**The 2023 International Concrete Dragon Boat Invitational Competition**

**Technical Proposal**

 **Group Number**

 **Group Name**

**Name of Product**

**Student #1**

**Student #2**

**Student #3**

**Student #4**

**Student #5**

**Advisor**

**Central South University, China**

**June 17-18, 2023**

**Typing Instructions**

1. **Quality**: Electronic submission and hard copy are required. The electronic manuscripts should be in MS Word format or PDF format.
2. **Margins**: Please use A4 size paper. Please set a 30mm margin on top and bottom; and 23mm for both left and right side margins to give a print area of 164mm wide and 237mm high.
3. **Typeface**: Use single spaced Times New Roman font (or similar) with a font size of 12 points for the paper body. (Note that the instructions are in Times New Roman, single spaced, 12 points.) The entire text of the paper must be full (left and right) justified.
4. **Title**: The title of the paper must appear centered on the first page in all **BOLD** face capital letters.
5. **Authors' Names**: The name, affiliation, and address of the authors must follow and be separated from the title by two lines of space. This block of information must also be centered, but not in bold face letters.

**Main Headings**: such as **Introduction**, etc., should be in **Bold and capital**, centered. Keep headings short, succinct and meaningful. Avoid using article words in titles, such as “the”. If necessary, use subheadings, in bold with only the first character in capital (such as **Specimen Details**), but flush left, and single spaced with the text followed.

*Please delete before your submission.*

**Experimental Program**

**Specimen Design**

The specimen used in this study was made at the DRAGON laboratory, at the University of Concrete, using the standard procedure per ACI recommendations. The typical size of the specimen is…..

1. **Paragraphs**: Add one space after headings and paragraphs. Each section must be separated from the end of the previous section by two lines of space. No indentations.
2. **Equations**: Equations must be typed. Indent equations five spaces or 12.5mm from the left margin. A reference number enclosed in parentheses and typed flush with the right margin must be included for each equation. In the text, refer to equations as, for example, Equation 1, or Equations 3, 4, and 5.
3. **Tables and figures** (including photos) must be inserted in the text, but in a way that separates them from the text by at least one lines of space at both the top and bottom. Tables and figures must be inserted in the text as close to the point of reference as possible, but authors must make sure that one table does not run over to the next page. The title of each table must precede the table. The captions for each figure must be typed below the figure. Titles and captions must be typed single spaced, across the full width of the table or figure, if necessary. All photographs (counted as figures) and illustrations must be clear and be of high quality for direct photographic reproductions.
4. **Acknowledgement** must be listed in a separate section before the references.
5. **References** must appear in a list in the references section at the end of the paper. The citation in the text must give the last name (s) of the author (s) followed by the year of publication enclosed in parentheses, e.g., (Mahin and Xiao, 1999). If there are more than three authors in one citation, give the last name of the first author only followed by "and et al.", (e.g., Mahin and et al., 1999). If there are two references by the same author (s) with the same year of publication, they must be distinguished by a or b, e.g. (Mahin and Xiao, 1999a), according to which comes first in the reference list, according to alphabetical order of the title of work. References must be listed alphabetically by the last name of the first author. When two or more references by the same author(s) are listed, they must be listed chronologically by the year of publication, the earliest first.

Example of reference:

Mahin, S. and Xiao, Y., 1999, "Guidelines for Submitting Camera-Ready Papers to the Sixth ASCCS International Conference in Los Angeles, 2000," ASCCS Standards, March, p.20-30.

1. **Pagination**: Do not include them in the main body of the manuscript.
2. **Units**: Primary units will be SI.

**See next page for the examples of 1st page, pages with figures, as well the last page.**

*Please delete once you submit.*

**Catalogue**

1. Geometry Properties
2. Structural Behavior and Calculations
3. Concrete Batching
4. Electric Control System Information
5. Design Aesthetics
6. Other Properties
7. Boat Data

**Geometry Properties**

*This page is for you to explain some geometric design and appearance of your Concrete Dragon Boat. The content should include pictures about your product, literal explanation and accurate measurements. Please delete once you submit.*

**Structural Behavior and Calculations**

*This page is for you to analyze the structural behavior of your Concrete Dragon Boat. You should analyze in both conditions of beyond the water and in the water, which includes but not limited in the fields of mechanic analysis, dynamic analysis. In addition, you should also provide the weight in this part. Please delete once you submit.*

**Concrete Batching**

*This page is for you to provide your batching of your concrete, i.e., the ratio among cement, sand, structural annexing agents etc. Please delete once you submit.*

**Electric Control System Information**

*This page is for you to briefly explain your design on your electric control system. The content should contain the power, the number, the location distribution of your electromotors, the voltage and capacity of your battery etc. Please delete once you submit.*

Design Aesthetics

*This page is for you to explain your design idea of your Concrete Dragon Boat, which should include pictures and literal explanations. Please delete once you submit.*

Boat Data

*This page is for you to explain your data of your Concrete Dragon Boat.*

|  |  |  |
| --- | --- | --- |
| **Project** | **Data** | **Note** |
| length |  CM | 80cm-100cm (not including decoration) |
| width |  CM | 5.0cm-30.0cm (excluding decoration) |
| height |  CM | 9.0cm-20.0cm (not including decoration) |
| weight | KG | Concrete usage should account for more than 50% of the total hull mass of the dragon boat (except the weight of electrical circuits such as motor and control system) |
| Concrete usage | KG |
| Number of momtors |  | Please fill in the number of motors truthfullyIn the case of the same total points in the race, the team with the low motor power is ranked first |
| Totoal motor power | W |
| Number of battery |  | Please fill in the battery number truthfullyTotal score and power are the same situation, the battery voltage is small ranked first |
| Total battery voltage | V |

# Acknowledgements

*The research described in this paper has been sponsored by the National Science Foundation, under Award No. 9710276. Please delete once you submit.*

# References

*ACI318, (1997), "Building Code Requirements for Reinforced Concrete," American Concrete Institute, Detroit.*

*AIJ, (1991), "Standards for Structural Calculation of Steel Reinforced Concrete Structures," Architectural Institute of Japan.*

*Priestley, M.J.N.; Seible, F.; Xiao, Y.; and Verma, R., (1994), "Steel Jacket Retrofit of Squat RC Bridge Columns for Enhanced Shear Strength - Part 1 - Theoretical Considerations and Test Design," ACI Structural Journal, July-August, pp.394-405.*

*Priestley, M.J.N.; Verma, R.; and Xiao, Y., (1994), "Seismic Shear Strength of Reinforced Concrete Columns," ASCE Structural Journal, American Society of Civil Engineering, July, pp.2310-2329. Please delete once you submit.*