



## **Significant Changes to the Rules and Regulations for the 2010 ASCE National Concrete Canoe Competition™**

Each year the rules and regulations are modified and updated in an effort to improve the overall competition and to assure that competitors design and build new canoes. Changes have been made to this year's edition of the rules based on responses to questions, issues that may have arisen at conference and national competitions, and feedback provided by students and judges. Some of these changes are significant while others are minor edits in language.

The intent of the significant changes is to challenge the student's skills, engineering judgment and creativity. The minor edits are primarily for clarification purposes.

The following is a list of the MAJOR changes to the rules and regulations applicable to the 2010 competition (as compared to the 2009 rules and regulations). Please note that not all of the changes are listed here and that it is the responsibility of all teams to carefully review the rules and regulations.

### **Section 1 – General Rules and Eligibility Requirements**

No significant changes to Section 1 have been made

### **Section 2 – Canoe**

- All teams are required to construct a canoe using a hull design that has been developed by the CNCCC. In general, the canoe is a 20-foot long hull with a maximum beam width of 31.2 inches located at a distance of 10.2 feet from the bow. The canoe features an elliptical cross-sectional shape with 4 inch radial chines and flared sidewalls, 4 inches of bow rocker and 3 inches of stern rocker. The depth of the canoe varies from 16 inches to 14 inches. Design specifications and drawings located on the [www.concretecanoe.asce.org](http://www.concretecanoe.asce.org) website.

### **Section 3 – Concrete**

- The aggregate(s) selected shall contain a minimum of two (2) different recycled materials. Each recycled aggregate must constitute at least 25% of the total amount of aggregate in the mix. Based on the total amount of aggregate in the concrete mixture, the aggregate mixture must have a recycled materials content of at least 50%. Recycling aggregate shall be defined as processing used materials into new products in order to prevent the waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage, reduce air and water pollution by reducing the need for "conventional" waste disposal, and lower greenhouse gas emissions as compared to virgin production.

## **Section 4 – Reinforcement**

- The minimum percent open area (POA) of any layer of reinforcing material is 30%.

## **Section 5 – Finishing**

- Language is incorporated to state that acid based or water based stains may be used as long as it has a maximum solids content of 5% and VOC of 350 g/L.
- Equivalent products may be submitted to the CNCCC for consideration as an approved equal for concrete stains and sealers.

## **Section 6 – Design Paper**

- The Hull Design section of the design paper has been removed
- The design paper shall contain the following sections – *Analysis, Development and Testing, Project Management and Construction, and Innovation and Sustainability* – in any proportion and the total content shall not exceed a total of seven (7) pages.
- The design drawing for the canoe itself has been removed.

Please note that the CNCCC does not dictate the submission deadline for conference competitions (that is left to the host school). In addition, the electronic submission of design paper and the Engineer's Notebook are not required at the conference level and should not be requested by the conference host school.

## **Section 7 – Engineer's Notebook**

No significant changes to Section 7 have been made.

## **Section 8 – Oral Presentation**

No significant changes to Section 8 have been made.

## **Section 9 – Final Product (Canoe and Cutaway Section)**

- Final Product assessment consists of assigning a score to the canoe based on the team's ability to replicate the hull design and its overall aesthetic appeal and by applying deductions based on the inability to pass the flotation test on the first attempt, the use of tape as a repair material for non-accident related damage, and non-compliance with the rules and regulations.
- To assess the team's ability to replicate the hull design provided by the CNCCC, the judges will make appropriate measurements of the canoe's length, width, heights, bow/stern rocker,

and cross sectional shape. The cross sectional shape will be gauged using three (3) templates, one from each third of the canoe's overall length, at stations to be determined by the CNCCC prior to the start of the conference competitions. These stations may not be the same used at the National Competition, and the CNCCC reserves the right to change the number of templates used.

- Deductions shall be assessed against canoes that do not have the correct length, width, height and/or rocker. The assessment of the team's ability to meet the desired cross-sectional shape is subjective, using the templates as a method to assist in judging, and will be taken into account on the judge's rating sheet.
- No additional pictures or text shall be included with the exception of labels properly identifying specific construction elements of the cutaway section.

## **Section 10 – Product Display**

No significant changes to Section 10 have been made.

## **Section 11**

No significant changes to Section 11 have been made.

## **Section 12**

No significant changes to Section 12 have been made.

## **Section 13**

No significant changes to Section 13 have been made.

The Rules and Regulations of the 2010 ASCE National Concrete Canoe Competition is a very comprehensive document as it serves multiple purposes – it provides the specifications that the students need to meet for the competition, it provides guidance to the conference and national judges on the various aspects that they need to evaluate and judge, and it serves as a guide to the host schools for determining the requirements for hosting the competition.

Every effort has been made to provide clear language in this edition of the rules and regulations. Students are advised to read the rules carefully and to make interpretations based on sound engineering judgment and experience. The CNCCC will provide clarifications as needed.

Questions regarding rule interpretations should be directed via e-mail to [cnccc@ermail.asce.org](mailto:cnccc@ermail.asce.org).

Official responses will come from [CNCCC@asce.org](mailto:CNCCC@asce.org). This e-mail account will be BLOCKED from receiving e-mail and is only intended to be used to send out responses and other announcements.