This addendum provides the Technical Presentation score card and a list of questions that the judges can use during the 10-minute Judge’s question answer period.

Per section 8.0 of the Request for Proposals (RFP), the presentation is limited to 3 minutes and will be cutoff at precisely 3 minutes by a signal. Also, per Section 8.0 of the RFP, the technical presentation “…should focus on the primary aspects of the design, construction, and technical capabilities. Briefly summarize the major aspects of the project, with the intent of demonstrating why your team, design, and prototype should be selected by the panel of judges for the standardized design (recall this is a hypothetical scenario to provide an end goal for the RFP and the competition).”
<table>
<thead>
<tr>
<th>Technical Presentation</th>
<th>25% of Overall Score</th>
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<tbody>
<tr>
<td><strong>School Name:</strong></td>
<td>Possible Points</td>
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<tr>
<td><strong>Canoe Name:</strong></td>
<td>Score (whole numbers)</td>
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**Presenters**
- Preparation Level (10 points)
- Confidence/Voice Projection (6 points)
- Overall Demeanor (4 points)

**Presentation**
- Quality of Audio/Visuals (7 points)
- Content (20 points)
- Professionalism (8 points)

**Judges’ Questions**
- Preparation/Expertise in Answers (25 points)
- Confidence Level (10 points)
- Conciseness of Answers (10 points)

**Comments:**

**Subtotal**

**Deductions:**

The panel will evaluate the presentation based on what has been presented within the 3-minute timeframe. Presenters will be cutoff by a signal at the end of the three-minute timeframe.

- Failure to have at least 2 presenters: 15 points
- Sponsorship or commercialism violation: 15 points
- Failure to adhere to live presentation format: No Oral Presentation Points

**Academic Judging - Oral Presentation Total**
The questions listed in this addendum are provided as a list of potential questions that judges can use during the 10-minute answer period. The judges do not have to use any of these questions.

**General:**
1. Why do people use 11x17 sized paper for engineering drawings?
2. When are things most likely to go wrong?
3. How many concrete canoe team members does it take to …. [insert task]?
4. If you could eliminate one rule from the Concrete canoe competition or change one thing, what would it be?
5. What was your most memorable experience while working on the current year’s concrete canoe?
6. What would be your biggest challenge to scale up production for your canoe?
7. What was your least favorite part of the competition?
8. What is your biggest recommendation for next year’s team?
9. How do you facilitate knowledge transfer?
10. What was your biggest challenge?
11. If you could change one thing on your canoe, what would it be?
12. Are you concerned about your canoe breaking on race day? If so, where are you most concerned?

**Hull Design:**
1. What is the peak velocity of your canoe with two average paddlers? Explain how you figured this out and any assumptions.
2. What is the maximum weight limit of your canoe before it submerges? Explain how you figured this out.
3. How did you determine the length of your canoe?
4. When do you predict your canoe is going to reach the point when it cannot navigate a race and what will be the cause?
5. Please explain the relationship between cross-sectional area and drag force.
6. Please explain your [insert hull type]?
7. What do you feel is your worst assumption in the hull design analysis of the canoe?
8. What hull properties do you consider most important in your hull design?
9. How did you determine how much buoyancy to add to pass the swamp test?
10. Does the smoothness of your hull impact the drag forces? Please explain.
Structural:
1. [If applicable] Why do you use reinforcement in your canoe if your moment to cause cracking is less than the moment applied for the two 200 lb paddler and the 80 lb/ft distributed load?
2. How accurate is your assumed cross section for predicting the stresses in your cross section? Is the actual value of the stresses in the concrete for that same load case higher or lower than the one you calculated?
3. If your canoe is experiencing very large loads but is not failing, is the strain distribution for your cross section linear or nonlinear? Explain.
4. Is it beneficial that your concrete canoe is designed so that failure will occur well after the tensile stresses exceed the modulus of rupture of your concrete? Explain.
5. Do you have concerns about cold joint affects between layers of concrete?
6. [If applicable] How did you calculate how much to [pre or post] tension individual tendons?
7. [If applicable] Assuming linear elastic material properties do you think the inclusion of ribs increases cracking, decreases cracking, or it depends and justify your answer.
8. [If applicable] Explain why you do or do not need Young’s modulus to calculate stresses in your canoe?
9. What do you feel is your worst assumption in the stress analysis of the canoe?
10. How did you determine the transportation loading cases to consider?
11. If you could have a mix that exactly met your compressive and tensile stress requirements, how confident would you be on race day?

Mix Design:
1. What is the reaction that occurs when you mix cement and water?
2. Is the wet unit weight of your concrete pretty close to the dry unit weight? Explain why or why not.
3. What was your main criterion that you designed your mix to?
4. Please explain your method of depth control.
5. [If applicable] With the elimination of latex from the mix, what was your mix design strategy?
6. [If applicable] How much strength increase would you expect to see from the inclusion of fibers?
7. What is your definition of mix workability?
8. One of your mix design goals was to [insert goal], please explain why you chose this goal and how successful you were at meeting it.
9. Please explain how you calculated your composite flexural strength.
10. [If applicable] One of your mixes has glass in it. Are there any potential negative effects from this and if so, what would be the timescale that the issues would manifest themselves?
11. What does grade XXX slag mean in terms of strength?
12. Explain the rationale for using material XXX in your mixture design
13. What method did you use for your concrete mixture design? Summarize the basic concepts
14. How did you account for the moisture present in the aggregate when doing your mixture design?
15. How did you account for the absorption of the aggregate during your mixture design?
16. How did you cure your concrete?
17. Is curing important? Why?
18. What parameters affect curing?
19. What are the optimum curing conditions for strength and durability?
20. What factors affect compressive strength of concrete?
21. What factors affect permeability of concrete?
22. How would you reduce permeability of concrete?
23. For a mixture with given slump and cement content what effect does the addition of air entraining agent have on strength
24. What are the main components of hydrated cement paste?
25. Will curing of concrete at higher temperature increase its rate of strength development?
26. What will be the effect of the increased curing temperature on the ultimate value of compressive strength?
27. What strategies can you use to change the workability of concrete?
28. What would be the effect of adding fly ash (slag, silica fume, metakaolin) have on permeability of concrete?
29. What is the difference between setting and hardening of concrete?
30. Name at least three different ASTM types of Portland cement
31. What is a typical chemical composition of Type I Portland cement?
32. What is the difference between Type I and Type II Portland cement?
33. Which compounds present in Portland cement are primarily responsible for strength development?
34. Is fineness of Portland cement important? Why?
35. What pozzolanic materials are typically used to replace part of Portland cement in concrete mixtures?
36. Why do we replace part of cement with pozzolanic materials?

**Construction:**
1. How did you determine your method for demolding the canoe?
2. How did you determine your method for placing concrete on the mold?
3. Did you do any testing of your placement method before final construction and what were your biggest lessons learned?
4. How would you improve your finishing process?
5. What was your biggest improvement in the construction process from previous years?
6. What safety precautions did you take during the construction process?
7. How did you determine how long to cure your canoe?
Sustainability:
1. What does sustainability mean?
2. What efforts did you take to improve sustainability from last year?
3. Why is sustainability important?
4. How does sustainability increase or decrease the cost of your prototype?
5. If sustainability was not a part of this competition, would you still incorporate it?
6. What rule change would have the largest impact to increase sustainability? Why.

Project Management:
1. Why do you make a project schedule?
2. How did you determine who was going to be your paddlers?
3. How did you pick your team captains?
4. If I told you right now that I want to hire your team to make 500 concrete canoes just like the one your team built but that I needed you to produce them each for $1000 dollars, could you make it happen or would you need to change something? What would you need to change?
5. Knowing what you know now, if you started today, how many days/weeks/months would it take you to create the final product?
6. What is a critical path?
7. How did you organize team meetings?
8. How were decisions made on your team?
9. What was the toughest decision that your team had to make?
10. How did you keep track of the number of person-hours in the project?
11. What was your total project budget?
12. If you could redo where you spend money on your project where would you shift money from and where would it go within your project?