2018 Tongji International Construction Festival

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2018 “Fengyuzhu” Plastic Polypropylene Sheet Design and Construction Competition Instruction

For the purpose of inspiring young students’ creative potential, and to discover and foster design talents of imagination and innovative spirit, the 2018 Tongji International Construction Festival & 2018 “Fengyuzhu” Plastic Polypropylene Sheet Design and Construction Competition will be held at the college square by the College of Architecture and Urban Planning (CAUP) on June 9th, 2018.

Participants consist of 6 teams of CAUP freshman, majoring in Architecture, Urban Planning, and Landscape Studies; 2 teams of freshmen from the College of Civil Engineering, College of Design and Innovation of Tongji; 17 freshmen teams from other Chinese Architecture schools; 11 international teams from Architecture Schools abroad. Around 36 buildings will be constructed in total.

Construction Date: June 9th, 2018
Awarding Date: June 10th, 2018
Construction Site: CAUP square, Tongji University
Advising Institution: Chinese National Supervision Committee of Higher Architecture Education
Organizer: College of Architecture and Urban Planning, Tongji University
Sponsor: Shanghai Fengyuzhu Exhibition Co., Ltd

I. About the Competition

1. Mission
The purpose and mission of Tongji International Construction Festival is to help participants gain perceptual and rational knowledge of material property, construction mode and process, and comprehending ability of fundamental building fabrication physics through building practice. In the meantime, this competition is designed to promote participants’ basic knowledge of architectural function, dimension of human figures, spatial form and building physics and technology by means of experience activities inside the plastic polypropylene sheet architectural space participants created themselves.

2. Requirements
Overall Layout: In total 36 plots of site will be placed in the ABC square of architecture and urban planning college. Each plot has the size of 4m x 4m, located along a main street which has 3 - 4 meters wide. Two plots have a 2m wide path in between. This layout releases a "micro community"--temporary students’ community, consisting of 36 plastic buildings in the CAUP square.

Individual Building: Material use should develop the full potential of plastic sheet property. Building space, building structure and building enclosure should be integrated; a clear and logical relationship should be formed between its fundamental building elements and overall structural form.

Technique requirement: Each team will take performance test of materials and apply architecture structural mechanics and basic principles of building construction to build one plastic building. Students need to pay attention to the following aspects:
Materials Performance (visual and tactile effect, physical property, processing method, skin texture)
Structure Construction (structural stability, construction function, building node representation)
Building physics (rainproof, damp proof, ventilation and natural lighting)
Use function (demands for collective activities and host 6-8 persons stay inside)
Form (creative form and attractiveness)
Area of control (building area 6 - 8 sqm, with height limit under 4m)

Design Theme:
The building needs to express a reflection from an old Chinese poem by Du Mu; the overall open area on the roof should be 10% - 40%; the building needs to have two entrances (a main one and a secondary entrance); the inner and outer spaces need to have a good communication.

秋夕
杜牧[唐]
银烛秋光冷画屏，
轻罗小扇扑流萤；
天阶夜色凉如水，
坐看牵牛织女星。

The Double Seventh Night
Du Mu (Tang Dynasty 800 A.D.)

Autumn has chilled the painted screen in silver moonlight;
A silken fan is used to catch flitting firefly.
The steps seem steeped in water when cold grows the night.
She lies to watch two stars in love meet in the sky.
3. **Building Materials and Tools:**

Each team will receive materials for construction provided by organizing committee

- 30 pieces of white plastic polypropylene sheets (thickness 5mm, 1.8m*1.8m) + 1 piece of red plastic polypropylene sheets (thickness 5mm, 1.8m*1.8m, the red one is not mandatory)
- 330 sets of nylon nodes (screw diameter: 6mm, nut)

**Foundation part:** plastic polypropylene sheets+ nylon nodes

**Building structure and enclosure:** plastic polypropylene sheets+ nylon nodes

Each team will receive tools for construction provided by organizing committee

- Glove and goggle (1 set/student)
- 3 rulers (1 meter in length), 2 set squares, 3 carpenter's pencils
- 3 cutter knives, 3 screwdrivers, 3 stay wrenches
- 1 wiring board, 1 electric drill(back-up)
- Aluminum alloy ladder (1.2m in height)
- 1 LED floodlight

4. **Construction Time (June 9th, 09:00-17:00)**

5. **Safety Requirements**
   a. Materials processing should strictly in accordance with safety construction regulation.
   b. Open flames prohibited. Unified power is provided in construction site; Lighting appliances (storage battery or dry battery) for indoor lighting.

6. **Practice & Venue**
   - College of Architecture and Urban Planning, College Square

7. **Review & Evaluation Time**
   - Evaluation time: June 9th, 18:00-20:00

8. **Demolition Requirement**
   - Demolition will be in charged and done by Tongji University

II. **Other Results**

1. Drawing (600mm x 600mm)
   - Floor plan, facade plan, profile plan, axonometric drawing, scale: 1:50

2. Study Model: 1:10 (White paperboard or PVC)
3. Construction Test Report
Design analysis: design concept, material analysis (tension/pressing/bending/damp-proof/waterproof), structure analysis (bearing load/stability), node; Construction scheme: material processing steps, prefabricated units move-in Time, building process; Activity planning: activity content and dinner planning
Demolition scheme: demolition procedure and material recycling
Experience and lessons: design, construction, activity experience, organizational Management

III. Organizations

Advising Institution: Chinese National Supervision Committee of Higher Architecture Education
Organizer: College of Architecture and Urban Planning, Tongji University
Sponsor: Fengyuzhu Design Exhibition Corp.

IV. Schedule
June 4th
Arrival, check-in and reception will be placed in Metropolo Hotel, open from 9:00 - 17:00

June 5th
Visit Shanghai Urban Planning Exhibition Center and Fengyuzhu Exhibition Co.

June 6th - 8th
Group workshop and prefabrication in D building of Architecture and Urban Planning College

June 9th
08:00-09:00 opening ceremony, issuing of construction permit
09:00-17:00 8 hours of on-site construction (Students)
17:00-18:00 completion ceremony
18:00-20:00 review (the jury)
20:00-24:00 exchange activities (students and tutors)
Students on duty: 18:00-08:00, each team shall have a duty manager

June 10th
08:00-09:00 site clean-up
09:00-10:00 the Awarding Ceremony
Note: buildings will be reserved for public visit in one week: June 11th to June 15th

Construction practicing teams:
Tongji University:
6 CAUP teams, 1 Civil Engineering team, 1 Design and Innovation team
**Chinese Architecture Schools: 16 teams:**
Tsinghua University team  
Southeast University team  
Tianjin University team  
Chongqing University team  
South China University of Technology team  
Harbin Institute of Technology team  
Dalian University of Technology team  
Hunan University team  
Beijing University of Architecture team,  
Central Academy of Fine Arts team  
Shanghai Jiaotong University  
Kunming University of Science and Technology  
Shenzhen University  
Shanghai University  
Shenyang University of Architecture  
Xinjiang University / Changan University

**11 International Architecture Schools:**
Ecole Nationale Supérieure d'Architecture de Versailles (France)  
Georgia Institute of Technology (USA)  
McGill University (Canada)  
Pusan National University (South Korea)  
Universitat Politècnica de Catalunya (Spain)  
TU Graz (Austria)  
Università IUAV di Venezia (Italy)  
Kyushu University (Japan)  
Melbourne University (Australia)  
Politecnico di Milano (Italy)  
University of Dundee (UK)

**V. Competition Awards**

2018 Construction Festival is sponsored by Shanghai Fengyuzhu Exhibition Co., Ltd  
Awards setting is as follows:  
1st Prize (3 teams): each winning team RMB 5,000(before tax)  
2nd Prize (6 teams): each winning team RMB 3,000(before tax)  
3rd Prize (9 teams): each winning RMB 1,000(before tax)  
Awards for nomination (9 teams)

**VI. The Awarding Ceremony**

Time: June 10th 2017, 09:00am-10:00am  
Place: In front of Building B, CAUP  
Attendees: Guests, jury members, tutors and students
Organizing Committee of Tongji Construction Festival
College of Architecture and Urban Planning
Tongji University
May 15, 2018