft Corrosion Protection survey or to contact Nick if they have not yet received a copy
- Committee members to share with Nick their thoughts on how to address anchor shaft resultant angle issue raised by Sean
  - Nick to scrub documents as requested before sharing with S37 committee
- Nick to follow up with Greg Small about training opportunity – to ask if he could run a session to coincide with STAC 2017
- Nick to write note in Worker Antenna Mount Access document to explain the overlap in the chart on page 3
- Nick to change first line on section 9.1. of Worker Antenna Mount Access document, which incorrectly references single antenna mount
- Nick to add wording of federal anchorage requirements to Section 10 of Worker Antenna Mount Access document

### Attendees:

- |                               |                                  |
|-------------------------------|----------------------------------|
| • Nick Kyonka (STAC)          | • Julie Blouin (Stantec)         |
| • Jonathan Walsh (TEI)        | • Marina Guerra (Bell)           |
| • Alex Williams (PSEC)        | • Mirjana Lukac (Telecon)        |
| • Ali Raja (Rogers)           | • Michael Harrington (Advantage) |
| • Asma Arefeen (Rogers)       | • Michael Morgan (PSEC)          |
| • Blair Bittner (WesTower)    | • Olivera Ristic (Telecon)       |
| • Cesar Galvez (Telecon)      | • Paul Gulletson (CSA)           |
| • Christian Dulude (CIMA+)    | • Rafik Al Dahhan (Rogers)       |
| • Cindy Dostatni (Advantage)  | • Ron Aharoni (COMsolve)         |
| • Clay Parchewsky (WesTower)  | • Roy Holland (Rogers)           |
| • Frank Tang (TELUS)          | • Sean Hayman (Varcon)           |
| • Greg Gasbarre (Netricom)    | • Serge Arseneault (WSP)         |
| • John McKay (Grundty)        | • Shane Hartlen (WSP)            |
| • Jonathan Dostie (Pinargon)  | • Shawn Hoffmeyer (PSEC)         |
| • Jonathan Milette (Pinargon) | • Simon Weisman (Guymast)        |
| • Juan Quintero (Stantec)     | • Trevor Bolt (Varcon)           |

### Meeting Notes:

1. Fall Protection Engineering Training Opportunity
  - a. Identification of Opportunities, Options and Costs
    - Nick sent around information relating to a training opportunity for STAC tower engineers

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- Program would be offered by Greg Small of High Engineering, and would focus on providing fall protection engineering training to tower engineers
  - In normal, open enrollment situations where Greg would arrange for his own travel and for a venue and lunches, the Level 1 program would typically cost about \$1,900 per person, but we have some options here:
    - Greg has said he'd be willing to meet with a team of STAC engineers for a general discussion about fall protection engineering principles at no charge, though this would be a discussion instead of training
      - Would have to be timed around his CSA meetings in Toronto in October, or else we would have to travel to him in Calgary
    - We can also reduce Greg's travel costs (and thus enrollment costs) by holding a full training seminar in Calgary, or in Toronto around Greg's CSA meetings in October
      - Greg's meeting in Toronto is Oct. 4-6, meaning we could hold the training on either a Sunday/Monday or a Friday/Saturday
      - Presumably, we can also reduce costs further by finding a free venue we could use, by handling enrollment administration on STAC's end, or potentially by finding sponsor(s) for the event
        - STAC Steering Committee has expressed a desire to see sponsorship for this event, though we would have to confirm with Greg that this is permissible
  - Nick notes that we could, in theory, have one session in Toronto, one in Calgary, and one in Halifax or St. John's if there is sufficient demand
    - Likely that the one in Halifax would cost more though, but may still be better than everyone flying to Toronto from a cost perspective
- b. Expressions of Interest
- Nick notes that Greg requires at least six participants at each session
  - Nick asks if there is interest in this training opportunity generally
    - Jonathan says he is interested in the training program and he believes it is good value: asks whether we can ask Greg whether we can tack on a session to the STAC Conference (Nick to follow up)
    - PSEC and Stantec also express interest
    - Nick asks whether there is interest in exploring a Halifax or St. John's option
    - Nick asks whether there is interest in exploring a Calgary option
    - Nick asks everyone with a strong interest to email him to let him know their preferences so he has a general sense of demand
2. Corrosion Protection Project
- a. Status Update
- Steel anchor shaft corrosion project run by Anil is well underway
    - Wolfgang from Stantec has drafted a document that identifies anode design calculations
    - Nick worked with team to develop a survey that has been sent out to most carriers, though not all that asks about cathodic protection practices
      - If you are the correct person to respond to this survey at your company but haven't yet seen it, please contact Nick to let him know
    - Will provide further update at next sub-committee meeting
3. Pinwheel Fall Arrest

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- a. Status Update
    - Decided at last full sub-committee meeting to have a separate call dedicated to discussing this issue, which was held in mid-May
    - During that call, the engineers asked Clay and Gord to create a document that explained how workers typically access antenna mounts on various types of pinwheel
      - It's our hope that this document will provide a more finely tuned perspective of when the anchorage requirement is an issue, and what steps are currently being taken to mitigate the issue in the field
  - b. Review of "Worker Antenna Mount Access" Document (Draft)
    - Nick pulls up document on WebEx, notes that this is still a working document and not yet finished: Asks everyone to follow along as he goes through this document quickly and to identify anything that is unclear or which may require additional information or explanation
      - Cover – General agreement that title should be changed from "Best Practices" to "Current Practices"
      - Inside Cover – no notes
      - Page 1 – no notes
      - Page 2 – question as to why weights listed in two chart rows are not mutually exclusive
        - Clay notes that this relates to energy absorber options available: E4 vs. E6
          - Note: If a worker is 225 lbs. and fell while using an E4 absorber, he would fall a bit further but exposed to reduced arresting force
            - E4 opens to about 4 feet, E6 opens to about 5.5 feet
          - Nick to write note in document to explain the overlap in the chart
      - Page 4 – Nick to change first line which incorrectly references single antenna mount
        - Nick notes that someone has already commented that the access process identified in section 9.1 creates an anchorage issue
          - Nick notes the Pinwheel Fall Arrest group will review this document again while looking more carefully at the access processes identified to determine where anchorage problems currently exist
        - Nick notes that there are more detailed worker access forms that will be included at the end of this document
      - Page 8 – Nick to add wording of federal anchorage requirements to Section 10
      - Committee member asks whether this document should identify how liability in the case of an accident is split between employer, employee, site owner, etc ...
        - General agreement that this document should not address this due to case-by-case nature of liability division
      - Committee member asks whether this document will be converted to a Best Practices document going forward, or if there is another approach going forward
        - Nick says he believes the Pinwheel Fall Arrest team should determine what the next steps will be at a meeting, likely during the week of Aug. 8 or 15
4. Scheduling of Next Call
    - General agreement to wait until September until next sub-committee call due to vacations in August
  5. Other
    - a. Sean brings up topic of anchor shaft resultant angles: says he has spoken with consultants and would like to see an industry standard identified for towers being built with non-pin



connections for anchor shafts and also using resultant angle of a structural analysis under ULS and transferring bending moment into anchor shaft

- Says different consultants have different degrees of angles that they believe are sufficient and don't check (eg: some say if it's within 5 degrees of original anchor shaft angle it's fine, while others say if it's within 2 degrees)
- Sean says his concern is that when you do the checks, you can see that it's several 100% overloaded
  - Committee member says this is because the calculations are faulty; have not determined the actual moment
  - General agreement this is not addressed in CSA S37
  - Committee member says there is a question about how you go about checking, though others note that a question relates to tolerance in general
    - Committee member says it is risky to assume a tolerance
    - Committee member says if you apply the moment that you calculated simply with the transverse load of the anchor shaft, you end up with a deflection of the anchor shaft that will change the moment because the guy tension is still applied
      - Says guy pull is much higher than the transverse load
      - General agreement that this is an issue that design engineers should be working on
  - Committee member asks whether anyone has seen any bending?
    - Committee member says there are cases where people have seen anchor shafts being bent once they're uncovered; notes that sometimes people simply reinforce a tower instead of replacing the anchor shafts
  - Committee member asks whether STAC should ask S37 committee to look at this
    - Marina says she will bring this up to S37 committee: says no need for a formal communication from STAC
      - Committee member notes that STAC can help collect engineers' proposed solutions to share with S37 committee
        - General agreement that Nick should request this in the notes: can scrub documents if need be before sharing with S37 committee