Note – some RFIs could cover a couple of different sections (ie: RFIs about MTDS’s could fall under either “Concrete” or “Project Overview and Technical Addendum”), and these types of RFIs will only appear in one section, so be sure to check multiple sections if there is a topic that might be covered in multiple sections. Some RFIs include attached documents, which are not included in this summary. For these documents, see the ASCE Concrete Canoe Facebook Page (https://www.facebook.com/ASCENCCC/).
Approved Abbreviated Names

Per Section 5.2 LETTERING, if the complete name of the college or university is 31 characters or more (including all letters and spaces between words), the name may be abbreviated. To use an abbreviation, teams must submit an RFI for approval by the CNCCC. Teams granted approval for abbreviated names for the 2016 competition do not need to resubmit an RFI.

The following names have been approved for the 2019 ASCE Concrete Canoe Competition. This list will be updated if additional approvals are granted. Teams may use hyphens and/or commas as needed. The word "The" can be removed without request regardless of the number of letters. For example, "The Ohio State University" can simply be "Ohio State University":

California Polytechnic State University, San Luis Obispo – "Cal Poly San Luis Obispo"
California State Polytechnic University at Pomona – "Cal Poly Pomona"
California State University, Chico - "CSU Chico"
California State University, Fresno - "Cal State Fresno" or "Fresno State" California State University, Fullerton - "Cal State Fullerton"
California State University, Long Beach – "Cal State Long Beach"
California State University, Los Angeles – "Cal State Los Angeles"
California State University, Northridge – "Cal State University Northridge" or "Cal State Northridge"
California State University, Sacramento – "Sacramento State"
Cincinnati State Technical and Community College - "Cincinnati State"
École de Technologie Supérieure, Montréal – "ETS Montréal"
Embry-Riddle Aeronautical University – "Embry-Riddle"
Florida Agricultural and Mechanical University - Florida State University - "Florida A&M Univ - Florida St Univ." or "Florida A&M - Florida State"
Florida Institute of Technology – "Florida Tech"
Georgia institute of Technology – "Georgia Tech"
Illinois Institute of Technology - "Illinois Tech"
Indiana University - Purdue University Fort Wayne – "Indiana-Purdue Fort Wayne"
Lawrence Technological University - "Lawrence Tech"
Metropolitan State University of Denver – " MSU Denver"
Michigan Technological University – "Michigan Tech"
Milwaukee School of Engineering – "MSOE"
Minnesota State University Mankato – "MNSU-Mankato"
Missouri University of Science and Technology – "Missouri S & T"
New Jersey Institute of Technology – "NJIT"
Narsee Monjee Institute of Management Studies, Mumbai - "NMIMS,Mumbai"
New Mexico Institute of Mining and Technology - "New Mexico Tech"
New York City College of Technology - "City Tech"
New York University Tandon School of Engineering – “New York University Tandon”
North Carolina State University – "NC State"
North Carolina A&T State University - “North Carolina A&T”
Pennsylvania State University – Harrisburg "Penn State Harrisburg"
Polytechnic University of Puerto Rico – "Polytechnic of Puerto Rico"
South Dakota School of Mines and Technology – "South Dakota Mines"
Southern Illinois University, Carbondale – "SIU Carbondale"
Southern Illinois University Edwardsville - "SIU Edwardsville"
State University of New York at Buffalo - "University at Buffalo"
Tennessee Technological University – "Tennessee Tech"
The City College of the City University of New York - "CCNY"
The George Washington University - "George Washington University"
SECTION 1 – General Rules and Eligibility Requirements

RFI No.3
Subject: RFI Cut-Off Date
Section: 1.6
Posted: 09.17.18

QUESTION:
Section 1.6 in regulations reads, "The cut-off date for submitting a RFI is Friday, January 18, 2019", while the statement in Acknowledgement Form is "The last day to submit Request for Information (RFI) to the CNCCC is January 15, 2019". So we were wondering when the cut-off date for submitting RFI actually is, January 15, 2019 or January 18, 2019?
RESPONSE:
The cut-off date listed in the Rules and Regulations of Friday, January 18, 2019 is correct. You can simply cross the "15" out and replace with "19" on the form when you submit. Thank you for informing us of the discrepancy.

RFI No. 69
Subject: Late Submission of Acknowledgment Form and Preliminary Schedule
Section:
Posted: 12.04.18

QUESTION:
There was an unfortunate miscommunication within our leadership about submission of the acknowledgement form and preliminary schedule. We apologize immensely for this and would like to clarify the consequences of this error so that we can have a clear line of sight going forward. From our understanding there is a 20% reduction in points if we continued on to the national level, however we are more concerned about if there are any ramifications for our participation in our regional competition? We want to ensure that this won't hinder us from participating. Any clarification would be greatly appreciated.

Thank you so much and we look forward to hearing from you!

RESPONSE:
The applicable deduction (10 units) is Infraction V. of the Design Paper and is only applicable at the National Level. This does not apply to the team at the conference level.

RFI No. 86
Subject: Registered Participants
Section: 1.2
Posted: 01.11.19

QUESTION:
"A team may register a maximum of five (5) male and five (5) female participants. Teams may have less than ten (10) registered participants." The query is whether this rule applies for both nationals and regionals? Also, if we are a team of 20 members, can all 20 members participate in the regional conference concrete canoe competition? If not, what is the role of the non-registered participants in the team?

RESPONSE:
This rule, as well as, all the rules (unless otherwise noted) are applicable at both the Conference and National Competitions.
Section 1.2.2, Term Limits, defines “Registered participant” as being an official team member that presents and/or paddles during a Conference or National Competition. The maximum number of OFFICIAL team members is 10: 5 males and 5 females.
You can have 20 members attend the conference. As for the roles of non-official team members - they can actively participate in their school’s canoe project (concrete and materials design, canoe construction, design paper, fundraising, oral presentation preparation, etc.), including support at the Competitions (everything from putting up the display to cheering the team on).
QUESTION:
What is the competition’s ruling regarding trademarked logos/names? Last year, we used a theme that was a “play on words” and received no comments about it during the conference competition. However during the national competition, a judge made a comment about needing permission/potential point deductions. We know that teams sometimes change popular tv shows / ads / company names to try to fit into a new clever theme idea. What does ASCE have to say about this?

RESPONSE:
We first refer you to Section 1.5, Ethics and the Competition, and point 2 “In the context of this contest, “unfair competition” may include conduct such as the following:……Taking other people’s designs, artwork, or other creative content without permission (for an overview of Intellectual Property Laws, including Trademark and Copyright, visit http://fairuse.stanford.edu/.../ine.../intellectual-property-laws.
In addition, one of the topics covered in our Competition Memorandum, deals with “Copyright Infringement and Theme Selection”. (https://www.asce.org/.../Com.../competition_memorandum_2019.pdf
We noted that from the very beginning of the National Competition teams have used a wide range of themes for their canoe, paper and sometimes presentations – the Flintstones, James Bond, Willy Wonka, Star Wars, Jeopardy!, so on and so forth. These have led to concerns regarding whether there are copyright issues related to the use of photographs and other media, themes, the names themselves, etc.
The CNCCC is not making determinations of whether or not something violates trademarks and copyrights. We strongly encourage teams to ensure that their themes are not violating copyright laws in their theme selection (one way is to contact their legal departments to assist in this determination).
SECTION 2 – Canoe

RFI No. 41
Subject: Canoe Lenght
Section: 2.1.1
Posted: 10.30.18

QUESTION:
In Section 2.1.1, it states that the length of the canoe is restricted to 22 feet. Is this the mandatory length, or can it be shorter? If it is mandatory, is there a tolerance for this parameter?

RESPONSE:
Section 2.2.1. states that "the length of the canoe, defined as the maximum end-to-end (bow to stern) measurement considering the outermost longitudinal dimension of the hull, is restricted to 22 feet." This should be interpreted as 22 feet being the maximum allowable length. It may be shorter.

RFI No. 44
Subject: Flotation Test
Section: 2.10.2
Posted: 11.10.18

QUESTION:
As the host school for our student conference, we were thinking of constructing an artificial tank where we can carry out the flotation test of the canoes. To deal with this we thought of constructing a special tank (22ft*4ft*6ft) where we can carry out the flotation test safely and allow the canoes that are deemed safe by the judges to participate in the canoe race. We wanted to know if we can use a flotation tank to carry out the flotation test, and does the size of the tank mentioned above fulfills the requirements for the flotation test

RESPONSE:
Flotation tanks are common and can be used. Assuming the dimensions provided are L*W*H, 6 ft would be a pretty high flotation tank: if 6 ft was the width and 4 ft was the depth, then that would seem reasonable. Since the longest the canoe can be is 22 feet, so you should have it longer than that.

RFI No. 79
Subject: Seats and Mats
Section: 2.6
Posted: 01.04.19

QUESTION:
The Rules state that seats cannot exceed a 20” x 20” x 20” maximum. What specifically would you consider a seat? Something with a back or could it be just a thick mat. For example, a 20" x 20" x 3" piece of foam could not be considered a mat because of the 1/2" max height, but could it be considered a seat to be used in the races. Is there anything specifically you are trying to avoid paddlers using besides the prevention of a structural component?

RESPONSE:
A "seat" would be anything that fits within a 20” x 20” x 20” box and that supports the body by sitting on it (i.e., is in contact with your tuckus). You can kneel or sit on a mat.
SECTION 3 – Concrete

RFI No. 2
Subject: Mineral Fillers
Section: 3.3.3
Posted: 09.17.18

QUESTION:
1) We have used in the past expanded glass microspheres, the majority of which pass through the No. 200 sieve. Section 3.3.3 indicates that this would now be classified as a mineral filler and it would seem as if there is no limit to the quantity that could be used (not governed by any percentage limitation), is that correct?
2) If we have two aggregates that are now classified as mineral fillers, do we simply lump them together to go into the mixture proportion spread sheet? Or do they need to be separate and classified as mineral filler #1 and mineral filler #2?

RESPONSE:
1) There are no specified limits for the amount of materials which are classified as "mineral filler" that can be used in the concrete mixture. However, teams still need to be cognizant of the 25% total volume requirement for aggregates.
2) A generic listing of "Mineral Fill 1" and "Mineral Filler 2" should not be used, rather their brand names. If they come from different sources and have different physical properties, namely, specific gravity, they should be listed separately.

RFI No. 4
Subject: Perlite
Section: 3.3.3
Posted: 09.19.18

QUESTION:
Does light weight aggregate Perlite come under ASTM C330

RESPONSE:
Perlite DOES NOT meet the requirements of ASTM C330.

RFI No. 5
Subject: Number of ASTM C330-Compliant Aggregates
Section: 3.3.3
Posted: 09.19.18

QUESTION:
Can we use 2 materials to fulfill the criteria of Section 3.3.3 .c?

RESPONSE:
Teams are allowed to use as many ASTM C330-compliant aggregates as they wish as long as they meet the requirements as stipulated in Section 3.3.3.c.
RFI No. 7  
Subject: Aggregate Proportioning  
Section: 3.3.3.b  
Posted: 09.19.18

QUESTION:
In this rule, it states that any particles that pass through a No. 200 sieve (in other words, a diameter of less than 75 microns) will not count as an aggregate, but instead will count as a mineral filler. Two of our aggregate materials from years past are K15 and K25 glass bubbles from 3M. These microspheres have diameters of 60 and 55 microns respectively, so they would pass through a No. 200 sieve. Would these materials now be classified as mineral fillers under this rule, and thus not count towards the 25% aggregate makeup of the mix as per rule 3.3.3.a? And to confirm, these materials, instead of being reported in the mix proportions table as an aggregate would now be reported as solids, correct?

RESPONSE:
Yes.

RFI No. 8  
Subject: Light calcium carbonate  
Section: 3.3.3  
Posted: 09.20.18

QUESTION:
This year we want to use light calcium carbonate. And we applied light calcium carbonate to concrete mix in 2017, which served as aggregate according to 2017 NCCC Rules and Regulations, but would pass the No.200 sieve and thus should be classified as mineral filler according to this year's regulations. In this contradiction, should it still be classified as aggregate this year? If so, in spite of its passing No.200 sieve, should it be regarded as aggregate in the calculation in account of its specialty? And which ASTM standard should it comply with? If not, which category should it go into and which ASTM standard should it comply with?

RESPONSE:
Any portion of the light calcium carbonate that passes the No. 200 sieve (75 microns), it is to be considered a "mineral filler" and not aggregate. There is no ASTM standard that it need to comply with. Table 3.1 has listed a section for mineral fillers to be accounted for.
As a word of caution, please do not compare previous editions of the Rules and Regulations to the current (2019) version.

RFI No. 9  
Subject: Minimum Percentage of Cement  
Section: 3.2  
Posted: 09.20.18

QUESTION:
Is there any limitation on the minimum percentage of cement to be used in concrete mix?
RESPONSE:
No.

RFI No. 10
Subject: Jobes Organics Perlite Soil
Section: 3.3.3
Posted: 09.20.18

QUESTION:
We would like to know if Jobes Organics Perlite Soil Amendment is acceptable to use as a lightweight aggregate in our mix design.

RESPONSE:
Answering the question as asked, yes, you may used perlite as an aggregate. However, per RFI No. 4, posted 09.19.18, perlite DOES NOT meet the requirements of ASTM C330.

RFI No. 11
Subject: Competition Memorandum
Section: N/A
Posted: 09.20.18

QUESTION:
Under the Competition Memorandum tab, on the ASCE website; in the aggregate description section; It is mentioned that:
3. Does the material meet one of the aggregate types per Section 3.1.1 or 3.1.2 of the standard?
   a. Yes – then go to 4
   b. No – then it may not be compliant; go to 4 (with caution)
Does this regard the 2019 Rules and Regulation? Because there is no Section 3.1.1, but there is a 3.3.1. We need clarification.

RESPONSE:
The Competition Memorandum also states, "First, there are two general types of lightweight aggregates covered under ASTM C330, Standard Specification for Lightweight Aggregates for Structural Concrete:
1. aggregates prepared by expanding, pelletizing, or sintering products such as blast-furnace slag, clay, diatomite, fly ash, shale, or slate (Section 3.1.1 of the standard), and
2. aggregates prepared by processing natural materials, such as pumice, scoria, or tuff (Section 3.1.2 of the standard)."
The standard is ASTM C330.

RFI No. 14
Subject: Mineral Filler
Section: 3.3.3.b
Posted: 09.26.18
**QUESTION:**
Under 3.3.3 b and the RFIs No.7 and No.8, we understand that any portion of aggregate that passes the No. 200 sieve is no longer to be considered in our calculation for the total volume of aggregate and is instead to be regarded as a mineral filler. If we were to use a material where we know approximately half will pass through the No. 200 sieve, should we consider this as filler in the volume of our cementitious materials? If not, where should we include this material in our mixture proportions?

**RESPONSE:**
Table 3.1 has been modified to include the "Mineral Filler" category. You would not include aggregate or aggregate-like material passing the No. 200 sieve under the CM category.

<table>
<thead>
<tr>
<th>Component</th>
<th>Specific Gravity</th>
<th>Volume (ft³)</th>
<th>Amount (mass/volume) (lb/yd³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latex (if used)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Dye (if used)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powdered Admixture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Filler (Passing No. 200 sieve)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mineral Filler</strong></td>
<td></td>
<td></td>
<td><strong>Total Solids from Admixtures</strong></td>
</tr>
</tbody>
</table>

**RFI No. 15**
Subject: Pumice
Section: 3.3.3
Posted: 09.26.18

**QUESTION:**
Is Pumice an ASTM C330 compliant aggregate? Attached are documents the company has sent to us that states it is ASTM C330 compliant (attachments are not provided for the response.)

**RESPONSE:**
If you have documentation as required by the Rules and Regulations stating (i.e., certifying) that a material is ASTM C330 compliant, then it is compliant. Pumice meets ASTM C330.

**RFI No. 16**
Subject: Quikrete Acrylic Fortifier
Section: 3.2.3.4
Posted: 09.26.18

**QUESTION:**
Our school historically used Quikrete Acrylic Fortifier, which according to their MTDS and website satisfies the ASTM C1438 requirement. Is this polymer modifier legal for the competition?

**RESPONSE:**
Quikrete Acrylic Fortifier (product number 8610) is acceptable.
RFI No. 18
Subject: Sodium Silicate and Sodium Hydroxide
Section: 3.2
Posted: 10.04.18

QUESTION:
Can we use chemicals like sodium silicate and sodium hydroxide etc. in concrete mix?

RESPONSE:
These can be used and are to be listed as admixtures in Table 3.1.

RFI No. 19
Subject: CSA Cements
Section: 3.2.1.1 and 3.2.1.7
Posted: 10.04.18

QUESTION:
May CSA cements conforming to ASTM C1600 be incorporated into concrete mixes?

RESPONSE:
CSA cements are permitted.

RFI No. 20
Subject: Penetron Admix® SB
Section: 3.2.3.5
Posted: 10.04.18

QUESTION:
We would like to ask if Penetron Admix® SB is an acceptable material for use in the Concrete Canoe Competition, as regulation of waterproofing admixtures is not clearly mentioned in the rules.

RESPONSE:
Penetron Admix® SB falls under ASTM C494 Type S, Specific Performance Admixtures as allowed by Section 3.2.3.5, Specialty Admixtures, of the Rules and Regulations.

RFI No. 23
Subject: Aggregate Proportioning Section b.
Section: 3.3.3
Posted: 10.04.18

QUESTION:
Good Morning CNCCC RFI Gods,
We have a question about what the process of determination of the particle size requirements should be. As stated in 3.3.3.b. "Any portion of the aggregate that passes the No. 200 (75 μm) sieve shall be regarded as a mineral filler and thus should be excluded from the calculation of the volume of the aggregate" which is
stated clearly enough, however what should the process be to determine the size of our aggregate particles. Should we use the manufacturer data sheets and specified sizes or should we use actual sieve analysis on our aggregates to get our own information? The CNCCC rules do not ask for a sieve analysis but does ask for TDSs and the teams can prove data provided on a TDS but cant if the CNCCC is asking for actual sieve analysis data performed by students.

The second question is based on the results from either of the two processes above, should we exclude the entirety of the aggregates volume if a portion or a large portion of that aggregate passes #200 or should we just take the volume that passes #200 out of the calculations? The phrasing in the rules makes it sound like "any portion" applies as meaning "any single aggregate" not a percentage of a specific aggregate. We are assuming this means a percentage of each individual aggregate must be taken out if it passes #200.

RESPONSE:
Mere Concrete Canoe Mortals,
You may use technical data sheets to give you an idea of what the gradation should be, but performing a particle size analysis as part of your QC program would be prudent.
You are to exclude any amount of any aggregate source that passes the No. 200 sieve as meeting the aggregate proportioning requirements. For example, say you have 100 lbs of Aggregate A delivered from a given source, and 15% passes the No. 200 sieve. Per the Rules, you have 85 lbs of aggregate and 15 lbs of mineral filler (if you decide to use all 100 lbs). The 85 lbs is used as part of your total aggregate volume calculation.

RFI No. 24
Subject: Aggregate Proportioning
Section: Table 3.1
Posted: 10.04.18

QUESTION:
Good Morning CNCCC RFI Lords,
So upon inspecting the mix design rules and the proportions table, we found an error or what we think is an error. Assuming to meet the 25% rules, the minimum aggregate volume must be at minimum 5.06 cubic feet of a mixture proportion and the ASTM C-330 aggregate must be at least 1.69 cubic feet. We are concerned that the mineral filler sections will have massive volumes to counter the #200 sieve and the ASTM C-330 rules and these mineral fillers have extremely high surface areas. The Mixture Proportions sheet does not account for the Absorption and SSD requirements for these mineral fillers. Therefore the mixture proportions sheet will be wrong intrinsically because of this omission. Using my current mix design as an example, this neglects a little more than an entire cubic foot of SSD Water from the mineral fillers. This will cause our mixes to come out on Table 3.1 incorrect. We feel that the SSD water for these materials should be accounted for on the table just like the aggregates considering they are still acting as an aggregate in a Portland Cement Concrete even though the mineral filler rule (which comes from asphalt concrete design) negates their volume from the calculations.

RESPONSE:
The size of the mineral fillers can be construed as being on the level with the size of CM particles (yes, they are slightly larger) and would be part of the paste/binder of your concrete mixture. You can account for any water for the addition of the mineral fillers in the "Water" section of Table 3.1. You can add a note, if needed, to distinguish water used for hydrating your CM from that which is attributed to the mineral filler. Dilly Dilly
RFI No. 28
Subject: Polymer Modifiers/Latex Meeting ASTM C1059
Section: 3.2.3.4
Posted: 10.15.18

QUESTION:
Section 3.2.3.4 lists "SBR Latex (Euclid Chemical Company)" as an approved material however it later states that bonding adhesives meeting ASTM C1059 standards are prohibited. The general product information and technical data sheet for SBR Latex state that it complies with ASTM C1059. Could you please clear up this discrepancy?

RESPONSE: When developing the Rules and Regulations the CNCCC reviewed various latex admixtures to develop a list of acceptable products. At the time, it was our understanding based on its properties and intended use that SBR Latex met C1438. Based on further review it appears that it only meets C1059. At this time, it is still considered to be an acceptable product for the competition, per the list provided in Section 3.2.3.4, and will be the only one meeting C1059 that is permitted. We have received various inquiries about the use of other products meeting C1059 and those are not permitted.

RFI No. 29
Subject: Sea salt dissolved in water
Section: 3
Posted: 10.15.18

QUESTION:
It is likely that we will apply seawater to ECC mix instead of ordinary water for some reasons. And to simulate the genuine seawater, we will dissolve sea salt into water according to certain proportion. So, we are wondering whether the sea salt is a qualified material in the construction of the canoe, and if it is, what standard should the sea salt we used go into or what kind of information should we offer?

RESPONSE:
Salt would be allowed as a constituent in the concrete mixture. ASTM D1141, Standard Practice for the Preparation of Substitute Ocean Water, may be a standard to consider. The amount of salt added to your mixture should be considered as a “solid” even though it will dissolve into the water.

RFI No. 30
Subject: Certification of Aggregate
Section: 3.3.3
Posted: 10.15.18

QUESTION:
Referring to Section 3.3.3 Aggregate Proportioning, it states that the aggregate must be tested by an independent testing laboratory and that a single literature piece stating "ASTM C330 compliant" is insufficient.
In our situation, we have a single literature that states ASTM C330 compliance, but it also comes with a separate lab report with all the proper testing to prove that it is.
We would like clarification on whether the certification had to be contained to one single document or if what we have provided, as two separate documents, is enough. In the previous year, we were told in an RFI that this documentation was sufficient but am unsure on whether it still meets the requirements for this year’s competition. The example certification that the rules state to refer to in the sample Project Overview and Technical Addendum has still not been published.

**RESPONSE:**
The documents indicated above are not presented in this RFI, however, both can be used to show compliance (the certification letter alone does not as Section 3.3.3 requires the laboratory report). With that said, we note that that report is dated 2007. You should request a more recent version of it.

**RFI No. 33**
**Subject: Gesso**
**Section: 3.2.1**
**Posted: 10.16.18**

**QUESTION:**
Our team is considering using gesso, i.e. calcium sulphate dihydrate, in the construction of the canoe. It should be classified as cementitious material but didn’t appear on the given list of permitted cementitious materials in the rules and regulations, so we are wondering if it is a qualified material. Please advise.

**RESPONSE:**
based on the composition of this material, it is essentially gypsum, and can be used as a supplemental cementitious material.

**RFI No. 34**
**Subject: Coloring Admixtures/Agents and Concrete Pigments**
**Section: 3.2.3.3**
**Posted: 10.16.18**

**QUESTION:**
The ASTM C979 Standard says : "1.4 The maximum prescribed dosage rate of a pigment, established in accordance with 4.7, shall be equal to or less than 10 mass % of cement. When a combination of pigments is used to produce the desired color and color intensity, the total dosage rate of all pigments combined shall not exceed any of the individual maximum dosage rates of the component pigments."
What is considered a cement? Since our team tries to make a more environmentally friendly concrete mix, we implemented slag cement in our mix. Is slag cement to be considered in the total cement quantity for the calculation of the mass of pigment allowed to respect the 10% prescribed by the standard?

**RESPONSE:**
The "cement" in this case would include all the portland cement and any other cementitious materials, pozzolans, etc.

**RFI No. 35**
**Subject: Fiber Reinforcement**
**Section: 3.2.2**
**Posted: 10.18.18**
QUESTION:
We plan to use hemp fibers supplied by our university’s agricultural department as fiber reinforcement in this year’s canoe. Though hemp fibers were said to be permitted in this year’s competition in accordance with RFI No. 22, the governing standard for type IV fibers within ASTM C1116 states that documentary evidence of “resistance to deterioration” must be provided. According to the National Hemp Association, there are no manufacturers that provide hemp fibers for concrete. Subsequently, no MTDS’s exist for hemp fibers. However, our university lab has the capability to perform the testing outlined in ASTM C1609, ASTM C31, and ASTM C192 to verify compliance with ASTM C1116. If documentation of these tests are provided and show compliance to ASTM C1116, will we be required to create our own MTDS or will the NCCC RFI response suffice in place of the MTDS?

RESPONSE:
The CNCCC will waive the requirement for testing to show resistance to deterioration. If the team would still like to perform the test, you may add the results to the POTA.

RFI No. 36
Subject: Organic Impurities
Section: 3.3.3
Posted: 10.18.18

QUESTION:
In ASTM C330, there's a section called Organic Impurities. It says to defer to a further another ASTM document for testing on this section. All we could find was a document about testing for organic impurities in fines. In this case, could natural materials such as wood chips be used for coarse aggregate? The following citations are what I am referring to. Any clarification would be appreciated!

• 4.1.2 Aggregates prepared by processing natural materials, such as pumice, scoria, or tuff.
• 4.2 The aggregates shall be composed predominately of lightweight-cellular and granular inorganic material
• 5.1.1 Organic Impurities (Test Method C40/C40M)— Lightweight aggregates that, upon being subjected to test for organic impurities, produce a color darker than the standard shall be rejected, unless it is demonstrated that the discoloration is due to small quantities of materials not harmful to the concrete

RESPONSE:
From ASTM C330, "Lightweight aggregates shall be tested, and should not contain excessive amounts of deleterious substances; and should conform to the specified values of organic impurities, aggregate staining, aggregate loss of ignition, clay lumps and friable particles, loose bulk density, compressive strength, drying shrinkage, popouts, and resistance to freezing and thawing."
There is a limit to the amount of impurities allowed, sort of like, the FDA having a limit on the amount of horse meat in burgers......
Anyway, it is not meant to be interpreted that organic material can be made into aggregate and definitely not one that meets C330 requirements.
With that said, you could consider wood chips as aggregate, but it cannot count towards the amount that must meet C330.
RFI No. 37  
Subject: Xypex  
Section: 3.2.3  
Posted: 10.19.18

QUESTION:
This year, we are considering the use of a waterproofing admixture “XYPEX” in our mix design. Xypex Admix C-1000/C-1000 NF, which certifies the requirements of EN-934-2 (European Norm), consists of Portland cement, silica sand (excluding the NF grade) and various active, proprietary chemicals. We found that EN-934-2 has similar requirements with ASTM C494, so we are wondering whether Xypex Admix is allowed as admixtures or cementitious materials of our concrete mix. We also want to know if the product data sheet in the attachment is qualified as the MTDS required in POTA.

RESPONSE:
Xypex is allowed to be used as a waterproofing admixture. It is a combination of cement, sand and chemicals, and its use has been approved in previous competitions. Given its composition, it should be listed under the 'Cementitious Materials' of Table 3.1. The product data sheet provided is acceptable.

RFI No. 38  
Subject: Display  
Section: 10  
Posted: 10.19.18

QUESTION:
For displaying our canoe, we were wondering if we are allowed to have an extra display that wraps around the canoe. It would fit within our space that is given and the judges will be able to go inside that wrap around and view our canoe.

RESPONSE:
No.

RFI No. 45  
Subject: Admixture Compliance  
Section: 3.2.3.5  
Posted: 11.10.18

QUESTION:
According to Section 3.2.3.5, specialty admixtures must meet ASTM C494. This year, we want to use a strength-enhancing admixture, which is already introduced to the market and is patent pending. The data sheet states that it will meet ASTM C494. Would this be allowed in the mix?

RESPONSE:
We would permit this.
RFI No. 46
Subject: Foaming Agent
Section: 3.2
Posted: 11.10.18

QUESTION:
If we plan on using foamed concrete, how would we go about listing the foaming agent that we will use? Does it have to fulfill any ASTM standards? Are there any limitations as to the kind foaming agent we can use?

RESPONSE:
The use of foaming agents, such as those to create cellular concrete is permitted and is considered to be an admixture. ASTMC796 Standard Test Method for Foaming Agents for Use in Producing Cellular Concrete Using Preformed Foam and/or ASTM C869 / C869M – 11, “Standard Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete” appear to be applicable.

RFI No. 48
Subject: Poraver
Section: 3
Posted: 11.10.18

QUESTION:
Does the use of Poraver comply with the rules? It is a recycled glass product and we are not really sure if they are allowed. Please advise.

RESPONSE:
Outside of portland cement and water, Poraver microspheres are probably the most commonly used product in this competition and have been used for decades. Similar to other types of microspheres used, there are a variety of grades (particle size ranges). The Rules and Regulations are clear on what particle size is considered aggregate and what is considered "mineral filler" (i.e., the No. 200 sieve). And just as a friendly reminder to all, (1) PORAVER IS NOT A CERTIFIED ASTM C330 COMPLIANT AGGREGATE (BY AN INDEPENDENT LABORATORY) and (2) since it is a microsphere, it cannot count towards the 25% of the aggregate volume that must be ASTM C330 compliant.

RFI No. 51
Subject: Liquid Cement in Mold Construction
Section: 3
Posted: 11.19.18

QUESTION:
Section 3.0 states, "The use of pre-packaged or pre-mixed concrete, mortar, or grout is not permitted. Bondo®, epoxy or similar materials are not permitted during 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 a means of attaching the flotation material)".
We were testing out using the product "DAP - Liquid Cement Crack Filler" as a possible coating for are foam mold, to act as a form release. It would be dry before the application of our concrete mix, and only act as a
barrier between the concrete and the foam. Would this be considered in violation of the rules “as an aid during the placement of concrete”?

**RESPONSE:**
In this case, it is part of mold construction and can be used. It is not part of the canoe itself.

**RFI No. 54**  
**Subject: Acryl 60 Polymer Modifier**  
**Section: 3.2.3.4**  
**Posted: 11.19.18**

**QUESTION:**  
Our school would like to continue the use of Acryl 60 (BASF Corp.), which now goes by the name MasterEmaco A 660, in our concrete mixture. Is this eligible as a legal polymer modifier for the competition?

**RESPONSE:**  
Unless documentation is provided that states that this material meets ASTM C1438, and then the CNCCC approves it, it cannot be used in this competition.

**RFI No. 55**  
**Subject: Use of Color Hardener**  
**Section: 3.2.3.3**  
**Posted: 11.28.18**

**QUESTION:**  
Per Section 3.2.3.3 of the rules, Coloring Admixtures/Agents and Concrete Pigments are required to comply with ASTM C979. The standard states that, "... pigments in powder form to be used as admixtures in concrete for the purpose of producing integrally colored concrete..." (1.1). Would the use of color hardener be permitted if the color is applied after the concrete has been cast and meets ASTM C979?

**RESPONSE:**  
Applying the color (and then the hardener) after the concrete is cast is not allowed. Integrally colored concrete has the pigment mixed into the fresh concrete.

**RFI No. 57**  
**Subject: Wood Ash**  
**Section: 3.2.1.7**  
**Posted: 11.28.18**

**QUESTION:**  
My team was wondering if biochar (wood ash) can be used as an acceptable cementitious material or would it be classed as an aggregate? In our research, we found that ash is used to replace cementitious materials. We got the material donated from a local farm; thus they do not provide an MTDS for the biochar material. We wondering if it is possible for us to the testing ourselves on the material in replacement of the MTDS.
RESPONSE:
Wood ash will be considered a pozzolanic material, not aggregate, and can be used under 3.2.1.7. We would waive the testing as that will put an unreasonable burden on the team.

RFI No. 58
Subject: Forton VF-774
Section: 3.2.3.4
Posted: 11.28.18

QUESTION:
We are considering using Forton VF-774 (an acrylic co-polymer) in our concrete mixture. It is primarily used in GFRC (glass fiber-reinforced concrete) mixtures. Would this material be acceptable as a polymer modifier under 3.2.3.4? The MTDS does not explicitly state that it meets ASTM C1438. Would a lab test proving it meets ASTM C1438 be required for its use?

RESPONSE:
Only products that meet C1438 (with the exception of the one product that is on the approved list in the Rules and Regulations that meets C1059) are to be used in this competition this year. If the product meets C1438 and is not on the list then it can be submitted for consideration. Since Forton VF-774 does not meet this requirement, it cannot be used. To have a lab test it in an attempt to see it is C138 compliant is not really worth the effort when there are other already approved products that can be used.

RFI No. 59
Subject: K-type cement
Section: 3
Posted: 11.28.18

QUESTION:
We are looking into using K-type cement as our main cementous material. From the data sheet, it appears to be Type II portland cement with Komponent shrinkage reducer. Is this material applicable for competition?

RESPONSE:
K-type cement is allowed and had been used by teams in the past.

RFI No. 60
Subject: Percentage of Aggregate falling under No. 200 Sieve
Section: 3.3.3
Posted: 11.28.18

QUESTION:
We had a question regarding section 3.3.3 part b. It states, "Any portion of the aggregate that passes the No. 200 (75 μm) sieve shall be regarded as a mineral filler and thus should be excluded from the calculation of the volume of the aggregate".
To find out what percentage of our aggregate falls under the No. 200 sieve, should we use our own sieve analysis data or the data from the TDS. Both numbers vary by a lot which could effect the calculations for the potential mix we want to use. 

For example, in the attached TDS, it says 31% of our Utelite passes the No. 200 sieve but our sieve analysis data shows only about 1-2%.

RESPONSE:
The table is from an independent lab report (summary letter) stating that the material is ASTM C330 compliant (the letter is from 2017). The particle size analysis done on the sample showed that 13% passed the No, 200 sieve (we assume the 31 in question is a typo) and is based on the sample that was either submitted by the producer or sampled from the stockpile by the laboratory. The particle size distribution can vary from sampling event to sampling event and is not a constant value (that is why there is a range of limits).

As long as your sieve analysis is representative of the total mass of aggregate used (and there are ASTM standards for this), you should use the values that you found from your testing.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
<th>C330 Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot; (9.5 mm)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>100</td>
<td>85-100</td>
</tr>
<tr>
<td>No. 8 (2.36 mm)</td>
<td>92</td>
<td>---</td>
</tr>
<tr>
<td>No. 16 (1.18 mm)</td>
<td>60</td>
<td>40-80</td>
</tr>
<tr>
<td>No. 30 (600 μm)</td>
<td>38</td>
<td>---</td>
</tr>
<tr>
<td>No. 50 (300 μm)</td>
<td>24</td>
<td>10-35</td>
</tr>
<tr>
<td>No. 100 (150 μm)</td>
<td>18</td>
<td>5-25</td>
</tr>
<tr>
<td>No. 200 (75 μm)</td>
<td>13</td>
<td>---</td>
</tr>
</tbody>
</table>

RFI No. 64
Subject: AeroAggregate FGA
Section: 3.3.3
Posted: 11.30.18

QUESTION:
Our school is trying to utilize a new aggregate source in this year's competition. It has not been officially ASTM C330 tested, but the technical data sheet provides chemical and physical properties outlined in the ASTM C330 Standard.

Is this data sufficient enough to comply with the 2019 Rules and Regulations? If not, does it need to be officially tested and stamped for compliance?

RESPONSE:
Section 3.3.3 is pretty clear on what is required to meet C330. In short, nothing less than an independent lab report that certifies that it meets the standard is required.

However, the author of these responses, being the great guy that he is, followed up with AeroAggregate since he personally knows the head honchos over there. The foam glass aggregate that they produce is primarily used as lightweight structural fill. They are not producing it for use in concrete (hence, it lacks any testing in concrete mixtures which is also a requirement for being C330 compliant).

So, you may use it as aggregate, but cannot count it as C330 aggregate.
RFI No. 65
Subject: Use of Hydrated Lime
Section: 3.2.1.6
Posted: 11.30.18

QUESTION:
In Section 3.2.1.6 it states, "hydrated Lime Shall meet the requirements of ASTM C207, Type S or N."
Is the use of hydrated lime type SA (special air-entraining hydrated lime) or NA (normal air-entraining hydrated lime) is prohibited?

RESPONSE:
SA and NA meet Type S and N, respectively. These are allowed.

RFI No. 67
Subject: Citric Acid
Section: 3.2.3.1
Posted: 12.04.18

QUESTION:
May food grade citric acid be incorporated as a set-retarding admixture.

RESPONSE:
Chemically, this would work. We would allow its use.

RFI No. 68
Subject: Xanthan Gum
Section: 3
Posted: 12.04.18

QUESTION:
We would like to ask if xanthan gum is an acceptable bonding adhesives for use in the Concrete Canoe Competition.

RESPONSE:
Xanthan gum cannot be considered a bonding adhesive in lieu of the approved list of latexes.

RFI No. 69
Subject: Polymer Modifiers/Latex
Section: 3.2.3.4
Posted: 12.14.18

QUESTION:
Hey guys, quick question about Liquid Latexes.
We don't know what to do for our liquid latex for concrete canoe. The rules for the competition contradict themselves. We don't know exactly what to do. If you could help us understand we'd greatly appreciate it.
Only pre-approved polymer modifiers may be used. This material should be selected from the list of approved materials shown below (all of these materials meet the requirements of the ASTM C1438). If a team wishes to use a different polymer modifier than listed below, they shall contact the CNCCC for a determination of its applicability.

- STYROFAN 1186 (BASF Corp.)
- TRINSEO MODIFIER A™/NA (TRINSEO LLC)
- SBR Latex (Euclid Chemical Company)
- Tylac 4190, 4191, 4193 (Mallard Creek Polymers)
- Rovene 4040 (Mallard Creek Polymers)

Bonding adhesives (ASTM C1059), formulated for bonding old and new concrete, and waste latex paints are strictly prohibited and may not be used as an alternative polymer modifier. The reason why this contradicts itself is because SBR Latex is ASTM C1059 approved.

RESPONSE:
Quick question - even quicker response: See RFI No. 28, posted 10.15.18

RFI No. 70
Subject: EPS Foam Beads
Section: 3.3.3
Posted: 12.14.18

QUESTION:
Are EPS Foam Beads allowed to be used as a mineral filler aggregate?

RESPONSE:
EPS can be used as an aggregate (and to answer your next question, no, it is not C330 compliant). Mineral fillers are the portion of the aggregate that passes the No. 200 (75 μm) sieve. Basically these are "fines" and are silt- and clay-size particles. If you are able to get EPS that small, you can consider them as a mineral filler.

RFI No. 71
Subject: Air Defoaming Admixtures
Section: 3.2.3
Posted: 12.14.18

QUESTION:
May air defoaming admixtures such as Fritz-Pak Air-Minus be used in our concrete mixtures? [http://www.fritzpak.com/products/product_air-minus.shtml](http://www.fritzpak.com/products/product_air-minus.shtml). If so, would this fall under the "Solids Content" of the mix table as an admixture?

RESPONSE:
Yes, this may be used in the concrete mixture and is considered a dry powder, therefore, it should fall under the "Solids" portion of Table 3.1.
RFI No. 72
Subject: Pigment Amounts
Section: 3.3.1
Posted: 12.14.18

QUESTION:
In Section 3.3.1, it is stated that the "amount of color admixture or pigment can vary from mixture to mixture". If so, what amount should be reported in the Mix Design table and calculated for in the sample calculations? Would the maximum pigment dosage or no pigment dosage be preferred?

RESPONSE:
As it is a sample calculation, you can select the dosage (typical, maximum, etc.).

RFI No. 74
Subject: Polyethylene fibers
Section: 3.2.2
Posted: 12.18.18

QUESTION:
We would like to ask if polyethylene fibers are legal to use. Please advise.

RESPONSE:
They are.

RFI No. 75
Subject: Mica
Section: 3
Posted: 12.20.18

QUESTION:
Our team had a question about the inclusion of mica in our decorative mix. Would this be permitted and would the mica be required to meet any specific ASTM standards?

RESPONSE:
Mica would be considered an aggregate and can be mixed into the concrete (you cannot sprinkle it on like glitter). It does not have to meet any specific ASTM standard.

RFI No. 76
Subject: Aggregate Proportioning
Section: 3.3.3
Posted: 12.20.18
QUESTION:
Our team had a question referring to Section 3.3.3.b. of the Rules and Regulations. The manufacturer of one of our aggregates performed a particle size sieve analysis, but their analysis tools only allow them to analyze up to No 100 mesh (149 microns). Only 0.02% of the aggregate passed through the No 100 mesh sieve. Should we include this 0.02% in the mineral filler category?

RESPONSE:
In essence, you have 0% passing the No.100 sieve (no fines, hence no mineral filler). On paper. You should perform your own sieve analysis to verify.

RFI No. 77
Subject: Hydrated Lime
Section: 3.2.1.6
Posted: 12.20.18

QUESTION:
In reference to RFI No. 29 mentioned in the 2015-2016 competition year that states,"... “Type S Hydrated Lime is allowed and is to be considered as a specialty admixture and not a cementitious material” Is Hydrated Lime Type S still considered a solid or can it be classified as a cementitious material

RESPONSE:
Wow! Nothing like referring to RFIs from years ago.
Section 1.0 - RULE CHANGES AND PRECEDENCE
The Rules and Regulations (Rules) of the National Concrete Canoe Competition™ (National Competition) are updated each year. Teams MUST read this document carefully and disregard previous editions. Teams should not consider items such as rulings and interpretations made by judges in previous competitions and answers provided in previous Request for Information (RFI) Summaries, as setting precedence for this year’s competition.
But to answer the question: See Section 3.2.1.6. Hydrated Lime (under 3.2.1, Cementitious Materials)

RFI No. 82
Subject: Hess Pumice Pozzolan
Section: 3.2.1.7
Posted: 01.04.19

QUESTION:
We would like to use a Hess Pumice Pozzolan in our canoe mix. Its use is not explicitly listed in the official rules and regulations, so we want to make sure whether or not it is acceptable.

RESPONSE:
Hess Pumice Pollozan (POZZ) whicher is finer than the pumice used as aggregate is acceptable for use under Section 3.2.1.7.
RFI No. 83
Subject: Minimum C330 Aggregate Volume
Section: 3.3.3
Posted: 01.09.19

QUESTION:
Does the ASTM C330 Compliant Aggregates need to be a minimum of 25% or can it be 24.51% which rounds to 25% if 2 significant figures are used?

RESPONSE:
The spreadsheet calculator that we use does not round up numbers. Don't chance it!!

RFI No. 84
Subject: Absolute Volume of Concrete
Section: Appendix C
Posted: 01.09.19

QUESTION:
In Appendix C it states, "The absolute volume of concrete is the sum of all the constituents in the mixture. This is based on zero air content. This value has to be less than 27 cf (1 cy)." What deductions, if any, would be incurred if the absolute volume of concrete value is more than 27 cf?

RESPONSE:
First, to answer the question posed, up to 15 points can be awarded for “Thoroughness of Calculation & Correct Math” for Appendix B – Mixture Proportions of the Design Paper Scorecard. This is a subjective score by the judges, so they can take what they feel should be the score into their consideration. There is no deduction, per se, for incorrect math. In regards to Final Product, the potential exists that incorrect math may lead you to have a miscalculation in your constituents. The only deductions tied to this type of error would be in relation to aggregate (Infraction F and/or G, both of which are 25 points).

However, with that said, in the end, there should be no reason that you have an absolute volume greater than 27 cf. For that to occur, you are saying you have a negative air content! You cannot say that you have a concrete with a measured unit weight of “X” (in pcf or pcy) and in the same breath say that the total amounts, for a cf or cy, exceed or is less than “X” (i.e., have a 100 pcf mixture, but your amounts add up to say 105 lbs or 98 lbs, for a cf).

To clarify, we are talking about “yielded mixture proportions” which takes into account the actual,
measured unit weight (density) of the concrete. Yielded proportions are to make one (1) cubic yard (cy) of concrete. Therefore, the total volume of concrete (Vol total) is 27 cubic feet (cf). Think of it this way....if a concrete had a measured unit weight of 100 pcf, that means 100 lbs of material fills a volume of 1 cf (or 50 lbs into 0.5 cf, or 2700 lbs into 27 cf, i.e., 2700 pcy). The total volume of concrete cannot be greater than 27 cf (Why? Because that would mean you made more than 1 cy of concrete, so your proportions are not for the unit, or per cy.)
The absolute volume of concrete is always less than the total volume of concrete. (Why? Because the total volume accounts for the air in the mix, while the absolute volume does not.) Go back to the 100 pcf concrete mix.... 100 lbs fills up 1 cf of volume and there is air in it (which, of course, does not weight anything, but will take up some volume). If we “squeeze” the volume so that all the constituents occupy their respective volumes (see figure), you still have 100 lbs of material, but it now occupies a smaller volume. This is how you get your “theoretical density” and can determine the air content.
This is where the term “zero air content” comes into play. Again, going back to the 100 pcf mixture, let’s assume that this has an 8% air content. 8% of 27 cf is 2.16 cf. So your absolute volume must be 24.84 cf ( = 27 – 2.16). The measured density is 100 pcf (or 2700 pcy), and your theoretical density is 108.7 pcf ( = 2700 / 24.84). So, you need 100 lbs of material to fill a cf of space with 8% air, or 108.7 lbs of material to fill a cf of space with zero air.
Not knowing the particular issues your team is having in the computations, do/did you:
- Account for relative yield of the concrete mixture? That is, did you compare your actual measured unit weight to the assumed unit weight and change your proportioned amounts accordingly?
- Know your design air content or know what your measured air content is?
- Have the correct specific gravities for your constituents (especially your aggregates)? Assuming that there is no blunder in weighed amounts, the volume of your constituents is the next logical step in figuring out the issue. The values for cm, fibers, water and admixtures are usually not the culprit, but lightweight aggregates (especially those with a SG less than 1) may be problematic. Are you using bulk SG or saturated surface dry SG? Is your absorption value correct?
- Ask a professor or an engineer to actually review your mix design?

RFI No. 85
Subject: CTS Komponent
Section: 3.2.1
Posted: 01.11.19

QUESTION:
May CTS Komponent be incorporated into concrete mixes?

RESPONSE: Refer to RFI No. 59, Subject: K-type cement, posted 11.28.18

RFI No. 88
Subject: Aggregate Proportioning
Section: 3.3.3 c) 1) ii.
Posted: 01.15.19
QUESTION:
As per the Rules and Regulations, teams are permitted to modify the particle size distribution (gradation) of the certified aggregate themselves and make it different than that in the ASTM C330 requirements. Our team would like to wash our aggregates (which are ASTM C330 compliant) before using them. This method would wash away fine aggregates. Furthermore, we would like to then change the distribution of gradation after the wash. Would our aggregates still be considered compliant after these procedures?

RESPONSE:

RFI No. 92
Subject: Concrete Sample(s) Cylinders
Section: 3.4.5
Posted: 01.16.19

QUESTION:
Section 3.4.5 states one concrete cylinder shall be provided in two halves. Does this mean the cylinder shall be cut lengthwise into two equal halves, or the cylinder shall be broken into two pieces?

RESPONSE:
Can be sawn or broken in half, lengthwise.

RFI No. 95
Subject: Aggregate Proportionning
Section: 3.3.3 c) 1) ii.
Posted: 01.18.19

QUESTION:
Our team may have an idea for a future research project. Should we find an aggregate in our immediate environment, we would like to certify it as ASTM C 330. In order to do so, is there any requirements for the laboratories, other than the ASTM C 330 requirements, for which the results will be accepted in the competition?

RESPONSE:
We do not currently have a specific requirements for certified laboratories (ASTM does have some). Since you indicate that this is for "future" use, we will table this discussion and can revisit it during the development of next year's rules.
RFI No. 98
Subject: Aesthetic/Patching Concrete Mix Design
Section: Section 3.3.3
Posted: 01.22.19

QUESTION:
Upon releasing our canoe from the mold, there are small voids from air bubbles caught during the casting process. When patching up those voids, does the aesthetic mix we use need to meet all the standards and requirements mentioned in Section 3.3.3? It is mostly cosmetic work, rather than to enhance the structural integrity of the canoe.

RESPONSE:
Section 3.0 - GENERAL, states "Each of the concrete mixtures should be considered as unique and independent mixtures and shall comply with all the requirements of this section..........Mixtures used as filler and patching materials including repairs of any defects generated during the initial construction (such as cracks, “bug holes,” low spots, etc.,) shall meet all the requirements of this section."

RFI No. 99
Subject: Acrylic Quikrete Fortifier
Section: 3.2.3.4
Posted: 01.22.19

QUESTION:
Our team was planning on using the Acrylic Quikrete Fortifier. In their specifications it states that it meets for the C1438 requirement but in the rules I do not believe that is in the approved list. I just want to make sure it is legal.

RESPONSE:
See RFI No. 16, Subject: Quikrete Acrylic Fortifier, posted: 09.26.18

RFI No. 103
Subject: Short Stuff Fibrillated HDPE Fibers
Section: 3.2.2
Posted: 01.24.19

QUESTION:
Section 3.2.2 requires fibers to comply with ASTM C1116, which deals with fiber-reinforced concrete. Short Stuff Fibrillated HDPE Fibers is a fiber material that meets the vast majority of these requirements. However, since ASTM C1116 is designed with more traditional fibers in mind, Short Stuff is unable to be effectively tested to these standards due to its highly fibrillated nature. Nonetheless, this product has been used widely in industry for many years has been deemed acceptable for use in this competition in years past. Therefore, please confirm that Short Stuff Fibrillated HDPE Fibers is an acceptable fiber to use.
RESPONSE:
Short Stuff Fibrillated HDPE Fibers are permitted for use.

RFI No. 104
Subject: Aggregate Proportioning
Section: 3.3.3 b
Posted: 01.25.19

QUESTION:
We have obtained an MTDS for an aggregate that shows the 10th, 50th and 90th percentile sizes of the aggregate particles. (i.e. 90% are smaller than X microns, 50% are smaller than Y microns, etc.) Is it acceptable to linearly interpolate between the values given by the manufacturer to determine the percentage passing the #200 sieve to complete the calculation required in section 3.3.3 b.? Or is there another method preferred by the judges?

RESPONSE:
Without seeing the actually gradation curve, it may not be practical to do a linear interpolation since such curves are plotted as semi-log. Best way to check - do a grain size analysis.

RFI No. 106
Subject: Sample C330 Certificate
Section: 3.3.3 c,
Posted: 01.29.19

QUESTION:
In Section 3.3.3 c, it states that a sample POTA can be seen on the website (http://www.asce.org/rules-and-regulations/), which will include a sample ASTM C330 Certificate. However, the website says that document is "Coming Soon". Will this document be released soon?

RESPONSE:
The sample POTA will be posted by 02.04.19.

RFI No. 107
Subject: Reporting Self-Tests
Section:
Posted: 01.29.19

QUESTION:
I was hoping you could provide some information on how to report self-tested material properties, specifically tests to determine the specific gravity of our natural aggregate as well as sieve tests for compounds with a portion classified as mineral fillers. Is there a specific format we should use to provide our data and calculations?
RESPONSE:
If materials are used that the supplier or manufacturer does not have testing for, then teams may conduct tests in accordance with the appropriate ASTM standards to determine relevant properties such as specific gravity, absorption and gradation. The data can be shown in tabular form with a gradation curve.

RFI No. 109
Subject: MasterRoc® FLC 100
Section: 3
Posted: 01.31.19

QUESTION:
We have a question in regards to the use of hydraulic cement. The material we would like to use is meets the requirements for ASTM C1107. Would this material be allowed in the mix design for a concrete canoe?

RESPONSE:
MasterRoc® FLC 100, a powdered additive for cementitious grouts, is acceptable for use.
**SECTION 4 – Reinforcement**

**RFI No. 22**

**Subject:** Hemp Fibers  
**Section:** 4.1.4  
**Posted:** 10.04.18

**QUESTION:**  
We would like to use a natural fiber in our mix design. We are looking to use unordinary fibers to construct our canoe. The fiber hemp is unclear if it will comply with ASTM standards in Section 4.1.4. Will hemp be an allowable fiber to use? Attached is a link of an untreated raw hemp fiber that we would like to purchase from Hemp Traders. [http://www.hemptraders.com/product-p/f-l2.htm](http://www.hemptraders.com/product-p/f-l2.htm)

**RESPONSE:**  
Natural fibers are Type IV under ASTM C1116 and are permitted.

**RFI No. 43**

**Subject:** Fiberglass Mesh  
**Section:** 4.2.1  
**Posted:** 10.30.18

**QUESTION:**  
The use of fiberglass mesh which contains 14-20% resin is allowed as primary reinforcement?

**RESPONSE:**  
Fiberglass mesh typically comes with a resin coating on it, and if considered "as received" then it is fine to use. You cannot apply resin to it yourself. Section 4.2.1 discusses resin for pre-preg materials. These are items like carbon fiber tape that have uncured resin in them and then require heat to activate and stiffen them.

**RFI No. 47**

**Subject:** Reinforcement Thickness  
**Section:** 4.3.1  
**Posted:** 11.10.18

**QUESTION:**  
Section 4.3.1 Thickness states, “The thickness of a layer of reinforcement is defined as follows: a single layer of the reinforcing is to be placed on a flat surface; a piece of plate glass, 1/4 inch or thinner, is to be placed on the reinforcement; when subjected to the weight of the glass alone, the distance from the bottom of the plate to the top of the supporting flat surface is the thickness of a single layer. The sum of all such measured thicknesses divided by the total thickness of the canoe wall or structural element at any point in the canoe shall not exceed 50%. All canoe elements, including but not limited to, the hull, ribs, gunwales, thwarts, bulkheads, etc., and the connections of structural elements to the canoe wall are subject to this rule. If individual rods or reinforcing bars are used in such a way that they cross each other, this use constitutes at least two (2) layers of reinforcement.”  
Is a design with varying thickness, meaning at least possible two thickness reports, similar to this acceptable?
If yes, the rules do not provide any indication of a uniform thickness requirement. In an attempt to follow Section 4.3.1 would the max thickness achieved be the reported thickness or an average thickness?

**RESPONSE:**
The section states that “at any point in the canoe shall not exceed 50%.” and "All canoe elements....are subject to this rule.” You can have designs with variable thicknesses as well as a uniform thickness with varying number of layers of reinforcement.

RFI No. 101  
**Subject:** Bearing Plates and Fasteners  
**Section:** 4.2.3  
**Posted:** 01.23.19

**QUESTION:**
According to Section 4.2.3, "Bearing plates and fasteners used for pre- or post-tensioning of tendons are permitted and are not subject to the thickness or percent open area requirements on the following page." Section 4.3.1 states that, "The sum of all such measured thicknesses divided by the total thickness of the canoe wall or structural element at any point in the canoe shall not exceed 50%.” If our team uses bearing plates for a post-tensioning system in the bulkheads of our canoe, which is a structural element, do we need to include the thickness of the bearing plate in our calculations to show that reinforcement in the bulkheads does not exceed 50%?

**RESPONSE:**
If the bearing plate is embedded in the concrete then you would be considering its thickness in the calculations due to the concrete being on the sides of it.

RFI No. 102  
**Subject:** Strands, Tendons, and Bars  
**Section:** 4.2.2  
**Posted:** 01.23.19

**QUESTION:**
Section 4.2.2 states that, "Strands, tendons, and bars are materials less than 1/2 inch wide and are used to make a reinforcement grid or used in pre- or post-tensioning. When used individually, they must meet thickness requirements, but are not subject to percent open area." If our team wanted to used ties to secure prestressing cables to our mesh reinforcement, would they be subject to the percent open area requirement? Or would they be considered as individual strands and only subject to the thickness requirements because they are not used as primary reinforcement?

**RESPONSE:**
Reinforcement ties would not be subject to the POA requirements or the thickness requirements.
QUESTION:
Per Section 4.2.2, "Strands, tendons, and bars are materials less than 1/2 inch wide and are used to make a reinforcement grid or used in pre- or post-tensioning. When used individually, they must meet thickness requirements, but are not subject to percent open area."
We intend to use steel reinforcement to reinforce the bulkheads, or tips, of our canoe. The strands would be "longer" than needed through our anchorage brackets, so they would not be stressed. Then, we could wrap these unstressed cables, cast more concrete around them, and use them as reinforcement near the very ends of our canoe. We assume at that point it would be subject to thickness requirements and can't exceed the 50% thickness of the bulkhead, but we weren't sure if it would be permitted to do so because it wouldn't exactly be a "grid" at that point.
Would this be compliant assuming that the reinforcement did not exceed 50% of the bulkhead thickness?

RESPONSE:
This is allowed.
SECTION 5 – Finishing

RFI No. 25
Subject: Lettering (Accents)
Section: 5.2
Posted: 10.09.18

QUESTION:
The name of our school contains an accent in it: Polytechnique Montréal. For the lettering of the school name on the canoe, do we have to include the accent and if so, does it have to be in the 5” ± 1/2” space?

RESPONSE:
You do not have to include the accent but you are permitted to do so. Accents such as those shown below should be proportional to the letter itself. You should have plenty of space with the limits provided to include it.

Grave accents – à, è, ì, ò, ù
Acute accents – á, é, í, ó, ú, ý
Circumflex accents – â, ê, î, ô, û
Tilde accents – ñ, õ, ã
Umlaut accents – ä, è, ï, ö, ü, ý

RFI No. 40
Subject: Glitter Additives inside a Concrete Mix
Section: 5.2
Posted: 10.22.18

QUESTION:
This Section States "Post-manufacturer additives such as glitter or other particulate material are not permitted. Equivalent products shall be submitted to the CNCCC for consideration as an approved equal," and implies the use of glitter or other materials such as glitter being added after the completion/complete curing of all concrete components. However, would the use of such materials (glitter, colored rock flakes, sprinkles, etc) be permitted inside a concrete mix? Such that these materials are embedded in the concrete or concrete surface? Would Technical Data Sheets be required for such materials despite being craft ingredients?

RESPONSE:
Any inert particulate material added (mixed into) the concrete mixture would be considered an aggregate and treated as such. And to be clear, it will not be ASTM C330 compliant!

You cannot embed particulate material into the concrete.

RFI No. 42
Subject: Lettering
Section: 5.2
Posted: 10.30.18
QUESTION:
Section 5.2 states that "... the canoe name shall consist of letters..." with the given dimensions and will be displayed on the sides of the canoe. Are the use of characters (E.g. !, @, #, etc.) permitted within the canoe name as long as these dimensions are met?

RESPONSE:
Yes, these are permitted.

RFI No. 49
Subject: Natural Ink as Pigment
Section: 5.3
Posted: 11.10.18

QUESTION:
Kindly clarify that can we use natural Ink as pigment for our graphics and finishing work on concrete canoe.

RESPONSE:
Section 5.3, Graphics, states "Graphics created using concrete coloring agents and pigments within the concrete mix design (i.e., integrally colored concrete) are not limited in dimension or frequency. Any coloring agents or pigments used shall be in accordance with ASTM C979."

If the ink is ASTM C979 compliant, then it can be used and can only be used in integrally colored concrete (i.e. the pigment is mixed into the fresh concrete itself).

RFI No. 49
Subject: Natural Ink as Pigment
Section: 5.3
Posted: 11.10.18

QUESTION:
Kindly clarify that can we use natural Ink as pigment for our graphics and finishing work on concrete canoe.

RESPONSE:
Section 5.3, Graphics, states "Graphics created using concrete coloring agents and pigments within the concrete mix design (i.e., integrally colored concrete) are not limited in dimension or frequency. Any coloring agents or pigments used shall be in accordance with ASTM C979."

If the ink is ASTM C979 compliant, then it can be used and can only be used in integrally colored concrete (i.e. the pigment is mixed into the fresh concrete itself).

RFI No. 56
Subject: Lettering
Section: 5.2
Posted: 11.28.18
QUESTION:
A previous RFI mentions that characters (such as ! or @) are allowed in names of canoes. We were wondering if quotation marks ("example") would be included in the allowance. If they are allowed, what are the height restrictions on them?

RESPONSE:
The RFI referred to is No. 42, posted 10.30.18. Non-letter characters are permitted. In general, their overall heights are restricted to those outlined in Section 5. From a partial standpoint, they should be scaled with letters. For "example", if the ratio of the letters to the " is say 3:1, then a 3 inch high letter would have a 1 inch high ".

RFI No. 62
Subject: Stacking Letters
Section: 5
Posted: 11.30.18

QUESTION:
My team is looking into lettering designs for our canoe, and we were wondering if the letters for our school and canoe names could be stacked on top of each other as long as each letter still meets the height requirements. The rules say, "the name of the school and canoe shall be prominently displayed on the exterior of the canoe, above the waterline, on both sides, with individual letters," but doesn't give any other descriptions on letter placement. Can our letters be stacked, and if so, are there any requirements for the dimensions?

RESPONSE:
The term "individual letters" is meant to have the letter separate from one another (i.e., not bunched up or in this case, stacked on one another.)
QUESTION:
The rules state that the use of stains and paints of any kind is strictly prohibited. Would any of pastels (chalk or oil) fall into this category?

RESPONSE:
Any surface coating meant to add color is prohibited. The only color allowed to be added is using an ASTM C979 compliant material in an integrally colored concrete (i.e., it is mixed into the concrete).

QUESTION:
Section 5.2 specifies the dimensions of the letter and also says the name of canoe and school must be placed above the water line. Is there a limitation on how close to the gunwale the letters can be? i.e. what is the minimum free-board requirement other than the letter height?

RESPONSE:
There is no limitation on how close it should be to the gunwale. We understand the waterline of the canoe will vary with the paddler load to the point that you may not even see the letters in the 4-person race.

QUESTION:
It states in the rules and regs that the use of adhesive appliques may be used only for the school and canoe name. Does this mean we can use vinyl lettering?

RESPONSE:
Yes, "adhesive appliques" is a fancy term for vinyl lettering.
QUESTION:
If using adhesive appliques for school and canoe name lettering, may we apply the letters underneath the second coat of concrete sealer so as to prevent the applique from falling off during races?

RESPONSE:
Yes.
SECTION 6 – Design Paper

RFI No.1
Subject: Appendix C - Example Structural Calculations
Section: Appendix C
Posted: 09.17.18

QUESTION:
We have a question regarding the structural analysis conditions for this years Rules and Regulations. To our understanding the two situations are explained clearly however the 2nd situation concerning the punching stress on a two way slab does not apply to the way our canoe is design, used, or could be use in any way. We use foot braces and foam seats placed on seat posts and the canoe is designed in such a way. There is no way any of our paddlers knees will ever touch the hull of the canoe so we are wondering if there is a similar way to model this or if we just analyze the situation with our reinforcement pattern and cross sectional design. The only way we see punching stress happening with our canoe is either a manatee attacking us or some kind of new race that incorporates bumper boats. We vote bumper boats.

RESPONSE:
Analyze the scenario given with your reinforced cross-section design.

RFI No. 6
Subject: Structural Calculations
Section: 6.2.2.d and 6.2.2.j
Posted: 09.19.18

QUESTION:
For the structural calculation of stresses of co-ed race do we need to assume canoe to be a two-way slab? Do we need to perform structural calculations for all the cases, i.e. (Transportation, 2 person carry, display, etc)?

RESPONSE:
Section 6.2.2.d, Hull Design, states "Provide a description of the holistic approach to the analysis and material design requirements. Include quantitative results from the analysis of forces, stresses, etc. Describe loading cases (including racing, transportation, and display), support conditions, assumptions, and analysis tools used." So it is assumed that the teams perform relevant structural analyses for loading scenarios that they see fit.
While Appendix C – Example Structural Calculations (see Section 6.2.2.j) specifies the estimation of the punching stress considering a two-way slab, it does not state it is under a co-ed racing condition. Outside of this specific requirement, and that of 2-D structural analysis (Section 6.2.2.d), there are no required methods of analysis.
QUESTION:
Under 6.2.2.d, it says that "Advanced analytical methods, such as finite element, are not to be included in the Design Paper nor mentioned in the Oral Presentation." Last year, at regionals, we received large point deductions for mentioning Maxsurf. The judges made it very clear that 3D modeling was not to be used. However, at Nationals, we saw that other teams had used Maxsurf and other similar 3D modeling software and it was clearly in their oral presentations and design papers. My question is: what constitutes an advanced analytical method? Is Maxsurf considered advanced?

RESPONSE:
The third paragraph of Section 6.2.2.d states "The structural analysis conducted by the teams is to be limited to 2-D analysis only. The analysis should be based on concepts of mechanics of materials, strength of materials, and reinforced concrete design. The use of programs such as, but not limited to, MathCAD®, Matlab® and Microsoft Excel™ to perform repetitive, routine calculations is allowed. Advanced analytical methods, such as finite element, are not to be included in the Design Paper nor mentioned in the Oral Presentation."

The "advanced analytical methods" referred to are in relation to the structural analysis only. Naval architectural design programs, or any programs used in the development of the hull design (from a non-structural aspect) are permitted. such programs are normally 3-D. The CNCCC in previous years had answered similar questions, but a review of last year's RFIs show that such a question was not asked. You should not have been penalized for the use (or mention) of the hull design program.

QUESTION:
In the Rules, Submissions Section 6.3, Conference Competition Section 6.3.3 - The third paragraph in this section states:
"Submit electronic copies to the same location specified in Section 6.3.1. The electronic submission shall be considered the official and final version of both the Design Paper and Project Overview and Technical Addendum. The hard copies and electronic submission of the Design Paper and Project Overview and Technical Addendum, must be received by the date specified by the conference host school or be subject to penalties."

At our regional in 2018, several teams did not submit electronic copies of their Final Design Paper to the national website. Is this a requirement as it seems to indicate and our regional should have enforced the 5 units/day late penalties or can Regional officials dictate their on requirements regarding electronic and hard copy submittal?. The teams in our regional that did not submit electronic copies to the national website link were not penalized and the Regional officials stated that it was for the National Competition only and did not apply to the Regional.
RESPONSE:
You bring up a very valid point. Last year the CNCCC implemented that all teams (at the conference level) were to upload an electronic version of their design paper and POTA to the Xythos server. Teams even initialed the Acknowledgment Form which states that they understand the conference submission requirements.
With that said, we often find that some teams overlook these requirements, as well as the host school sometimes changing the requirements (usually this is the number of papers to be submitted). To answer the question - yes, teams should be penalized points if the electronic version of the design paper and POTA, in the required formats, are not uploaded by the deadline set by the conference host school. Section 6.3.3 clearly states how many hard copies are required, that electronic copies are required, and that the host schools are not permitted to change the requirements set forth.

RFI No. 26
Subject: Design Paper
Section: 6.2.2.g.
Posted: 10.09.18

QUESTION:
"Discuss the quality control and quality assurance (QA/QC) plan/program implemented by the team as it relates to non-construction related aspects of the overall project. Items to consider include, but are not limited to, material procurement and compliance review, document tracking and review, training (other than paddler training), rule and RFI consensus, calculations and work product review, etc."
What do you mean by "document tracking and review"? Which documents does this refer to?

RESPONSE:
The documents can refer to a number of items, both internally and externally generated, such as, but not limited to, MTDS and SDS for the various constituents of your concrete and reinforcement, Health and Safety plans/checklists, design report and POTA drafts, etc. The tracking and review process should mention how such files are saved and who reviews them.

RFI No. 31
Subject: References
Section: 6.1
Posted: 10.15.18

QUESTION:
ASCE recommend AUTHOR-DATE REFERENCES where "the author and date appear in parentheses" after the text citation (ASCE 2015). In the 2019 Rules and Regulations, it is mentioned that for the ASTM requirements, "The publications are referred to in the text by basic designation only" (ASCE 2018). Does this mean that we aren't required to write the date of the standard in parentheses after the text citation? Is this the correct way to proceed?
“Pumice was chosen as ASTM C330 compliant aggregate.”
(and then complete citation of ASTM C330 standard in the References section)? Or do we have to write it like this:
“Pumice was chosen as ASTM C330 compliant aggregate (ASTM 2017).”
(and then complete citation of ASTM C330 standard in the References section)?
If the second option is correct, how do we differentiate the ASTM specifications that were published in the same year when using the author-date referencing in parentheses?

RESPONSE:
When preparing the Rules and Regulations, the CNCCC provides a list of ASTM standards, i.e., the basic designation. The standards are typically reviewed and sometimes updated (so the dates will change). The CNCCC does not know what version of a standard is being used by each team. Ideally, it would be the most current version. So, you would put the year of the standard in your reference.
If you have multiple references from one "author" with the same year, you can distinguish them with letters – Smith 2017a, Smith 2017b, so on and so forth.
Referencing ASTM standards, the sentence can be written as
“Pumice was chosen as ASTM C330 (2017) compliant aggregate.”
In referencing ASTM standards, ASTM International provides the following and it would be acceptable to use this format
With year of Approval:
Multiple revisions in same year:
Reapproved:
Editorial change:

RFI No. 32
Subject: Page Limit for Example Structural Calcs
Section: Appendix C
Posted: 10.16.18

QUESTION:
Is there any defined page limit for structural appendix C calculations?

RESPONSE:
Yes. See Section 6.2.2.m.
**Order 66**  
**Subject: Example Structural Calculations**  
**Section: Appendix C**  
**Posted: 12.04.18**

**QUESTION:**
The rules state "At a minimum, the following shall be provided in the calculation: list of all assumptions (cite references as applicable), free body diagram with all relevant point and distributed loads and their respective values, resulting shear (V) and bending moment (M) diagrams, cross-sectional properties including applicable dimensions, and values of stresses based on the principles of the mechanics of materials. The cross-sectional properties of the representative section are to be approximated by hand calculations (i.e., the use of exact values from programs such as AutoCAD are not permitted)."
I'm asking for clarification on the rules. Are we to still produce the same free body diagrams as previous years or will the shear stress and punching shear replace more of the "traditional" Appendix C calculations as requested in years prior? I understand that it may be to the discretion of the team of what to provide but an answer would be appreciated.

**RESPONSE:**
Section 6.2.2.m is pretty clear that the only scenarios to be included for the calculations this year are the estimation of the shear stress in the chine and deflection in the gunwale (from a lateral analysis) and the estimation of the punching stress. No more, no less.

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**RFI No. 78**  
**Subject: Structural calculation assumptions**  
**Section: 6.2.2 m.**  
**Posted: 12.21.18**

**QUESTION:**
When estimating the Shear Stress in Chine and Deflection in Gunwale, we need to know how many forces like “P” in the picture below we need to consider and where their positions are. To make it clearer, how many supports needed in the calculation and where are they? Is there an exact assumption for these? Please advise.

**RESPONSE:**
All of the assumptions for this scenario are provided in Section 6.2.2.m. You do not need to know any of the values related to the weight of the canoe, the weight of the paddlers. The canoe is submerged to the point that the water level on the outside of the canoe is at the gunwale but not spilling into the canoe (the load to reach this state is equal to the product of the total volume of water displaced by the canoe and the unit weight of water). The summation of forces is equal to zero as the loads inside the canoe is equal to the bouyant force acting on it.
RFI No. 91
Subject: Listing Team Members in Design Paper
Section: 6
Posted: 01.16.19

QUESTION:
According to the rules, the maximum number of official team members is 10. However, regarding the design paper, is there a limit in listing names of team members within the paper itself?

RESPONSE:
You can list all the team members in the paper (i.e., organizational chart is the ideal place).

RFI No. 93
Subject: Structural calculation assumptions
Section: 6.2.2 m.
Posted: 01.16.19

QUESTION:
The canoe is to be modelled as a slab. The structural analysis section states that the canoe is to be submerged up to brim so the bouyant force is fixed in terms of value. The dead weight of the canoe will be according to my design of the canoe and the weight of the canoe is fixed too. The assumed weight of the paddlers is 160lbs for females and 200lbs for males.
The problem is that all the forces are determined and hence equilibrium is not achieved. We cannot neglect the bouyant force and it's up to brim condition as it is stated in clause. And if we ignore the load of paddlers and analysis is done for bouyant force, no cases of race are possible for 2 paddlers and 4 paddlers etc.
So what loads to consider, what will be the corresponding cases and what parameters do we need to calculate in each?

RESPONSE:
Refer to RFI No. 78, Subject: Structural calculation assumptions, posted 12.21.18.

RFI No. 96
Subject: Design Paper
Section: 6.2.2 Format, g.
Posted: 01.18.19

QUESTION:
Section 6 - DESIGN PAPER, Regulation : 6.2.2 Format, g.
"Present the method(s) of project management and present the planning process as it relates to budget, schedule, scope, and risk management (as it applies to aspects of the project other than health and safety) involved throughout the project."
What do you mean by "scope"?

RESPONSE:
Scope is defined as "the extent of a given activity or subject that is involved, treated, or relevant."
QUESTION
In the "Example Structural Calculations" for estimating the punching stress, the rules state the "Flexural reinforcement is to be considered in the section". However to be more conservative, would it be permitted to neglect any reinforcement in this calculation and just use the shear strength of the concrete?

RESPONSE:
You may neglect the shear strength of the reinforcement itself in this analysis. However, with that said, you still need to consider the reinforcement in the section in the analysis. Seems contradictory? You'll understand when you see the equation.
SECTION 7 – Project Overview and Technical Addendum

RFI No. 13
Subject: Tab C – Material Technical Data Sheets (MTDS)
Section: 7.2.1 e.
Posted: 09.25.18
QUESTION:
The last paragraph in Section 7.2.1 states, "The judges and/or CNCCC reserve the right to request addition information regarding the materials, as needed", and we are not sure about what kind of materials can be the addition information regarding the materials, could you give more explanation of or some examples about the addition information?
RESPONSE:
The intent of this language is to allow teams the opportunity to provide information that the judges or CNCCC opine is missing or incomplete in the MTDS. Although the Rules and Regulations have been very clear on what information is to be provided for various products, many teams still tend to not provide enough information (examples would be values of properties of aggregates, or that a product explicated stated it met a required ASTM test method). Furthermore, over the past couple of years, teams have lost a considerable amount of points through deduction for not providing the necessary information (following the "letter of the law"). By including this language, we are leaning more to the "intent of the law" so that the teams can provide the necessary documentation but gives the opportunity to allow the judges and CNCCC to request information (after official submittal of the POTA) that they feel is necessary to complete their evaluations, rather than deducting points for non-compliance or incomplete information.

RFI No. 73
Subject: Slump values
Section: 7.2.1
Posted: 12.14.18
QUESTION:
As per the rules, slump of the concrete is required to be reported in values of inches. However, in Section 7.2.1 the format for the Compliance Certificate, slump is used interchangeably with ”spread". Additionally, Table 3.1 Summary of Mixture Proportions requests a value for "slump, slump flow" in inches. What are the standards to be used for the value of "spread" or "slump flow" reported in both the Compliance Certificate and mixture proportion table?
If our team has an ASTM C230 Slump Flow table available, what procedure should be followed for reporting? ASTM C1437 uses this method, however flow values reported are in % of initial diameter of flow cone rather than units of length.
Happy Festivus
RESPONSE:
We provide flexibility in reporting the slump or spread of concrete. For example, conventional concrete is tested using a slump cone (and therefore measured in inches). Self-consolidating concrete is tested using spread (invert the slump cone and it pours out like pancake batter) and is also measured in inches. You can use whichever method is applicable and should explain it in your report.
In regards to the celebration of Festivus (officially observed on December 23), may your canoes have very high strength-to-weight ratios, you may challenge the author of these responses to "Feats of Strength" at the
RFI No. 89
Subject: "How To"
Section: 7.2.1 D
Posted: 01.15.19

QUESTION:
In Section 7.2.1 part D, the “How To” requires “At least ten (10) of the finishing techniques depicting any sanding/patching and the application of sealer and/or graphics.” If we are not done with the finishing process of our canoe by the time we must submit the Project Overview and Technical Addendum, would it be acceptable to use placeholders for pictures taken later, and have those pictures in the hard copy used at the Regional Conference?

RESPONSE:
This is acceptable at the conference level. We understand that reports and POTAs are often due before the canoe is completed for conference competitions. We do inform the judges to take this fact into consideration.
SECTION 8 – Oral Presentation
No RFIs

SECTION 9 – Final Product (Canoe and Cutaway Section)

RFI No. 17
Subject: Canoe Stands
Section: 9.1.1
Posted: 09.26.18

QUESTION:
In Section 9.1.1 of the 2019 National Concrete Canoe Competition rules, it is stated that "Canoes shall be displayed on display stands designed to support the canoe at a height of 3 to 4 feet off the ground." As long as the lowest point of the canoe when it’s on the stands is above 3 feet from the ground, are there any restrictions on the maximum height of the canoe itself, assuming the stand is structurally sufficient? In essence, could the canoe theoretically be displayed vertically without being in violation of the display rules, with the bottom of the canoe 3 feet off the ground? In a less extreme case, if one stand is 3 feet high, must the other stand be within that 3'-4' limit? Please advise.

RESPONSE:
Ok, now that everyone has had a good laugh, here is the official response:
The intent of the language is to have the teams display their canoes level (or with a slight incline) so that the judges can inspected them from bow to stern and for the team to flip them over, if requested. While the Rules do not explicitly say that the canoe is to be level, it was assumed that teams understood this. Stands are to be designed to hold the canoe 3 to 4 feet off the ground.

RFI No. 53
Subject: Canoe on Display
Section: 9.1
Posted: 11.19.18

QUESTION:
We saw at nationals last year that some universities placed their canoe upside down on the stands instead of the typical stands displaying the canoe right side up. We are looking into placing our canoe upside down on the stands this year, is that allowed per the rules? I didn’t see anything in Section 9.1 that states if it was not allowed, but I just wanted to confirm.

RESPONSE:
Canoes can be displayed right side up, upside down, or on their side, as long as they are displayed at a height between 3 and 4 feet from ground surface.
RFI No. 61
Subject: Cutaway Section Stand Limitations
Section: 9
Posted: 11.30.18

QUESTION:
We are wondering whether the stand on which our cutaway section will be displayed is allowed to have a covering.

RESPONSE:
As long as it does not interfere with the ability of the judges to see various layers, and is not used to display anything other than the cross-section, this would be allowed.

RFI No. 94
Subject: Cutaway Section
Section: 9.3
Posted: 01.18.19

QUESTION:
Since the cutaway section is considered as part of the final product, is the section's support system's height limited to three to four feet? Could it be upside down, suspended, or rearranged in any order of ways?

RESPONSE:
The specified stand heights are for the canoe not the cutaway section. There are no rules limiting it support height or its orientation. Heck, you can even stand it up on one end if you like.

RFI No. 100
Subject: Enhancements of Canoe on Display
Section: 9.1.1
Posted: 01.22.19

QUESTION:
As part of our display aesthetics, our team has discussed making a 3-dimensional sculpture to rest on the one or both noses of the canoe for display. These sculptures would not be permanently attached to the canoe and could be removed for the general judging and of the 3' flotation rule (2.1.10). We are wondering if this would be allowed during judging, or if it conflicts with any rules (ex. 9.1.1). Basically, can we have something covering part of the canoe for aesthetics purposes, but remove it when the judges check to see if we meet certain criteria?
Similar question:
The rules state that "no lighting, sound, or canopies shall be permitted at the time of judging". Would we be permitted to have objects (such as a feather boas or streamers) draped over the gunwales of the canoe as long as the majority of the canoe is still fully visible and the objects can be easily removed and do not impact the structural integrity of the canoe?

RESPONSE:
The canoe cannot be covered or draped in any fashion while on display.
SECTION 10 – Product Display

RFI No. 27
Subject: Product Display
Section: 10.1
Posted: 10.09.18

QUESTION:
Pictures of the construction process of the canoe are not required on the display table, only in the Project Overview and Technical Addendum. May we still put some pictures on the display table, and if so are there any restrictions?
Also, aggregate and reinforcement samples are required. May we also display the other ingredients that are part of the concrete mix (i.e. cementitious materials, admixtures, solids content, etc.)?

RESPONSE:
Yes, you are permitted to have pictures on the display and there are no restrictions other than those outlined in Section 10.
Yes, you are permitted to display other concrete mixture ingredients.

RFI No. 39
Subject: Display
Section: 10
Posted: 10.22.18

QUESTION:
Section 10.2 states that, "displays shall not include electronic devices (such as, but not limited to, laptops, lighting, sound or video equipment, radios, loudspeakers or any other noise-creating devices)." Would a gear box to power moving gears be considered an electronic device? Additionally, would a fog machine be considered an electronic device and therefore be prohibited?

RESPONSE:
Yes. These would be prohibited.

RFI No. 50
Subject: Display Restrictions
Section: 10.2.b
Posted: 11.10.18

QUESTION:
We understand that our display should not be enhanced by the use of electronic devices and the energy transmitted from them. However, would we be able to use electronic devices solely for aesthetic purposes and not as functioning electronics? In this case, all interior electronic components would be removed and the exterior 'shell' material of the device would remain to serve the purpose of displaying our theme. Would this be sufficient, and if so, must all objects containing electrical wiring, or the potential to transmit electricity, be absent from the display completely?
RESPONSE:
As long as the product display is static, you may use props on the table top. Wiring can be used as a prop since you are not hooking up to an electrical source to make it operate.

RFI No. 52
Subject: Samples of mineral fillers for display
Section: 10.1
Posted: 11.19.18

QUESTION:
Section 10.1 in regulations says that individual and composite samples of concrete aggregates are required for display. We are wondering whether samples of mineral fillers are required or not.

RESPONSE:
Excellent point!
Section 3.3.3.b states that "Any portion of the aggregate that passes the No. 200 (75 μm) sieve shall be regarded as a mineral filler and thus should be excluded from the calculation of the volume of the aggregate". Since Section 10.1 requires aggregate samples, mineral fillers are not technically required. You may (but are not required to) provide individual samples of mineral fillers, but they should not be incorporated into any composite samples.

RFI No. 87
Subject: Composite Blend
Section: Sections 10.1.b and 3.4.4
Posted: 01.15.19

QUESTION:
Going thoroughly though the Rules and Regulations we were doubtful of one thing. Inside Sections 10.1.b and 3.4.4 the document mentions that a 500 milliliter sample of the composite blend must be provided. We just wanted to make sure that these sections require us to deliver a a transparent container with cement+aggregates+fibers+... (Everything in the blend but water)? We understand that the instruction is self-explanatory, but we had troubles with this topic last year.

RESPONSE:
Both of these sections refer to aggregate only. We guess the instruction wasn't self-explanatory enough.
APPENDIX C

RFI No. 97
Subject: Appendix C - Errata
Section: Appendix C
Posted: 01.22.19

QUESTION:
In Appendix C of the Rules and Regulations in the Mix Table it shows the Solids volume calculation as only including the latex and liquid dye but not the Minerals Filler as a part of the total volume. To add, the total solids volume does not add up to the marked Latex and Liquid Dye Values.
Is the Mineral Filler to be included or excluded in the solids volume calculations?

RESPONSE:
Great catch!
There is a typographical error in the table. Please note that the amount of Mineral Filler in the example was 100 lbs with a SG of 1.2. The table had 10 lbs with the incorrect volume associated with that. While the rest of the calculation was correct (the volumes and masses were based on the 100 lbs value), when entering the data into a Word version of the table, a mistake was made. Bad CNCC, Bad!!!
The correct values are shown below.
This demonstrates correctly that the Mineral Fillers are to be included as part of the solids volume calculations.