

Date: September 11, 2017
To: ASCE Student Chapter and Concrete Canoe Teams
Subject: 2018 ASCE National Concrete Canoe Competition

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The *Competition Memorandum* covers a wide range of topics which the CNCCC wishes to address such as, proper referencing of documents in the design report, copyright infringement and theme selection, common errors on mixture design tables.

Wildcard Teams

New this year, in the spirit imparted by R. John Craig as he envisioned the National Competition, in addition to the top qualified team from each Student Conference, up to six (6) teams, geographically disbursed, may also qualify to participate at the National Competition as a designated *Wildcard Team*. ***This change eliminates the “Top Five” rule where teams could qualify if the conference champion had placed in the overall top five of the previous year’s National Competition.***

There are very specific requirements for Student Chapters to be considered in the pool of potential Wildcard teams. They must:

- Score in the top one-third (1/3) of all Annual Student Chapter Reports (which must be submitted by February 1, 2018 to be considered),
- Respond to a notice from ASCE with a Statement of Interest (including a letter of support from their Department Chair and ASCE Chapter Faculty Advisor), and
- Finish overall within the top half (1/2) of their respective Conference Concrete Canoe Competition

All eligible student chapters will receive an email notice immediately after the Annual Student Chapter Reports are scored. Teams will need to respond with a Statement of Interest within two (2) weeks of receipt. After all Student Conferences are complete, all eligible student chapters that placed in the top half (1/2) of their respective competitions will be cross referenced with those that submitted a Statement of Interest. From that group, up to six (6) teams will be selected randomly to be invited to the National Competition.

The Statement of Interest will be a simple one-page letter stating that the ASCE Student Chapter would be interested in competing at the National Competition, has the backing of its department, and has the financial resources to do so. It is not intended for teams to “justify” that they should be invited due to their long and storied canoe tradition, competitive spirit, or the fact that they have never been to a National Competition.

We hope that this opportunity will allow more ASCE student chapters to experience the learning, teamwork, pride and fun involved while participating the National Concrete Canoe Competition.

Copyright Infringement and Theme Selection

From the very beginning of the National Competition over 30 years ago, teams have used a wide range of themes for their canoe, paper and sometimes presentations – the Flintstones, James Bond, Willy Wonka, Star Wars, Jeopardy!, so on and so forth. Concerns have been recently raised of whether there are copyright issues related to the use of photographs and other media, themes, the names themselves, etc. This past year, one team used a Disney-related theme and then were told by the copyright holder that they could not use it (fortunately for them, they were able to simply rename the canoe and turn their theme into a more generic one). **The CNCCC strongly encourages teams to ensure that their themes are not violating copyright laws in their theme selection** (one way is to contact their legal departments to assist in this determination).

Requests for Information (RFI)

Requests for Information (RFI) are to be directed via e-mail to the CNCCC at cnccc@asce.org. **Teams are strongly encouraged to contact the CNCCC to avoid misinterpretation of rules at the Competitions.** All RFIs will be made public. Over the years, teams have sometimes avoided sending a RFI to the CNCCC to not give away an innovative idea, product, or competition strategy, or an unconventional interpretation of a rule. This then may have led to severe deductions at the competition because when it was eventually reviewed by the CNCCC, a determination was made that it was non-compliant with the rules. *To avoid this situation, ask the question!*

Appeals

Teams are afforded the opportunity to appeal a deduction applied to them by having the designated team captains file a *Request for Clarification and Appeals Form*. An option is also given to have the captains to request the judges to contact the CNCCC in resolving the appeal. Please note that the CNCCC has several members on-call every weekend that there is a Conference Competition. We are here to help!

With that said, there have been instances where the CNCCC is contacted after the completion of a competition by schools indicating that issues occurred at the competition which they feel lead to them not winning, to the point of requesting a waiver to be invited to the National Competition. The CNCCC will not entertain such appeals (this is not to say you will not get a response from us). Again, the best way to avoid this, is to immediately address it with the judges, or the host school if appropriate, and to request assistance from the CNCCC during the competition, not after the fact.

Proper Referencing of Documents in the Design Report

The following are examples of how to properly give your reference to various documents, software programs:

ASCE (American Society of Civil Engineers). (2017). “2017 ASCE National Concrete Canoe Competition Rules and Regulations”. American Society of Civil Engineers National Concrete Canoe Competition. <<http://www.asce.org/event/2017/concrete-canoe/>> (Sept. 10, 2016).

ASTM (American Society for Testing Materials). (2011). “Standard Specification for Hydrated Lime for Masonry Purposes.” C207-06, West Conshohocken, PA.
AutoCAD 2017 (N.52.0.0). Computer Software. Autodesk, Inc., San Rafael, CA.

Maxsurf (2016). Computer Software. Bentley Systems, Exton, PA.

Shi, C., and Wu, Y., (2008). “Studies on some factors affecting CO₂ curing of lightweight concrete products.” *Resources, Conservation and Recycling*, 52(8-9), 1087-1092.

Over the last several years, many conferences have had several returning judges who had raised issues regarding design reports from a given school looking like their previous reports (sometimes word for word), but without properly citing themselves (i.e., self-plagiarism). Typical examples include figures used in past reports are re-used in current reports and language that tends to sound like the work was done for the current competition, when in fact, it is based on work previously done by others.

The CNCCC believes that the issue is that teams look at the reports as a work product developed over the years and that “XYZ” refers to all teams from XYZ. However, there is a difference between the 2018 XYZ team, the 2017 XYZ team, and the 2001 XYZ team. ***Therefore, as needed, you shall properly reference and cite any figure, statement, results, etc. generated by your previous teams.***

Material Technical Data Sheets

Material Technical Data Sheets (MTDS) for each material used in the construction of the canoe is to be included in the *Project Overview and Technical Addendum*. Safety Data Sheets (SDS) are not MTDS. They can be provided to supplement MTDS, but they are not to be used in lieu of them.

Common Errors on Mixture Design Tables

Appendix C of the Rules and Regulations provides an example of a detailed calculation for the completion of the mixture design table (Table 3.1). Over the years, the CNCCC has reviewed numerous tables at both the conference and national levels and have found various common errors that we want to bring to your attention and to provide some helpful hints:

- **Use the correct table!** – Some teams used the three-tiered table (as-designed, batched, and yielded) last year. Be advised, the table this year has been slightly modified from the one used last year.
- **Yielded Proportions** – The table is set to show your final yielded proportions. For example, if you state that your measured density is 100 lb/ft³ (which is equal to 2700 lb/yd³), then the summation of all the masses in your mixture must equal 2700 lbs (the proportions are for 1 yd³ of concrete)
- **Theoretical Density (T) is always greater than the Measured Density (D)** – the value of T is based on “zero air” while the value of D has air in it. The mass used in the determination of the density is the same value; the volume for the measured density (if in lb/yd³) is 27 ft³, while the volume for the theoretical density must be less than 27 ft³. Which leads to the next topic...
- **Negative air content** – Mathematically, this can only occur if D is greater than T, which as stated above, is incorrect. Air takes up volume, so how can you have negative volume? (would require you to violate several laws of thermodynamics)
- **Use Appropriate Values for Specific Gravity** – as the 2017 National contingent can attest, the CNCCC did a thorough review of mixture designs, especially regarding values reported for ASTM C330 aggregates. In general, we found numerous teams using incorrect values (typically well below the manufacturer’s tested value). Adjusting values just to make the math work is not correct (for example, if the true SG of an aggregate is 2.1 but you “adjust” it and report 0.7, you

effectively tripled the volume for a given weight. So, a team with 100 lbs of aggregate at SG of 0.7 occupies the same volume as 300 lbs of the same aggregate at SG of 2.1. One can easily see how much of an advantage that a team tweaking the numbers has).

The following are some suggestions that can help the teams:

- **Check your math, then check it again!**
- **Have a professor or an independent engineer review the mixture design table** – ideally, someone other than the team members should be providing a review. The independent reviewer can usually pick out most of the mistakes.
- **Make the mixture design that you say is the yielded version** – More than likely, teams come up with a mixture design with the weight and strength that they need and attempt to finalize the mixture design on paper. We suggest that you then take that mix design on paper and then make a batch (or more) of that concrete, following the proportions reported.