

# ASCE Texas-Section Concrete Bowling Rules

The purpose of this competition is to combine design skill and creativity to theorize a mix design, create a rendering, and prepare a report for a Concrete Bowling Ball at the ASCE Texas-Mexico Student Symposium.

## Participation

A team must consist of between two (2) and four (4) students from a university in good standing with the ASCE Texas Section. All team members must be registered attendees of the symposium for any and all days on which the Concrete Bowling will take place.

There shall be a limit of one bowling ball per team. However, there may be more than one team per university. In the event of multiple entrants per university, each team shall be named in such a way as to easily distinguish between the teams. All team names must include the university name. For this competition, abbreviated school names are acceptable so long as they are generally understood representations of the represented university.

All requirements outlined below must be submitted, in a single email, on or before the Monday prior to Competition to [texmexjudge@gmail.com](mailto:texmexjudge@gmail.com). The subject line of the email shall read: **Concrete Bowling Ball – [School Name]**. Submissions received after the deadline will receive an automatic 10-point deduction on the team's overall score.

## Design Rules

The following rules shall be adhered to by any participating team. Failure to follow these rules will result in an automatic disqualification. At the judge's discretion, disqualified teams may still be allowed to participate in the bowling aspect of the competition to see how their Concrete Bowling ball would have performed.

- Circumference must be between 20" and 30".
- Shall not exceed 18 pounds in theoretical weight.
- Must be roughly spherical in shape. Oblong bowling balls will be disqualified.
- At least 60% of the Concrete Bowling balls mix design must be hydraulic cement. Pre-packaged or pre-mixed cement is prohibited.
- Reinforcement, such as metallic or non-metallic reinforcing mesh, are allowed at the teams discretion. If reinforcement is used, it shall not be visible.

## Mix Design

The mix design for this competition will be theoretical. The mix design is left up to each individual school so long as it adheres to the mix requirements outlined above.

## Poster

Each team is required to submit one (1) Digital Poster intended to "sell" their product. This poster shall be a 24" x 36" PDF. Each poster must contain at a minimum:

- Visual Rendering: All relevant dimensions and notes

- Cost Analysis of 1 Bowling Ball without thumb and finger holes vs 1 Bowling Ball with thumb and finger holds
- Construction Material
- School Name

## Technical Report

The team shall prepare a report no more than 1 page in length which includes the following topics:

- Basis of Design
  - Why did the team pick the designed circumference, mix design?
- Theoretical Material Properties
  - Compressive Strength, Tensile Strength, Flexural Strength, and Slump at a minimum.
- Construction Technique
  - How would the Concrete Bowling be constructed had the team been able?
  - How would this technique differ if the team were required to have thumb and finger holes?

## Scoring

Scoring for the Concrete Bowling Ball Competition is broken into the three categories outlined above: mix design, poster, technical report. The final score, except for those teams disqualified as outlined above, will be calculated as shown in the table below.

<b>Competition Section</b>	<b>Points</b>
Mix Design	5
Poster	15
Technical Report	30

## Questions

Should the team have any questions regarding these rules, one representative shall email [texmexjudge@gmail.com](mailto:texmexjudge@gmail.com) with the subject line of Rule Clarification – Concrete Bowling Ball. Any response given will be emailed to all universities. Please note, if the question asked is about the intent of the rule instead of a clarification, the question will not be answered. The cut-off for questions is March 1<sup>st</sup>, 2021.