ASCE CONCRETE CANOE COMPETITION

Request for Information (RFI) Summary
February 2023

Some RFIs may include attached documents, which may not be included in this summary. For these documents, see the ASCE Concrete Canoe Facebook Page (https://www.facebook.com/ASCENCCC/).

Additional documents for the Request for Proposal can be found at:
https://www.asce.org/communities/student-members/conferences/rules

RFI No: 1
Subject: Race Equipment - Paddles
Section: Exhibit 9
Date Issued: 10/6/2022

QUESTION: The RFP mentions that single-bladed paddles that may be straight bladed or bent are allowed. We were wondering if a "steering paddle" can be used as long as it follows the previously mentioned requirement. The link below is an example of a steering paddle we are referring to. https://www.amazon.com/dp/B06XDBX2BZ/ref=cm_sw_r_cp_api_i_SJ6JN2N5112ZEEK6AMHM?th=1&psc=1

RESPONSE: Yes, this would be a straight, single bladed paddle and would be permitted.

RFI No: 2
Subject: Eligibility – Graduate Students
Section: Exhibit 3
Date Issued: 10/6/2022

QUESTION: I am interested in participating in this year's Concrete Canoe competition along with a fellow graduate peer and we would like to confirm our eligibility to assist our team.

Reading through Exhibit 3 of the Request for Proposal package, we see that the participants must be an undergraduate student or students that graduated during the academic year majoring in engineering. My peer and I both graduated May of 2022 with our Bachelor's and enrolled in our school's co-terminal

program to complete our masters in one year. Does this mean we cannot be listed as registered participants nor contribute to the design/construction of our team's canoe?

RESPONSE: Under Exhibit 3, Registered Participants, part (a) states in order to be a "Registered Participant," the student would need to an undergraduate during the current academic year (August 2022 to June 2023).

However, this applies only to being a "Registered Participant" at a Symposia or Society-wide Competitions, which affects who can present or answer questions during the Technical Presentation, as well as who is eligible to paddle during races. If someone is not eligible to be a registered participant, this does not mean they cannot participate in the project. We do highly encourage other students to participate during the school year with all other aspects of the concrete canoe project.

RFI No: 3
Subject: Cementitious Materials - Komponent
Section: Exhibit 5
Date Issued: 10/6/2022

QUESTION: Is CTS Komponent® Shrinkage-Compenseting Cement Additive allowable as a cementitious material?
(**https://www.ctscement.com/assets/doc/datasheets/KOMPONENT_Datasheet_DS_062_EN.pdf**)

RESPONSE: Yes, CTS Komponent is permitted. Per Exhibit 5, the table under Materials allows the use of Hydraulic Cement that meets ASTM C845. The product data provided on CTS Komponent shows the product meets ASTM C845.

RFI No: 4
Subject: Aggregate - Microspheres
Section: Exhibit 5
Date Issued: 10/6/2022

QUESTION: We have watched the video of concrete mixture design webinar posted on the website, and we find that microspheres is not allowed in 2021,but the RFP for 2023 doesn't mention it, so can we use microspheres (expanded glass) in this year?

RESPONSE: Yes, hollow glass microspheres are permitted as long as they follow the Exhibit 5 section on Aggregates. The mix design webinar video is still applicable for general information on the mixture table, tips, and other general mix design information. If there are any other specific questions regarding the webinar, please feel free to follow up.

RFI No: 5
Subject: Gunwale – 3D Printed Concrete
Section: Exhibit 5
Date Issued: 10/6/2022

QUESTION: We are wondering if we can apply the technology of 3D printed concrete to the fabrication of the gunwale

RESPONSE: This would be permitted as long as the concrete mixture used adheres to the requirements of Exhibit 5.

RFI No: 6
Subject: Submittal Dates - Typo
Section: 4.2.3
Date Issued: 10/6/2022

QUESTION: Under Section 4.2.3, there are two different times given for when the proposal paper for society wide finals is due. In the second bullet point under the "Digital Format" header. It states that the deadline is Tuesday, May 10th. Under the "Hard Copies" header, it states that the deadline is Wednesday, May 10th. May 10th is actually a Wednesday. Will the digital and hard copies of the proposal paper be due on Tuesday, May 9th or Wednesday, May 10th?

RESPONSE: The Tuesday was a leftover typo from the previous year. May 10, 2023 is the correct date, which is a Wednesday and aligns with the Exhibit 1 table and Exhibit 4 Pre-Qualification form dates of May 10, 2023.

RFI No: 7
Subject: Project Proposal – Page Limit Typo
Section: 5.3.6
Date Issued: 10/6/2022

QUESTION: Under section 5.3.6, the first paragraph states that "sections a through f are restricted to a total of ten (11) pages." Is the page limit 10 pages or 11 pages for this section?

RESPONSE: This was a leftover typo. This should read "*Sections a. through f. are restricted to a total page limit of eleven (11) pages.*" The intent this year is to increase the page limit from 10 to 11 compared to last year.

RFI No: 8
Subject: Evaluation – Category Weights
Section: 10.1 and Exhibit 11
Date Issued: 10/6/2022

QUESTION: Under Section 10.1, the evaluation table is split so that the project proposal is 30% of the total score and the technical presentation is 25% of the total score. On the score cards for these sections (pages 64 and 65), the header of the score cards states that the proposal and presentation are worth 25% and 20% respectively. This is what those categories were worth in the past before the EFA was dropped. What is the correct weighting of these categories?

RESPONSE: The percentages on the scorecards was a leftover typo that was inadvertently not updated. The Section 10.1 evaluation table and Section 10.3 table is correct, with the Project Proposal worth a maximum of 30 points, Technical Presentation worth a maximum of 25 points, Final Product Prototype worth a maximum of 25 points, and Races worth a maximum of 20 points.

RFI No: 9
Subject: Form/Mold Release Agents
Section: n/a
Date Issued: 10/6/2022

QUESTION: I don't believe that this year's RFP has any guidelines for what can be used as a "form/mold release" to remove concrete from the canoe mold. Are there any restrictions this year for what can be used as a mold release agent?

RESPONSE: There are no restrictions for form/mold release agents.

RFI No: 10
Subject: Mineral Fillers and Aggregates
Section: Exhibit 5
Date Issued: 10/7/22

QUESTION: Regarding the use of mineral filler (particles passing the 200 sieve) in Exhibit 5, is this now considered an aggregate? We wanted to verify the implication that fine microspheres such as S38 or K15 are included in meeting the compliance of the composite aggregate sieve analysis.

RESPONSE: Materials in past years that were considered mineral fillers (particles passing the #200 sieve) are now considered aggregates and need to comply with the composite aggregate sieve analysis requirements. The gradation requirements given in the RFP are percent passing by volume.

RFI No: 11
Subject: Canoe Stand Height
Section: 7.3.2
Date Issued: 10/7/22

QUESTION: Is the 4 feet off the ground measured from the top of the canoe or the bottom part of the canoe?

RESPONSE: The 4-foot measurement could be taken either from the top of the canoe or the bottom of the canoe. This would be considered to fall under the "approximately 4 feet off the ground" per Section 7.3.2.

RFI No: 12
Subject: Admixtures - Water Repellent Admixture (Darapel S80)
Section: Exhibit 5
Date Issued: 10/7/22

QUESTION: Can we use Darapel [S80] as an admixture in our mix this year?

RESPONSE: Darapel S80 is permitted to be used as a water-repellent admixture.

RFI No: 13
Subject: Cementitious Materials - VCAS 200
Section: Exhibit 5
Date Issued: 10/7/22

QUESTION: Is VCAS 200 allowable for use as a cementitious material? Its MTDS states it meets ASTM C618 but does not specify type.

RESPONSE: VCAS 200 is permitted. Although the MTDS does not specifically state the Class, reviewing what this material is made up of, and the available Classes in ASTM C618, this would fall under C618 Class N and be permitted for use.

RFI No: 14
Subject: Cement to Cementitious Materials Ratio (c/cm)
Section: Exhibit 5
Date Issued: 10/7/22

QUESTION: Regarding the proposed c/cm ratio, why is there a new proposed maximum of hydraulic cement (portland cement) to cementitious materials at 30% of cementitious materials? What are the penalties to exceeding this ratio? If so, how much?

RESPONSE: The limit on hydraulic cement material is meant to encourage use of high volumes of supplementary cementitious materials to encourage sustainable and low environmental impact concrete. If a team does not meet this 30% requirement, Infraction G on the Final Product Prototype Deduction Scorecard would be applied, which is a 15 unit deduction. In addition, judges may also take this into account in their subjective scores on the Project Proposal (under Concrete Mixture Materials and Proportions heading).

RFI No: 15
Subject: Calcium Hydroxide (Slaked Lime)
Section: Exhibit 5
Date Issued: 10/7/22

QUESTION: We would like to use Calcium Hydroxide (also known as slaked lime) as a special admixture this year. Please let us know if this would be allowed this year.

RESPONSE: This would not be considered an admixture. Hydrated lime or slaked lime can be used if it meets ASTM C207 (Type S or N) or C821. It would not count towards the 30% hydraulic cement limit.

RFI No: 16
Subject: C114 Material - Masonry Sand
Section: Exhibit 5
Date Issued: 10/11/22

QUESTION: I was wondering, if ASTM C114 Material: Masonry Sand would be compliant within admixture regulation or have approval to use within are mix design per request/approval with the C4 permission. As this material is available within the surrounding area and would help reach a sustainability goal using local

RESPONSE: The ASTM C114 Masonry sand would be counted as an aggregate and not an admixture- The rules state "Any natural, manufactured, or recycled aggregate is permitted" The combined gradation of all aggregates used in the mixture need to meet the given gradation requirements.

RFI No: 17
Subject: Aggregate Sieving
Section: Exhibit 5
Date Issued: 10/11/22

QUESTION: How should we find the gradation of aggregates that don't sieve well? For example, Enstryo, shredded foam. We tried to run it in a sieve shaker but it just stuck to the edges and didn't fall through the way it should.

RESPONSE: We would recommend contacting the manufacturer for advice on gradation measurement of their product. If the manufacturer cannot provide recommendations, please submit another RFI for the committee to consider.

RFI No: 18
Subject: C/CM Ratio
Section: Exhibit 5
Date Issued: 10/11/22

QUESTION: Good afternoon, I am a part of the RPI concrete canoe team and I just had a question about the c/cm ratio. Is 0.30 the minimum or the maximum c/cm ratio? Exhibit 5 implies that 0.30 is the maximum but a sample calculation in Exhibit 6 has the c/cm ratio going over 0.30.

RESPONSE: That is the maximum. The amount of cement cannot be greater than 30% of the total cementitious materials content.

RFI No: 19
Subject: Aggregate Gradation Alteration
Section: Exhibit 5
Date Issued: 10/11/22

QUESTION: In the intent of having a written proof of your answer, could you confirm this: Are we permitted to alter the gradation of one aggregate from stock condition to fit the particle size distribution required of all our combined aggregate?

RESPONSE: Yes. what matters is the combined gradation of all of the aggregates. You could sieve the aggregate into individual sieve sizes, weigh the amount to be used from each, and give a combined aggregate gradation that is desired that meets the requirements. Another example, say you had a fine

aggregate that had no aggregate on the #16 sieve. You could sieve a second aggregate and use only the #16 size fraction and add that to the first aggregate to meet the combined aggregate gradation.

RFI No: 20
Subject: Aggregate Gradation – Individual vs. Composite
Section: Exhibit 5
Date Issued: 10/12/22

QUESTION: In the aggregate gradation section of Exhibit 5, the percent passing values as well as the instructions in ASTM C136 are straightforward and easy to follow. However, the rules seem to be unclear on which of our final submitted gradations (Individual product(s) and composite aggregate(s)) must comply with the percent passing requirements. Is the correct interpretation that our individual aggregates may differ from the listed gradation and only our final composite aggregate mixes must follow the percent passing requirements?

RESPONSE: The gradation requirements table in Exhibit 5, under the Aggregates heading, showing the sieve sizes and percent passing applies to the composite aggregate for any given mix design.

The primary way to verify if a team's mix design(s) meets the percent passing requirements is to review the particle size distribution of the composite aggregate sample. Exhibit 5 states the team shall conduct a sieve analysis and provide a particle size distribution table of each individual aggregate and composite aggregate for each mix.

For the composite aggregate particle size distribution, for any given mix design, all the individual aggregates listed on a team's mix table, and the quantity of each aggregate used in that mixture combines to provide the composite aggregate used. A sieve analysis should then be conducted on the composite aggregate by following ASTM C136. This should be completed for all mix designs from the team. This information should be included as part of the team's MTDS Addendum. Be sure to label these clearly so it is easily distinguishable which mix design the information is associated with.

For the individual aggregate particle size distribution, teams should be conducting a sieve analysis on each individual aggregate used in each mix. If a team uses the aggregate as-received from their supplier, teams would conduct a sieve analysis on the aggregate, as-is. If a team does not use the aggregate as-received from their supplier, and instead segregates the particle sizes, the team should conduct a sieve analysis and only provide the information of the sizes used. This information should be included as part of the team's MTDS Addendum. Be sure to label each of the particle size distributions, so it is clear which aggregate on a team's mix table corresponds to a given individual aggregate.

RFI No: 21
Subject: Concrete Stains (Surecrete Eco-Stain)
Section: 6.5.2
Date Issued: 10/12/22

QUESTION: Regarding Section 6.5.2 of the RFP, for the rules on concrete staining, can you elaborate on the emphasis of transparent concrete staining? Would a semi-transparent colored stain such as the one attached (Eco-Stain by Surecrete) be compliant?
(https://surecretedesign.com/wp-content/uploads/2021/04/SC17-0014-001-TDS-Eco-Stain-3.pdf)

RESPONSE: See response to RFI #22 for further information on transparent stains. The proposed Surecrete Eco-Stain is a water-based penetrating stain, and would be acceptable for use. However, note the MTDS from the manufacturer states that depending on which size of stain is purchased, the product

would need water added. Teams should follow manufacturers' instructions for mixing of any concentrates or dry powder type stains.

RFI No: 22
Subject: Concrete Stains - 'Generally Transparent' & Euclid Increte
Section: 6.5.2
Date Issued: 10/12/22

QUESTION:

We were hoping for more clarity about what "generally transparent" means. For example if a stain describes itself as semi-transparent would that be enough or would one still need to exert their best judgment in determining if it's transparent enough? Is translucent considered transparent enough?

Below is a link to a concrete stain the team is currently looking into: https://www.euclidchemical.com/products/decorative-products/concrete-stains/increte-stone-essence/

RESPONSE: Section 6.5.2 states that any use of stains must be 'generally transparent' in nature. In general, this would be applicable for water-based and acid-based stains, which are penetrating stains that are non-membrane forming stains. The intent is so the stains allow people to see the actual concrete rather than covering up the concrete. We also do not want stain products to have the potential to add strength to the concrete. Fun Fact: wayyyy back in the 90's, some canoes were completely covered in car paint, which in some cases ended up being stronger than the actual concrete!

The proposed water-based Euclid Increte Stone Essense stain would be acceptable to use. However, note the MTDS from the manufacturer states this product is a concentrate and needs 3 parts water added to 1 part stain. Teams should follow manufacturers' instructions for mixing of any concentrates or dry powder type stains.

RFI No: 23
Subject: Aggregate Gradation
Section: Exhibit 5
Date Issued: 10/12/22

QUESTION: We have a quick question regarding the aggregate gradation requirement outlined in exhibit 5. If we are to make a composite aggregate from 3 different particle sizes as received from the manufacturer, does each separate component need to meet the gradation requirements or just the composite as a whole? We will be reporting the composite as one aggregate and not as 3 separate aggregates in our mix design table.

RESPONSE: See RFI #20 for additional information. The percent passing table in Exhibit 5, under Aggregates, applies to each concrete mixture composite. However, the requirement for providing a sieve analysis with particle size distribution for each individual aggregate applies to each aggregate listed in a given mix table.

RFI No: 24
Subject: Individual vs. Composite Aggregate Gradation
Section: Exhibit 5
Date Issued: 10/17/22

QUESTION: In the 2023 ASCE Concrete Canoe Competition Rules, it does not specify whether an individual aggregate and/or the composite aggregates need to meet the Gradation Requirements. Please clarity if ALL INDIVIDUAL aggregates need to meet the Gradation Requirements and/or if ONLY THE COMPOSITE aggregate needs to meet the Gradation Requirements.

RESPONSE: See RFI. 20 *for Aggregate Gradation – Individual vs. Composite RFI>* for additional information. The percent passing table in Exhibit 5, under Aggregates, applies to each concrete mixture composite. However, the requirement for providing a sieve analysis with particle size distribution for each individual aggregate applies to each aggregate listed in a given mix table.

RFI No: 25
Subject: Eligibility - Academic Year Requirements
Section: 10
Date Issued: 10/17/22

QUESTION: I have a question about some information I came across in the 2023 rulebook…Section 10.4.3 states that a team can be disqualified if they don't follow the academic year requirements. I tried to look for more information about this, but Section 3 does not state anything about academic year, and the information about academic year in exhibit 3 seemed very inclusive. Could you provide an example or give me more information about how a team can be disqualified if they don't follow academic year requirements?

RESPONSE: The language in this section could be clearer, but the intent is for teams to submit proposals, prototypes, etc. that were created during the current academic year. So for example if a team submitted a proposal and built a prototype that were developed in 2021 for the current competition, that would be grounds for disqualification. This is also tied with "Canoe not built within current academic year..." Infraction A on the Final Product Prototype Deduction Score Card.

RFI No: 26
Subject: Mineral Fillers/Aggregates
Section: Exhibit 5
Date Issued: 10/17/22

QUESTION: The section explaining mineral fillers has been completely removed from this year's RFI as compared to last years. I was wondering if this means that aggregates that pass the 200 sieve will now be required to be a part of the volume of aggregate calculations as compared to last year where they were not?

RESPONSE: Yes, you are correct, aggregate passing the #200 sieve will need to be included in the aggregate calculations. Same response as RFI #10: Materials in past years that were considered mineral

fillers (particles passing the #200 sieve) are now considered aggregates and need to comply with the composite aggregate sieve analysis requirements. The gradation requirements given in the RFP are percent passing by volume.

RFI No: 27
Subject: Mineral Fillers/Microsphere Aggregates
Section: Exhibit 5
Date Issued: 10/17/22

QUESTION: In the 2023 ASCE Concrete Canoe Competition Rules, it does not state whether Mineral Fillers, such as Glass Bubbles, are allowed. Please clarify if Glass Bubbles are allowed to use as one of the materials for the mix design this year. Examples include but are not limited to: 3M K20 Glass Bubbles, 3M S32 Glass Bubbles, 3M Glass Bubbles K25.

Additionally, if Mineral Fillers, such as Glass Bubbles are allowed, does it fall under the category a solid or aggregate? If the Mineral Filler, such as Glass Bubbles, falls under the category of an aggregate, does it need to comply with the Gradation Requirements?

RESPONSE: Glass microspheres are permitted and need to follow the aggregate requirements. Remainder of response same as RFI #10: Materials in past years that were considered mineral fillers (particles passing the #200 sieve) are now considered aggregates and need to comply with the composite aggregate sieve analysis requirements. The gradation requirements given in the RFP are percent passing by volume.

RFI No: 28
Subject: Aggregate Gradation - By Volume vs Mass
Section: Exhibit 5
Date Issued: 10/17/22

QUESTION: In the aggregate section of exhibit 5 of the 2023 RFP, it states: "Teams shall conduct a sieve analysis and provide a particle size distribution table of each individual aggregate and composite aggregate for each mix by following ASTM C136." ASTM C136 measures the % passing based entirely on the mass retained on each sieve after shaking. This method makes sense when an aggregate combination does not use aggregates of significantly different densities. However, in concrete canoe, combined aggregates are made using aggregates with vastly different densities. This can lead to strange results. For example, if a team used a 50/50 blend (by volume) of a heavy coarser aggregate and a light finer aggregate, the gradation would be skewed towards the coarser side, which would not be representative of the blend's particle-particle interactions. Our question is whether the C4 would allow teams to calculate aggregate gradation based on the relative volume of aggregates instead of the relative mass.

RESPONSE: The gradation requirements given in the RFP are percent passing by volume.

RFI No: 29
Subject: Stain Layers
Section: 6.5.2
Date Issued: 10/17/22

QUESTION: We are limited to two coats of stains per the recommended procedure. Do overlapping stain colors count as 2 layers? Or are we permitted to use 2 coats of a color and then overlap that with 2 coats of another color?

RESPONSE: The intent of this rule is that 2 applications of stain may be applied in a specific area of the canoe regardless of color. So 2 applications/coats of "green stain" applied over the top of 2 applications/coats of "blue stain" would be considered 4 total coats and not allowed. Note: Don't worry about a little bit of bleeding between colors. For example if blue and green are next to each other and they bleed over each other in small amounts during application, you are fine.

RFI No: 30
Subject: Latex and Bonding Adhesives - Sikalatex 1
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: In the 2023 ASCE Concrete Canoe Competition Rules, under the "Admixtures" section on page 39, it states that the "The use of bonding adhesives (ASTM C1059), waste latex paints, and latex emulsions (ASTM C1438) is prohibited."

However, the follow-up paragraph states "Teams wishing to incorporate a material as a specialty admixture that does not fall under ASTM C494 Type S, is not commercially available, or specifically made for use in concrete and have questions or concerns of whether it is an acceptable material shall contact C4 for a determination of its applicability."

My request for information is about the admixture called "Sikalatex 1 Concrete Bonding Adhesive and Acrylic Fortifier" by the Sika Company, which is a liquid bonding admixture, more specifically, a non-reemulsifiable bonding adhesive and fortifier. This product falls under the ASTM(s) of: C-882. Is this product allowed to be used as an admixture for the concrete canoe competition?

RESPONSE: Unfortunately "Sikalatex 1 Concrete Bonding Adhesive and Acrylic Fortifier" is prohibited for use in the canoe. It falls into the category of materials described in "The use of bonding adhesives (ASTM C1059), waste latex paints, and latex emulsions (ASTM C1438) is prohibited. Epoxy resins, their curing agents, asphalt emulsions, or similar materials shall not be considered specialty admixtures and are strictly prohibited."

RFI No: 31
Subject: Latex and Bonding Adhesives - SBR Latex
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: In the 2023 ASCE Concrete Canoe Competition Rules, under the "Admixtures" section on page 39, it states that the "The use of bonding adhesives (ASTM C1059), waste latex paints, and latex emulsions (ASTM C1438) is prohibited."

However, the follow-up paragraph states "Teams wishing to incorporate a material as a specialty admixture that does not fall under ASTM C494 Type S, is not commercially available, or specifically made for use in concrete and have questions or concerns of whether it is an acceptable material shall contact C4 for a determination of its applicability."

My request for information is about the admixture called "SBR Latex" by the Euclid Chemical Company, which is a liquid bonding admixture, and falls under the ASTM(s) of: C109, C78, and C190. Is this product allowed to be used as an admixture for the concrete canoe competition?

RESPONSE: Unfortunately "SBR Latex" is prohibited for use in the canoe. It falls into the category of materials described in "The use of bonding adhesives (ASTM C1059), waste latex paints, and latex emulsions (ASTM C1438) is prohibited. Epoxy resins, their curing agents, asphalt emulsions, or similar materials shall not be considered specialty admixtures and are strictly prohibited."

RFI No: 32
Subject: Aggregate Volume Calculation
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: As a follow up to RFI #10, according to ASTM C136 the gradation requirements are percent passing by mass. If it is percent passing by volume, is there a method you recommend in accurately measuring /calculating volume?

RESPONSE: To calculate the volume, use the material specific gravity and mass values. For natural fine aggregate, ASTM C128 gives procedures on how to measure the specific gravity. For manmade materials, the manufacturer may be able to provide this information or suggestions on methods to measure the material specific gravity.

RFI No: 33
Subject: Aggregate Volume Calculation
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: My team is wondering if each aggregate used needs to adhere to the gradation curve provided or if once we have combined all our aggregate materials it adheres to the gradation curve provided. Would we be allowed to, for example, take aggregate above a no. 8 sieve and mix it with aggregate below a No. 8 sieve in order to achieve the gradation curve, or must we find aggregate that fits this curve already and use that? Our question comes for Exhibit 5 on page 39.

RESPONSE: It is the combined or total aggregate gradation that must adhere to the requirements, not the individual aggregates. You can use multiple aggregates and combine them together to give an acceptable gradation. See RFI #20 for additional information.

RFI No: 34
Subject: Concrete Stain - Dilution
Section: 6.5.2
Date Issued: 10/24/22

QUESTION: The rules dictate that any stain cannot be diluted with any medium, which includes water. However the stain manufactured by Euclid, Increte Stone Essence, directly calls for the product to be mixed with water prior to application. Would we have to ignore the manufacturer and use it without mixing it with water in order to be compliant with the RFP? Or would we be allowed to mix with water as long as we follow the 1 to 3 ratio dictated by the manufacturer?

RESPONSE: See RFI 22 response specifically regarding Euclid Increte. Teams should follow the manufacturer's directions and amount for mixing a stain product with water.

RFI No: 35
Subject: Aggregate - Microspheres and Glass Beads
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: We recall from the concrete mixing seminar that glass beads were not allowed for this year's mix design. Does this include all glass material, such as Perlite, or are glass materials still allowed in mix design?

RESPONSE: There are no specific restrictions this year on glass beads, hollow glass microspheres, or similar materials. The rules state "Any natural, manufactured, or recycled aggregate is permitted," which would include glass beads.

RFI No: 36
Subject: Aggregate - Microspheres and Glass Beads
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: We recall from the concrete mixing seminar that glass beads were not allowed for this year's mix design. Does this include all glass material, such as Perlite, or are glass materials still allowed in mix design?

RESPONSE: There are no specific restrictions this year on glass beads, hollow glass microspheres, or similar materials. The rules state "Any natural, manufactured, or recycled aggregate is permitted," which would include glass beads.

RFI No: 37
Subject: Aggregate or Fiber Material - Post Consumer Carpet Calcium Carbonate
Section: Exhibit 5
Date Issued: 10/24/22

QUESTION: We have access to a material known as "Post Consumer Carpet Calcium Carbonate" (PC4), which is a material created with recycled carpet. We have seen this material be used as a fine aggregate replacer, admixture, and fibrous material. Would this material be permitted for use and if so, what category (aggregate, admixture, fibrous material) should it be classified as.

RESPONSE: If the manufacturer has a method for getting an aggregate gradation, it could be included as an aggregate. More information is needed to tell if it can be used as a fiber. It would not qualify as an admixture.

RFI No: 38
Subject: Prototype Display and Cross Section Size Restrictions
Section: 7.2
Date Issued: 10/24/22

QUESTION: On page 21 of the RFP, in **section 7.2**, it is said : "*the display, as a whole, shall fall within a 4 ft (W) by 8 ft (L) by 7 ft (H) space*". But then, below on the same page, it is written in **section 7.3.1**: "*The cross-section, including any stand, shall fall within a 4 ft (W) by 4 ft (L) by 7 ft (H) space, separate from the Product Display.*"

1. Is the "4 ft (L)" instead of "8 ft (L)" a mistake?
2. If not, why isn't the same length?

RESPONSE: The display table (area measuring 4 ft (W) by 8 ft (L) by 7 ft (H)) and the cross section (area measuring 4 ft (W) by 4 ft (L) by 7 ft (H)) are two separate pieces that, with the Concrete Canoe itself, make up the Final Product deliverable. There is no typo in the dimensions.

RFI No: 39
Subject: Prototype Display and Cross Section Size Restrictions
Section: 7.2
Date Issued: 10/24/22

QUESTION: On page 21 of the RFP, in **section 7.2**, it is said : "*the display, as a whole, shall fall within a 4 ft (W) by 8 ft (L) by 7 ft (H) space*". But then, below on the same page, it is written in **section 7.3.1**: "*The cross-section, including any stand, shall fall within a 4 ft (W) by 4 ft (L) by 7 ft (H) space, separate from the Product Display.*"

1. Is the "4 ft (L)" instead of "8 ft (L)" a mistake?
2. If not, why isn't the same length?

RESPONSE: The display table (area measuring 4 ft (W) by 8 ft (L) by 7 ft (H)) and the cross section (area measuring 4 ft (W) by 4 ft (L) by 7 ft (H)) are two separate pieces that, with the Concrete Canoe itself, make up the Final Product deliverable. There is no typo in the dimensions.

RFI No: 40
Subject: Graphics
Section: 6.5.2
Date Issued: 10/27/22

QUESTION: In the 2023 ASCE Concrete Canoe Competition Rules, under section 6.5.2 Graphics, it also states that "Concrete stains are allowed to be used on either the inside or outside faces of the canoe, but not on both."

My request for information is about are we allowed to use two colors for the concrete stain outside of the canoe? Additionally, since we cannot use stains on the inside if we use it on the outside, are we allowed to use pigment on the inside of the canoe?

RESPONSE: Yes, any number of colors are allowed on either the inside or outside of the canoe as long as each color is limited to two coats and not overlapping. Yes, the side of the canoe that does have stain may use integrally colored concrete with pigment. Additionally, there are no limits on which side integrally colored may be used, so in your team's case, you could have stain and integrally colored concrete on the outside and integrally colored concrete on the inside.

RFI No: 41
Subject: Theme
Section: N/A
Date Issued: 11/1/22

QUESTION: We are curious about how the theme of a school's boat would affect any judge's decision. We understand that competing schools reflect the morals of ASCE. We also want to make sure our boat stands out, yet still shows our engineering skill without becoming convoluted with an unintended message.

Our team voted on a casino night theme for this year's competition. Some of our members feel this theme would be taboo and not reflect the morals of our team. On the other hand, most members want to do something fun and exciting for the boat. Many members have bonded over card games and fun nights out with their friends; however, we don't want to glamourize things like gambling, which can have real repercussions if unchecked.

Overall, we are worried that our theme decision may affect our representation within the ASCE Concrete Canoe competition. Is this a valid concern our team should consider? In addition, do you recommend our team pick a different theme?

RESPONSE: Evaluation and assessment of your team's submitted products (proposal, prototype, etc) is at the discretion of the individual judges. However, given your articulation of your proposed theme and the rationale behind it, the committee would not expect any negative consequences from its use.

RFI No: 42
Subject: Stain Transparency: KEIM Concretal-Lasur
Section: 6.5.2
Date Issued: 11/1/22

QUESTION: The RFP states that "stains must be generally transparent in nature." The stain we are considering has instructions for dilution ratios that go from opaque to translucent. Are we allowed to use this product? How can we determine which ratio is acceptable? See the attached MTDS for the specific product we are looking at, see the consumption section.

RESPONSE: This product would be acceptable within the dilution ratios specified by the manufacturer.

RFI No: 43
Subject: Substitute Paddler Gender Restrictions
Section: Exhibit 9
Date Issued: 11/1/22

QUESTION: On page 53 of the RFP, in Exhibit 9 « Race Regulations and Safety », below RACE RULES, the following is said:

In d., you made it sound as if the substitute was from the same gender, then he/she could have paddled, but if he/she was of the opposite gender, then no.

But in c., you are clearly stating that the person can't paddle no matter his gender.

Is it a mistake or can we just conclude that no matter the gender of the substitute, no substitute will be allowed to paddle?

RESPONSE: In c., if a paddler is not able to continue after the preliminary race, they can be substituted by a registered member of the team of the same gender. If there are no other registered members on the team of the same gender, then d. comes into affect and a registered member of the opposite gender may be in the canoe to complete the race. In both cases the substitute is not allowed to paddle.

Separate from injury after a preliminary race, if a team does not have enough participants of a gender to participate in a race then d. comes into effect and a registered member from the other gender may be substituted in. The substitute is not allowed to paddle.

RFI No: 44
Subject: Safety Director
Section: Exhibit 9
Date Issued: 11/2/22

QUESTION: Our campus is organizing the Mid-Pacific conference and I am in charge of coordinating the Concrete Canoe event specifically, while reading through your rules I noticed a "safety director" role but I could not find any information about if there are qualifications needed to perform this role. So I ask: Are there any requirements or recommendations for the safety coordinator? Could the role be filled by a student?

RESPONSE: First, thank you for your school's efforts in hosting a regional conference! We know a lot of work and planning is required and appreciate your chapter's willingness to host.

The Safety Director Position is one of great importance! This role is responsible for the safety of students and paddlers on the day of the race. The Safety Directors' duties include, but may not be limited to,

enforcing safety rules, briefing paddlers on hazards, and determining if the water temperature is safe for a race. The safety rules of the competition are in place to ensure that all students, participants, and observers have a great race day that remains safe. While it is okay to have a student assist the safety director, due to the importance of the role, the Safety Director should be filled by a responsible, qualified volunteer, such as a faculty member, local ASCE member, or alum.

RFI No: 45
Subject: Graphene
Section: Exhibit 5
Date Issued: 11/2/22

QUESTION: Would graphene be a legal mix material?

RESPONSE: Please provide a MTDS if you would like the committee's assessment of a specific product.

RFI No: 46
Subject: Hempcrete / Hemp Fibers
Section: Exhibit 5
Date Issued: 11/2/22

QUESTION: I was wondering what ASCE's stance is on hempcrete. Are we allowed to bring a mix to competition that contains hemp fibers?

RESPONSE: Please provide a MTDS if you would like the committee's assessment of a specific product, however, in general hemp fibers targeted for concrete applications would be acceptable as they are a natural Type IV fiber under ASTM C1116.

RFI No: 47
Subject: Enstyrock and 37BVCC Fine aggregate vermiculite
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
The team have a question about two materials that are wanted to be used for the development of a concrete canoe.

Enstyrock

37BVCC Fine aggregate vermiculite

These two materials do not show up in the 2023 rule's handbook. Please allow me to know if we are able to use these materials for the construction of our concrete canoe.

RESPONSE: Both materials are ok as aggregates, and will need to meet all of the other aggregate requirements - ie. gradation and minimum content.

RFI No: 48
Subject: Enstyrock and 37BVCC Fine aggregate vermiculite
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
The team have a question about two materials that are wanted to be used for the development of a concrete canoe.

Enstyrock

37BVCC Fine aggregate vermiculite

These two materials do not show up in the 2023 rule's handbook. Please allow me to know if we are able to use these materials for the construction of our concrete canoe.

RESPONSE: Both materials are ok as aggregates, and will need to meet all of the other aggregate requirements - ie. gradation and minimum content.

RFI No: 49
Subject: ASTM C136
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
Request for more clarification on the aggregate portion. The sieve table provided seems to not be in ASTM C136 but was found to be in ASTM C33. ASTM C136 does not provide a sieve analysis chart for fine aggregates but does provide one for coarse aggregates. Does each individual aggregate need to meet the gradation table provided in the 2023 rules or is that for the composite for all aggregates used in the blend?

Example: poraver (1-2mm) does not meet the gradation requirement but specific proportions of different sized poraver with some type of mineral filler could meet specification requirements.

RESPONSE: The only gradation requirements for the aggregates are those found in the RFP. ASTM C136 only has tables that give requirements about the sieve size used for a given mass of sample, to make sure that the sample is not too large to clog up individual sieves. This ASTM C136 is only a method that tells you how to measure the particle size distribution, not what the distribution should be.
The total combined aggregate gradation needs to meet the requirements given:

Sieve	Percent Passing
9.5-mm (3/8-in.)	100
4.75-mm (No. 4)	95 to 100
2.36-mm (No. 8)	80 to 100
1.18-mm (No. 16)	50 to 85
600-um (No. 30)	25 to 60
300-um (No. 50)	5 to 30

150-um (No. 100) 0 to 10
This is done by taking the particle size distribution for each individual aggregate type and using a weighted average of each type used to arrive at the combined gradation.

RFI No: 50
Subject: Waterproofing or water repellent admixtures
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
Is the use of waterproofing or water repellent admixtures allowed? For example "sika watertight concrete powder" is a combined water resisting and HRWR that follows ASTM C494 type S. Are these types of admixtures allowed as long as it meets the ASTMs listed in the rules?

RESPONSE: The specific admixture you mention "sika watertight concrete powder" would be ok to use as an admixture.

RFI No: 51
Subject: Aggregate Specification
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
Regarding the use of aggregates in the 2023 competition, it states any natural, manufactured, or recycled aggregate may be used. Is lightweight aggregate allowed, or aggregate along the lines of buildex haydite? We would just like to have the requirements for aggregate specified more so we follow competition guidelines.

RESPONSE: Lightweight aggregate and buildex haydite is allowed. The combined aggregate gradation must meet the required gradations in the RFP.

RFI No: 52
Subject: Material Approval
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
I would like to file an RFI to get approval from the Committee on Concrete Canoe Competitions about two specific materials.

Materials:

- Styrofoam
- 37BVCC vermiculite fine aggregate

RESPONSE: Any aggregate is permissible if the combined aggregate gradation meets the requirements in the RFP. Those two materials would be allowed as aggregates if the combined gradation of all of the aggregates meets the required gradation.

RFI No: 53
Subject: High Chloride Fly Ash
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:

Regarding Exhibit 5 of the RFP, for the MTDS documentation of cementitious materials, the team would like to use fly ash from a site with a high chloride content. It is not a commercially available material since it does not meet the chloride content requirements for the local DOT use, but it meets all requirements for ASTM C618 classification since chlorides are not regulated by the specifications. Research at our university has been performed on the same material and they ran an XRF analysis on the material to demonstrate compliance (see attached image). Would this material be permitted and would this document be sufficient for the MTDS?

Facility: B
Product Class: Class F - Fly Ash

Standard Requirements (ASTM C618 Tables 1 and 2)

Chemical composition (mass %)		Results			ASTM C618 Limits
		High Cl⁻	Med Cl⁻	Low Cl⁻	Class F
Silicon Oxide	SiO_2	47.61	49.84	50.2	
Aluminum Oxide	Al_2O_3	20.52	21.05	21.47	
Iron Oxide	Fe_2O_3	17.7	16.46	17.47	
SUM (SiO_2+ Al_2O_3+ Fe_2O_3)		85.83	87.35	89.14	50.0 min.
Sulfure Trioxide	SO_3	1.94	1.62	1.17	5.0 max.
Calcium Oxide	CaO	5.54	3.6	2.37	18.0 max.
Magnesium Oxide	MgO	1.2	1.23	0.79	
Sodium Oxide	Na_2O	0.98	1.12	1.16	
Potassium Oxide	K_2O	2.33	2.49	2.51	
Sodium Oxide Equivalent (Na_2O+0.658 K_2O)		2.51	2.76	2.81	
Moisture Content		0.71	0.17	0.18	3.0 max.
Loss of Ignition		4.15	2	2.1	6.0 max.
Physical Tests					
Fineness					
Retained on 45-µm sieve (%)		17.85	15.36	17.58	34 max.
Strength Activity Index					
Raito to control @ 7 days		82	85	77	75 min.
Water requirement (% to control)		99	99	99	105 max.
Soundness					
Autoclave expansion (%)		0.01	0.01	0.01	0.8 max.

RESPONSE: If all other parameters are met, and the canoe has no steel or metals that can corrode, then it should not be a problem to use it. If the canoe does have steel in it, then the canoe mix should meet the requirements for concrete for a C2 environment found in ACI 318 Table 19.3.2.1. This may be difficult to show compliance and may be better to select a different material if steel fibers or other metallic reinforcement is used.

RFI No: 54
Subject: CSA Cement Categorization / Eligibility
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
I was wondering if CSA Cement (Calcium Sulfoaluminate Cement), such as CSA by Buzzi Unicem USA or Rapid Set CTS Concrete mix is allowed as cementitious materials. I was also wondering if it would count towards the maximum of 30% hydraulic cement (c) as it is a different chemical reaction from ordinary Portland Cement.

RESPONSE: CSA cements that are compliant with ASTM C845 are ok to use as specified in the RFP. The RFP also states that ASTM C845 compliant cements are classified as hydraulic cements and do count towards the 30% max limit.

RFI No: 55
Subject: Enstyro
Section: Exhibit 5
Date Issued: 11/14/22

QUESTION:
We were wondering if Enstyro would be allowed as an aggregate if it fits within the overall gradation requirements.

RESPONSE: Any aggregate is permissible if the combined aggregate gradation meets the requirements in the RFP. This material would be allowed as an aggregate if the combined gradation of all of the aggregates meets the required gradation.

RFI No: 56
Subject: Use of Mold in Cross Section
Section: 7.3.1
Date Issued: 11/17/22

QUESTION: Hi, as I was reading through the rules for the ASCE Concrete Canoe Competition and at the end section 7.3.1 it talks about how the display must show the mold used in the creation of the canoe. This year UNM ASCE is planning on using a 3-D printer to make the canoe so there will be no mold. I just want to make sure this would not result in a penalty, and we would not have to provide a mold, as we would not be able to.

RESPONSE: There is no deduction for not showing the mold as part of the cross-section displayed. Any impacts from not showing a mold, that the team didn't use, falls under the judge's interpretation of how much it affects the cross section and the overall final product display. Given the team's 3D printing approach, the committee would recommend showing components of the 3D printing setup that enabled the successful fabrication (build plate, printing nozzle, real or mock placement control system, etc). The committee would not expect judges to reduce a team's evaluation score for items the team did not use as long as the actual build process was represented thru the cross-section.

RFI No: 57
Subject: Significant Figures (Percent Calculations
Section: Exhibit 5
Date Issued: 11/17/22

QUESTION: My team is conducting our sieve analysis of our aggregate. Are we allowed to round to the nearest whole percent for percent passing? I noticed there are significant figures listed for strength, density, slump… on page 12 of the RFP, but not for percent.

RESPONSE: All provided calculations, including percent values, should contain the same number of significant digits as the requirement presented. For example, if a percent requirement in the RFP is shown at a range of 10%-14%, the value provided by the team would be shown to the nearest whole percent, 11%, 12%, etc. This would be applied to any calculation for determination of acceptability.

RFI No: 58
Subject: Aggregate gradation
Section: Exhibit 5
Date Issued: 11/17/22

QUESTION: My team was wondering what the penalty or point deduction would be if our aggregate did not fit the gradation curve perfectly.

RESPONSE: The graduation table shows a range of percents for each passing sieve. The team's graduation table should adhere to those requirements. Impacts from a team's noncompliance to those requirements would come from the judge's evaluation of the proposal, specifically in the **Concrete Mixture Materials and Proportions section.**

RFI No: 59
Subject: Dramix Steel Wire Fiber
Section: Exhibit 5
Date Issued: 11/17/22

QUESTION: Can we use the 3D (4D and 5D) Dramix steel wire fiber reinforcement for our concrete canoe? It doesn't have the ASTM C1116 standard, and the rules said to ask C4 for approval. It does conform to the ASTM A820 standard.

RESPONSE: Fibers that meet ASTM A820 are allowed in ASTM C1116 and are ok to use.

RFI No: 60
Subject: Prototype Display Requirements
Section: 7.0
Date Issued: 11/17/22

QUESTION: We were wondering if you could provide us with the dimensions of the area where we are to display the Canoe, Canoe Cross-Section, and project display. This way we know what dimensions we can use for aesthetic purposes.

RESPONSE: For exact measurements, the team should contact the host school as venues and space vary by region. The exact size of the team's designated area at the regional competitions is not dictated by this committee only that the team shall have adequate space to display the required elements.

RFI No: 61
Subject: Aggregate and Admixtures
Section: Exhibit 5
Date Issued: 11/28/22

Question: My team is wondering if these Penetron admixtures and applications are aloud. I have attached the data sheets for them. Thank you.

Response: The team would need to show what is in Penetron to make sure it doesn't have prohibited material like epoxy or latex. If the team cannot provide proof that no prohibited materials are used, it would not be allowed.

RFI No: 62
Subject: Trademark
Section: Exhibit 4
Date Issued: 12/6/22

QUESTION: In the prequalification forms submitted there was a spot to submit the proposed name of our canoe. My team is unsure if ours would be too close to trademark, so I was wondering how we would know if this is the case? We want to name the canoe Queen of Hearts with a tea party theme.

RESPONSE: From what you have stated, a Queen of Hearts name around a tea party theme, would not be a cause for concern. Additional artistic renderings displayed on the canoe could cause issues, depending on what they are. The committee suggests that you talk with your advisor and/or your university's legal department for any specific artistic elements.

RFI No: 63a
Subject: RFI 19: Table Sieve
Section: RFI 19
Date Issued: 12/6/22

QUESTION: Regarding RFI No. 19, if, as you say, we can alter the gradation of one aggregate to fit the global distribution, should we build the table sieve of that aggregate according to **the original aggregate distribution** or should we use **the modified aggregate distribution**?

Carrying on with your example from RFI No. 19, should we submit the table sieve of the second aggregate **before it was altered** or should we just submit a table sieve saying "**100% of aggregate in #16 sieve**"?

RESPONSE: The particle size distribution should be shown for each individual aggregate used before it

was altered. Then, show how much of each aggregate is used, and the combined gradation. If you sieve all aggregates, and recombine from the sieved portions to make the combined gradation, you need to state how much of each aggregate type used is used for each size fraction.

RFI No: 63b
Subject: Poraver
Section: Exhibit 5
Date Issued: 12/6/22

QUESTION: I am emailing to ask about checking if our material is okay to use. That's what we got ourselves in trouble with last year. It says "Any natural, manufactured, or recycled aggregate is permitted" and then just that it has to follow the gradations. The material in question is poraver.

RESPONSE: Poraver is allowed as an aggregate. You need to follow the combined gradation requirements for it still, but the mateiral is allowed.

RFI No: 64
Subject: Geopolymer Cement
Section: Exhibit 5
Date Issued: 12/6/22

QUESTION: Is the use of geopolymer cement instead of hydraulic cement allowed?

RESPONSE: If the material meets all of the requirements of ASTM C1709 and there is data to show this or a letter from the material supplier stating that it meets ASTM C1709 then it can be used.

RFI No: 65
Subject: Concrete Stain Approval
Section: 6.5.2
Date Issued: 12/6/22

QUESTION: Section 6.5.2 states "If [concrete stain is] used, the Project Proposal must discuss in the section on Health & Safety (5.3.6.e), the details about the stain hazards, application procedures used, health & safety procedures taken to ensure safety, and approval of the faculty advisor and relevant university health & safety personnel responsible for auditing the laboratory safety." Is documentation required to show approval of our advisor and lab supervisor? If so, where should this documentation be included and what are the requirements for it?

RESPONSE: No formal documentation of approval is required.

RFI No: 66
Subject: Glass Bubbles and Aggregate Proportions
Section: Exhibit 5
Date Issued: 12/9/22

QUESTION:
1) Are there any maximum number of glass bubble proportions we are allowed to use in our aggregates i.e 5% by volume of all aggregates?

2) Are there maximum proportions allowable for Sieve No. 100 aggregates i.e only 5% by volume of aggregates are allowed?

RESPONSE: Any aggregate can be used, as long as the following is met:
1) at least 30% minimum of the total volume of the mixture is aggregate
2) The total combined aggregate gradation meets the requirements show in the table on page 39 of the 2023 ASCE Concrete Canoe Competition Request for Proposals. If you use more than one type of aggregate, that is ok. Each individual aggregate does not need to meet the table requirements, but when all of the aggregates are combined together in the mixture, the combined gradation of all of the aggregates must meet the requirements in the table. what the table means is that at most 10% of the aggregates in the combined gradation can pass through a number 100 sieve but none have to, and at least 5% of the aggregates in the combined gradation must pass through the number 50 sieve, and at most 30% of the combined aggregates can pass through a number 50 sieve. If you were able to get glass bubbles in different size fractions, and could add them to the mixture in the amounts that meet the combined gradation table, you could use 100% glass bubbles as your aggregates in the mixture.

RFI No: 67
Subject: Isolene 400-S
Section: Exhibit 5
Date Issued: 12/13/22

QUESTION: Is ISOLENE® 400-S, a low molecular weight liquid polymer derived from synthetic polyisoprene rubber, allowed as a specialty admixture. (ASTM C494 Type S) Please find attached the datasheet for said product.
RESPONSE: The RFP states "The use of bonding adhesives (ASTM C1059), waste latex paints, and latex emulsions (ASTM C1438) is prohibited. Epoxy resins, their curing agents, asphalt emulsions, or similar materials shall not be considered specialty admixtures and are strictly prohibited." This admixture is not allowed as it is "a similar material" that is prohibited.

RFI No: 68
Subject: Mearlcrete
Section: Exhibit 5
Date Issued: 12/13/22

QUESTION: We were wondering if we are allowed to use a substance called Mearlcrete. It is an admixture that is used as a foaming agent in concrete mix. Here is a link to the exact admixture we're talking about.

RESPONSE: To use the material as an admixture it needs to be ASTM C494 Type S compliant – in the documentation provided it does not state adherence to any ASTM standard. Unless more information can be provided, the product will be considered non-compliant.

RFI No: 69
Subject: VETROFLUID
Section: 6.5.3
Date Issued: 12/13/22

QUESTION:
The RFP states that our concrete sealer "may be either:

1. silane- or siloxane-based penetrating sealer with a VOC of less than or equal to 350 g/L, or
   b. liquid membrane-forming compound for curing and sealing that is complaint with ASTM C1315 requirements (there are no VOC requirement with this option)." The sealer we are looking at is a silicate based sealer called VetroFluid. The TDS and SDS for the sealer are both attached to this email. Would we be allowed to use this sealer on our prototype?

RESPONSE: The sealer shown is a penetrating sealer, however no information in the TDS and SDS shows the VOC level or ASTM C1315 compliance. If documentation can be given that shows that this material has a VOC less than or equal to 350 g/L or that it is compliant with ASTM C1315 it could be used. Unless that can be shown, the material would be considered non-compliant.

RFI No: 70
Subject: Super Diamond Clear
Section: 6.5.3
Date Issued: 12/29/22

QUESTION:
Is the following allowed to use for Concrete Sealers (Section 6.5.3):

- Super Diamond Clear

RESPONSE: The sealer is compliant and can be used as it meets ASTM C1315.

RFI No: 71
Subject: Unitex Solvent Seal 1315
Section: 6.5.3
Date Issued: 12/29/22

QUESTION:
Is the following allowed to use for Concrete Sealers (Section 6.5.3):

- Unitex Solvent Seal 1315

RESPONSE: The sealer is compliant and can be used as it meets ASTM C1315.

RFI No: 72
Subject: Unitex Solvent Seal 1315
Section: 6.5.3
Date Issued: 1/9/23

QUESTION:
Is the following allowed to use for Concrete Sealers (Section 6.5.3):

- Unitex Solvent Seal 1315

RESPONSE: The sealer is compliant and can be used as it meets ASTM C1315.

RFI No: 73
Subject: Concrete Densities
Section: 5.3.4
Date Issued: 1/9/23

QUESTION: We would like a clarification upon the following :
On page 12 of the RFP regarding the Project Proposal, in subsection ***5.3.4 Executive Summary***, you mention: (Image One Attached)

Then, below that, you present a table with the following: (Image Two Attached)

Are you considering wet (plastic) density to be the fresh concrete density?

If not, does that mean you want us to provide three (3) different densities, i.e. :

1. **Wet hardened** concrete density
2. **Oven-dried hardened** concrete density
3. **Fresh** concrete density (when our concrete has just been mix, but hasn't hardened yet)

RESPONSE: Yes, the wet (plastic) density is the same thing as the fresh concrete density. This means you need to report two densities - the density measured while the concrete is still fluid (also known as the wet (plastic) density or fresh density) and the oven-dried hardened concrete density. For lightweight concrete, they will give different densities because when the concrete is plastic (fresh), the voids in the lightweight aggregate may be filled with water, while in the oven dried case, the water in the lightweight pores and concrete pores will be evaporated off, reducing the weight of the oven-dried concrete compared to the fresh.

RFI No: 74
Subject: Aggregates and Structural Analysis
Section: Exhibit 5
Date Issued: 1/13/23

QUESTION:

1. Are EPS beads and Aerogel beads permitted as long as it follows the provided gradation requirements determined by ASTM C136?
2. For structural analysis, is it permitted to use CAD software to calculate geometric properties of cross sections (centroids, moment of inertia, etc.)? This is not for FEA, but solely for more accurate 2D analysis.

RESPONSE: 1. The EPS beads and aerogel beads would be permitted as aggregates, given that the combined aggregate gradation meets those in the table in the rules. 2. The use of CAD software to more accurately calculate geometric properties is acceptable.

RFI No: 75
Subject: Structural Analysis Calculations Moment Diagrams and Punching Shear
Section: Exhibit 5
Date Issued: 1/13/23

QUESTION: Is MasterLife SF 100 allowable as a cementitious material? It is described as a densified silica fume admixture that meets the requirements of ASTM C 1240, the Standard Specification for Silica Fume used in Cementitious Mixtures, which would make this material allowable as silica fume under cementitious materials. However, this material does not include any standard found under the admixtures section in the rules. Furthermore, its chemical properties are those of a pozzolan.

RESPONSE: Silica fume meeting ASTM C1240 is classified as a supplementary cementitious material in the table in the section Cementitious Materials, Alternative Supplementary Cementitious Materials (ASCM) and Pozzolans. It is therefore allowed and considered part of the cementitious material, but does not count as hydraulic cement and does not contribute to the 30% limit on hydraulic cement.

RFI No: 76
Subject: Structural Analysis Calculations Moment Diagrams and Punching Shear
Section: Exhibit 5
Date Issued: 1/17/23

QUESTION:
Is MasterLife SF 100 allowable as a cementitious material? It is described as a densified silica fume admixture that meets the requirements of ASTM C 1240, the Standard Specification for Silica Fume used in Cementitious Mixtures, which would make this material allowable as silica fume under cementitious materials. However, this material does not include any standard found under the admixtures section in the rules. Furthermore, its chemical properties are those of a pozzolan.

RESPONSE: Silica fume meeting ASTM C1240 is classified as a supplementary cementitious material in the table in the section Cementitious Materials, Alternative Supplementary Cementitious Materials (ASCM) and Pozzolans. It is therefore allowed and considered part of the cementitious material, but does not count as hydraulic cement and does not contribute to the 30% limit on hydraulic cement.

RFI No: 77
Subject: Graphic
Section: 6.5.2
Date Issued: 1/17/23

QUESTION:
6.5.2 Graphics

If used（stains）, the Project Proposal must discuss in the section on Health & Safety (5.3.6.e), the details about the stain hazards, application procedures used, health & safety procedures taken to ensure safety,

and approval of the faculty advisor and relevant university health & safety personnel responsible for auditing the laboratory safety.

QUESTION:
Do we need to provide the picture of document approved by relevant security personnel for the use of stains in the project proposal?

RESPONSE: There is no requirement to provide a picture of the approval document or the document itself. The requirement is only that discussion must be included in the Health & Safety section of the proposal as it pertains to stain hazards, application procedures, health and safety procedures, and approvals for use in the lab.

RFI No: 78
Subject: Undocumented Information
Section: Exhibit 5
Date Issued: 1/18/23

QUESTION:
For material details not on the TDS, but necessary for mixture calculations, we had an instance of calling the manufacturer for the technical details, providing us the numbers, but being unable to share any of the documentation. How would this impact the documentation/inclusion of the material details in the mixture calculations?

RESPONSE: Any documentation required by the RFP will need to be provided in some written form, that could include documentation in an MTDS, documentation via internal testing, written letter or email from the manufacturer providing material properties, or through some other generally accepted engineering practice. Verbal discussions unfortunately won't meet that standard. Note, that in real-world projects, this is common - where you'll have a conversation on the phone with a manufacturer, and then request they provide the requested information or a statement on company letterhead and/or request to send the representative an email to reply back to.

RFI No: 79
Subject: Vetrofluid
Section: 6.5.3
Date Issued: 1/23/23

QUESTION:
I am emailing to follow-up with more documentation for the sealer VetroFluid that we inquired about at the beginning of December. C4 stated in their response that the TDS and SDS provided did not show a VOC level of less than or equal to 350 g/L or ASTM C1315 compliance. Attached to this email is a letter from ecoBETON, the creators of the sealant, stating that the VOC level is equal to 0. However, it does not state anything about ASTM C1315 compliance. Is this sealer allowed to be utilized since its VOC levels are in compliance?

RESPONSE: This letter suffices to show that VetroFluid has a VOC less than 350 g/L and thus is allowed per the rules.

RFI No: 80
Subject: Mastercell 30
Section: Exhibit 5
Date Issued: 1/23/23

QUESTION: Our team would like to use MasterCell 30 as a foaming agent to increase air content. The MTDS states that it is ASTM C869 compliant but has no mention of C494 compliance. Is this product rule compliant as the RFP does not mention ASTM C869?

RESPONSE: The committee has reviewed the MTDS provided and deemed that this product would not be compliant.

RFI No: 81
Subject: Electronic Devices
Section: 7.2.c
Date Issued: 1/30/23

QUESTION:
I had a question about article 7.2.c in the Concrete Canoe RFP. It states that "displays shall not include electronic devices", but I was wondering if we are allowed to have an electric appliance if it wasn't plugged in or turned on?

RESPONSE: This would be acceptable.

RFI No: 82
Subject: Calcium Aluminate Cement
Section: Exhibit 5
Date Issued: 1/30/23

QUESTION:

I was wondering about Calcium Aluminate Cement (CA Cement) eligibility and if it counts towards the maximum 30% hydraulic cement content. I've attached product data sheets and mill reports of an example CA cement.

RESPONSE: The committee had challenges finding an ASTM for Calcium Aluminate Cement (if anyone knows one, please send our way). In lieu of this, if the product meets the European standard EN 14647 then it would be acceptable as a hydraulic cement and would count towards the 30% hydraulic cement limit. The data that was provided shows compliance to EN 14647, so is allowed.

RFI No: 83
Subject: Rubber or Silicone as Tendons
Section: Exhibit 5
Date Issued: 1/30/23

QUESTION:
Our team is making a segmented canoe this year: multiple pre-cast segments drawn together via post-tensioning. We have considered several methods for bringing the pieces together tightly. One idea is put a piece of rubber or silicone between the segments to work in conjunction with the post tensioning cables.

We are considering using a material like Con Seal (see attached data sheet). We consider this piece to be a tendon based on the definition in exhibit 5 on page 40: "Strands, tendons, and bars are materials less than ½" wide used to make a reinforcement grid or used in pre- or post-tensioning." We also know that the RFP states in Exhibit 5 "Bondo, epoxy or similar materials are not permitted in any stages of the construction of the canoe (i.e., as the component of the mixture itself, as an aid during the placement of concrete, as a modifier of the reinforcement, or as means of attaching the floatation material)" and RFI 67 determined that a rubber-based admixture is a similar material. However, we would like to use the rubber or silicone in between segments with post-tensioning, not as an admixture. Given the laid-out constraints, is this allowed?

RESPONSE: This particular use case for rubber/silicone is acceptable as it is not used as an admixture.

RFI No: 84
Subject: Cracked Canoe - Patchwork Options
Section: Exhibit 5
Date Issued: 1/30/23

QUESTION:
We have developed a crack in our canoe and I was wondering what the rules on patch work prior to competition. We were looking into products like "Water-stop Quikrete", "SpecPlug", or "Patch Kwik".

Or if we need to create our own concrete to patch based off the gradation curve and our mix design? Thank you.

RESPONSE: So sorry to hear about your canoe cracking :(. In this case any patches that you apply will need to comply with mixture design requirements in the RFP. This would include the gradation curve and all material requirements.

RFI No: 85
Subject: Exhibit 8 - Detailed Fee Estimate
Section: Exhibit 8
Date Issued: 1/30/23

QUESTION:
The RFP says to "cite the source of the values provided" in the detailed fee estimate. Is a company name sufficient or should we be providing documentation showing the unit prices we report in the detailed fee estimate? If documentation is required where should we provide it if there is a 2-page limit?

RESPONSE: Company name is sufficient for this section of the proposal. Additional documentation is not required to be submitted.

RFI No: 86
Subject: Eligibility
Section: 3.0
Date Issued: 1/30/23

QUESTION:
From Section 3.0 Eligibility, the rules state that the registered participants in the project proposal are the only people allowed to present and race. For our team this year, there is not much overlap between our

racers and our captains/members who could present. Are the rowers that are registered in the project proposal, the only people allowed to present or are we allowed to have team captains who helped design/construct the canoe (but not on the row team) present?

RESPONSE: Presenters and rowers must be listed in the proposal as one of the ten registered participants, however, presenters do not have to row and rowers do not have to present. For example, you could have 10 people registered and only race 8 of them if the other 2 presented. Or have 2 people present only, 4 people row only, and 2 people both row and present, etc. Participant members (totaling 10) include all racers and presenters.

RFI No: 87
Subject: Appendix D Page Limits
Section: Appendix D
Date Issued: 1/30/23

QUESTION:

RFI#1: Please clarify as to which page limit to follow for the following:

- Appendix D states both "Provide one-page itemized fee estimate" and " (Page Limit – 2 max.)"

RESPONSE: This is unfortunately a leftover typo, please limit Appendix D to a total of 2 pages max.

RFI No: 88
Subject: Paint
Section: 6.5.2 & Exhibit 5
Date Issued: 1/30/23

QUESTION:
Our team would like to know if using any kind of paint, on the outside of our canoe for aesthetics, is permitted, the rules in section 6.5.2 say that concrete stains are acceptable in accordance with ASTM C979 but do not mention any kind of paint. The design our team plans to do would not be complete with using stains. If paints are permitted which kinds are eligible?

RESPONSE: In the executive summary letter and in Exhibit 5 it states that paint is prohibited.

RFI No: 89
Subject: Display
Section: 7.2
Date Issued: 2/13/23

QUESTION:

My question is about the display width, length, and height requirements, does that also include if we would like to bring a tent? Our display table fits under the 4ftx8ftx7ft requirements but the tent that we would like to bring to place the display under is a 10ftx10ftx6.5ft. Are we allowed to bring a tent?

RESPONSE: The size restrictions do not apply to a tent that is over the display. However, the committee would like to stress that tents should not be used to enhance your display, merely to protect from inclement weather. Additionally, before using a tent over your display, please confirm with the symposium host that it is acceptable at the location of the product display.

RFI No: 90
Subject: MTDS Addendum
Section: 5.4
Date Issued: 2/14/2023

Question: Our team is just wanting clarification on how the MTDS report is meant to be set up. From reading the rules in Section 5.4 the Addendum should have all the technical data sheets included in the report being pages as well as links in the Summary table. So are we required to include those documents in the addendum or do the links in the summary table qualify for the pages in the report?

Response: Both the summary sheet, along with the actual MTDS pages are needed. Per Section 5.4, "Provide MTDS pages for ALL the materials used in the canoe itself, along with a Summary Table...." If there is no web link available, such as if a manufacturer provided a letter, or the product data being provided is something like a cement mill cert, where the information is lab tested for the specific batch of material you have, this can be noted on the table to just "see attached" without a web link. See Exhibit 7 for an example.

RFI No: 92
Subject: Aroma at Display
Section: 7
Date Issued: 2/15/2023

Question:

My question is are we allowed to bring items that have a scent? One part of our display contains an aroma aspect and I would like to know if that is allowed.

Response: To the first part of your question, the committee believes that many items that have been presented at product displays over the years have scents to them. So yes, items with scents are allowed. However, we interpret your question to really mean "Are scents allowed to be accentuated/amplified/produced/etc as part of a product display?" To this question, without more explicit information, aromas will not be allowed to be part of a display.

RFI No: 91
Subject: Aggregate By Volume Example Calc
Section: Exhibit 5
Date Issued: 2/14/2023

Question: In 2022-2023 RFI Response 10, it stated that "The gradation requirements given in the RFP are percent passing by volume", However per ASTM C136, Gradation passing is by mass. I am unsure how to calculate it per volume? Could you please clarify and give an example of how to calculate the gradation percent passed per volume of a composite mix of aggregates?

Response: We apologize that this is an older RFI that slipped through the cracks. We did not have a follow up from the team, so we assume they were able to figure this out. However, to answer this question - we don't typically provide specific examples, other than what's provided in the Request for Proposal. In general, the process for determining gradation to pass by weight or by volume is similar, but measuring the materials by volume instead of weight. The reason for using volume for concrete canoe is due to the variety in weight of various materials - some of the microspheres would require a LOT of material if the aggregate was calculated by weight.