Tech Concrete Cube Competition

Tech Concrete Cube Competition is a National Level Concrete Cube Competition for all Diploma & Degree students. This contest provides a National platform for the students to explore their innovations through the Concrete Cube Competition.

Concrete Cube Competition Dates: 14th September 2022

Concrete Cube Compressive Competition Strength Test: - Any Strength of Concrete of Three cubes

Rules

1. Three Numbers of 15 cm cubes required for Concrete Cube Competition with Mix design in hard copy
2. Three Concrete cubes weight must be equal (1 to 2 % Variation in Three Cubes weight is acceptable)
3. Three Concrete cubes Compressive Strength Must be equal is winner.
4. Any Compressive strength of Concrete.
5. Three cubes must be inserted in water before compressive strength.

Problem to be solved:

- Concrete is the most common and versatile construction material. Those who deal with concrete need to have 'Hands on' experience and genuine feel of concrete making, to understand its quality and behaviour.
- Concrete making with variations in characteristics of cement, proportioning of aggregates, chemistry of material and chemical admixtures, control of water binder ratio, is a challenge to any civil engineer. The India chapter of ACI wants to encourage young Students of Civil Engineering to experience through this competition, the art and science of producing good quality concrete.

Rules and Guidelines for contest and design:

Use of Materials:

- Coarse and fine aggregates from natural sources shall comply with the requirements of IS: 383. The maximum size of coarse aggregates, gravel or crushed stones shall not exceed 20 mm.
- Cement shall be any of the following:

1. Ordinary Portland cement (IS: 269/IS8112/IS 12269. b) Portland Slag Cement (IS: 455).
2. Portland Pozzolana Cement (1489 Part I).
3. Partial replacement of cement with other Cementitious materials like Fly/Ash etc.

- Chemical admixtures which conform to IS:9103 or ASTM C-494 or 1017, as applicable may be added.

Mix Design:

- The mix shall be designed to achieve any More than 15 MPa strength up You have specified Strength on Testing date, water cured cube sample, while testing. And not more than 40 MPa.

Cube Specimen:

- Cubical test specimens shall be of 15 cm x 15 cm x 15 cm in size within a tolerance limlt of 2 *rom,* cast as monolithic one unit. Any reinforcing by provision of bars, fibers or mesh, impregnation with materials like any polymer" epoxy or any synthetic glues or similar binders or modifiers is not permissible.

Curing and age of cubes:

- Minimum 7 days curing shall be done in clean fresh water at ambient temperature.
- Age of cubes on the day of testing shall be more than 7 days and less than 36 days.

Submission of entry:

- A mix Design Report with all test results of trial mixes and finally adopted mix design, highlighting parameters used to obtain design strength with completed 'Data Sheet' and 'Cement Test Certificate' shall be submitted with each entry.
- Each Entry will be by a group of Three Students.
- Minimum 3 cubes shall be submitted with each entry.
- Marks 'X' from corner of the upward face of the cubes to receive the test load.
- Name of participants {organization or their addresses should be indicated or marked on the cubes.
- Covering container {package of the cubes shall be marked with sender's name and address.
- The cubes shall be sent by participants (which are not nodal centers) to the addresses of Conveners at respective location, nearby, to those given in introduction so as to reach three days prior to the date of Testing. Delivery of the cubes to the said address is the responsibility of the competitors.
- All expenses towards cost of materials, casting of cubes, packing and delivering thereof to the. said address shall be borne by the competitors.
- Cubes damaged In transit shall be rejected and Competitors shall have the responsibility of delivering the cubes in good condition.

Test of cubes

- Testing of cubes will be start at 10:00 hrs. on the date and at the address of nodal centers of Conveners" or as notified by them. Competitors are welcome to attend, if they so desire
- Testing will be done as per 15:516.The average strength of 3 cubes in direct compression shall be considered for merit adjudged from following:

1. Ratio of strength to cement content
2. Uniformity of results.
3. Deviation from target strength.
4. Special marks for use of fly Ash.

Evaluation Marks for the material Developed

1. MIX DESIGN REPORT- Max 20 Marks
2. CONSISTENCY OF DENSITY- Max 10 Marks
3. MAX.VARIATION (WITHIN +2 MPA)- Max 10 Marks
4. ACCURACY OF CUBICAL DIMENSIONS- Max 15 Marks
5. PARTIAL REPLACEMENT WITH FLY ASH

IF 15% REPLACEMENT - Max 10 Marks
IF 25% REPLACEMENT - Max 15 Marks

6. CEMENT CONTENT TO STRENGTH RATIO - Max 20 Marks
7. USE OF ADMIXTURE - Max 10 Marks

MAXIMUM MARKS POSSIBLE - Max 100 Marks

Three Concrete cubes Compressive Strength Must be equal is winner