

## Blossom

### — 2019 International Bamboo Construction Competition (IBCC2019)

#### ORGANISATIONS:

- **Organiser:** International Bamboo and Rattan Organization (INBAR)
- **Co-organisers:**
  - Zhejiang University
  - Zhejiang University-University of Illinois at Urbana Champaign Institute (ZJUI)
  - Tsinghua University
  - World Architecture
  - Federation of Hong Kong Industries Bamboo Industry Committee
  - Italian Bamboo Association
  - Base Bahay Foundation
  - Labirinto de alla Masone
- **Participating Universities include (Alphabetical order with continually updated):**
  - Beijing Jiaotong University
  - Centre for Corporate Responsibility and Sustainability, University of Zürich
  - Chinese University of Hong Kong
  - Federal University of Rio de Janeiro
  - Hunan University
  - Kunming University of Science and Technology
  - Mediterranean University of Reggio Calabria
  - Nanjing University
  - Nanjing Forestry University
  - Polytechnic University of Milano
  - Polytechnic University of Turin
  - San Martin University
  - Sapienza University of Rome
  - Southeast University
  - Universidad Nacional de Colombia (National University of Colombia)
  - University of Addis Ababa
  - University of British Columbia
  - University of Bologna
  - Coventry University
  - University of Naples Federico II
  - University of Southern California
  - University of Turin
  - University of Pittsburgh
  - University of Queensland
  - Xi'an Jiaotong-Liverpool University
- **Technical Supports:**
  - INBAR Construction Task Force
  - Arup
- **Sponsors:**

Ganzhou Sentai Bamboo Wood Company of China  
Hongyazhuyuan science and technology Company of China  
Zhujing Bamboo Company of China  
Beijing Sinobamboo Culture and Technology Limited Company

- **Organizing Committee:**

Chair: Kewei Liu (Global Bamboo Construction Programme Coordinator of INBAR)

Co-Chair: Zhi Li (Assistant Professor of Nanjing Tech University)

Members: Cristoforo Demartino, Alessandra Simi, Rui Wang, Tao Li, Jinyuan Zhang, Xiaozhou He, Ke Ma.

## THEME OF COMPETITION:

- **Theme: Blossom**

- **Background:**

Bamboo provides millions of households across the world with employment and building materials. It is often used as a fast-growing alternative to timber or other building materials, and its products can have a low or even negative carbon footprint across their lifecycle. Well-designed bamboo structures are known to withstand earthquakes and tropical storms remarkably well.

In recent years, the global modern bamboo construction sector has made remarkable achievements: hundreds of large commercial projects are built of bamboo. However, the capacity building of bamboo construction professionals lags behind the resources' potential. IBCC2019 is an international competition aimed at university students of architecture, civil engineering, landscape and other construction related courses from across the world. The competition's objective is to invite students to explore the potential construction applications for both bamboo poles and engineered bamboo products.

- **Context:**

The 2019 Beijing Horticultural Expo will be held in Beijing, China from 29<sup>th</sup> April to 7<sup>th</sup> October, 2019. At this event INBAR will have a 3000 m<sup>2</sup> Garden, which will house our own 1000 m<sup>2</sup> Pavilion. The pavilion will be built from round bamboo poles and engineered bamboo products. INBAR believes that this an excellent opportunity to raise public awareness about bamboo's potential in construction. And the IBCC2019 is a corner stone of this initiative.

Depends on a global expert group, INBAR Construction Task Force, which includes 28 bamboo construction experts from 18 countries, INBAR sincerely invites young students across the world to create bamboo houses in Beijing, China during 2019 Beijing Horticultural Expo.

- **Brief:**

This year's competition is inspired by the 2019 Horticultural Expo and requires entrants to design the prototype for a multi-functional garden building with:

- A construction area of 9 square metres (3 metres by 3 metres), as well as projection area no larger than 16 square metres (4 metres by 4 metres), including cantilever

structural elements such as canopy. Flat concrete foundation is available for each project.

- The building should be one or two stories, able to operate as an office, warehouse, educational space or relaxation suite such as drink corner.
- The indoor temperature should remain pleasant throughout Beijing's summer (around 23-28 °C ) without resort to mechanical ventilation or artificial cooling.
- The building should be easily demountable, transportable and reusable; and though it is a temporary structure, the long-term durability of the structural members should be pursued. Detailing that keeps these members dry, drained and well-ventilated needs to be considered to achieve this goal.
- The building is to be made mostly from bamboo poles and/or engineered bamboo products. A limited amount of other non-structural materials may be used, but only with the aim of enabling or enhancing bamboo's potential, or where clearly bamboo is inappropriate. It should be assumed that only *Phyllostachys pubescens* (Moso bamboo) is available for bamboo poles, unless otherwise agreed with the organising committee. Engineered bamboo products available will be announced by the organising committee. The design strength values of engineered bamboo can be estimated as (if no data from manufactures available, in MPa):

Bending strength $f_m$	Compression strength $f_c$	Tension strength $f_t$
20	17	8
Shear strength along bamboo strips $f_v$		Elastic modulus $E$
4		9500

- The total budget for all building materials is US\$10,000, and should not be exceeded. It must be buildable by a team of four people over three days (three 8 hours periods).

The **three winning designs will be built at the Horticultural Expo 2019**; therefore, the above points must be carefully observed.

### Who can participate the competition?

IBCC2019 is open to university **students from the departments of architecture, civil engineering, landscape or other construction related courses**. Full-time on-campus students, includes undergraduate students, master and PhD candidates, can participate in the competition and should enter as a team. Teams are constituted by: **one advisor and three students**. There should be at least one student from architecture, landscape architecture or architectural technology, and one student from civil or structural engineering. It is the latter's responsibility to demonstrate the structural safety of the design, particularly for any proposal that is to be built in the INBAR Garden of 2019 Beijing Horticultural Expo.

### Procedure of Competition:

- **Competition launch:** 00:00 (GMT+08:00) 1<sup>st</sup> March, 2019
- **Deadline for registration:** 24:00 (GMT+08:00) 30<sup>th</sup> April, 2019

- **Deadline for submission:** 24:00 (GMT +08:00) 15<sup>th</sup> May, 2019
- **Finalist list will come out after an online Jury evaluation:** before 25<sup>th</sup> May, 2019
- **Finalist list will be announced:** 1<sup>st</sup> June, 2019
- **Finalists' works will be constructed on site: from** 16<sup>th</sup> to 18<sup>th</sup> July, 2019 (3 days)
- **Winners will come out after an on-site Jury evaluation:** 19<sup>th</sup> July, 2019
- **Awarding Ceremony:** 19<sup>th</sup> July, 2019

### Requirements of Submission:

- To participate in IBCC2019, the participating teams need to log on the website: [www.IBCC2019.org](http://www.IBCC2019.org) and click "**Registration**" to fill in the registration form and submit the information online firstly;
- The participants will receive a **Registration Number** automatically which will be the only proof of your participation for the further proposal submission; Please ensure the proposal includes a digital version of drawings and related instruction documents to the email: [ibcc2019@outlook.com](mailto:ibcc2019@outlook.com) in format of PDF before the submission deadline, 24:00 (GMT+8) 15<sup>th</sup> May, 2019. The subject of the email should be "Title + Registration Serial Number".
- **Graphic boards:** 2 graphic boards in vertical on rigid support, format UNI-EN-ISO A1 containing: Plans, profiles and sections representing the architectural design in scale 1:50; simulations, representations, sketches, profiles, or perspective views (with an appropriate scale) that would be needed to understand the design proposal. Perspective views useful for understanding the project (simulations, photomontage); drawings of constructive details useful for understanding the architectural elements of the used materials and constructive technology, scale 1:10. Processing files must be printed and should not exceed the size of 50 MB for the single file.
- **The Descriptive Report:** maximum 6 pages plus the cover - A4 format – printed single side on white paper - body character ARIAL 11 pt. Single line - maximum 5,000 characters - with pictures or explanatory drawings. The report may contain images and diagrams of the proposal. The report shall illustrate: the guiding principles of the choices and description of the design solutions;
- To guarantee fairness and transparency, digital drawings should only display the Registration Number, and must not contain any names of participants or their university. Failure to observe this requirement will result in disqualification;
- Proposals that have been submitted to other competitions, or have been published on other public spaces, or that are deemed to be similar to other works in terms of design ideas, will also result in disqualification;
- The form and proposal (drawings and instruction) will have to be filled out and prepared entirely in **English**. No proposals in **any other languages** will be accepted. The organizing committee reserves the right to ask for any clarification or additional information about the submitted entries.

### Jury Committee:

- **Jury Chairman: to be confirmed**
- **Online Jury Committee:**  
On Site Jury Committee plus other experts of INBAR Construction Task Force;

- **On Site Jury Committee:**

- 1) Denamo Addissie (Professor of Addis Ababa University, Ethiopia)
  - 2) Mauricio Cardenas (CEO of Mauricio Cardenas Studio, Italy)
  - 3) Hans Friederich (Director General of INBAR)
  - 4) Yang Jun (Associate Professor of Tsinghua University, China)
  - 5) Yuanfeng Wang (Director of Sustainable Civil Engineering Committee of the Chinese Society for Urban Studies, Professor of Beijing Jiaotong University, China)
  - 6) Yan Xiao (Professor of Zhejiang University & Southern California University, USA)
  - 7) Li Zhang (Chief Editor of World Architecture, Professor of Tsinghua University, China)
  - 8) Chen Zhao (Professor of Nanjing University, China)
- Other juries, to be confirmed

## **Awards:**

### **Jury Awards:**

- **1st Prize (1 team)**  
Certificate and 5,000 USD
- **2nd Prize (2 teams)**  
Certificate and 3,000 USD
- **3rd Prize (3 teams)**  
Certificate and 1,000 USD
- **Honorable Mentions (9 teams)**  
Certificate

### **Special Award:**

- **Public Favorite Award (1 team)**  
Certificate and 2,000 USD

### **Note:**

1. 15 finalists will be shortlisted and required to provide a **building model** to take along to attend the final presentation session in Beijing.
2. The top three finalists will be invited to build the real bamboo house in the INBAR Garden during 2019 Beijing Horticultural Expo; The team of 1<sup>st</sup> Prize will be chosen from the top three finalists which will be decided by the on-site jury committee; the left two teams will get the 2<sup>nd</sup> prize;
3. One representative from each of the 12 remaining teams will be invited to deliver the presentation during the awarding ceremony of IBCC2019, from which three teams of 3<sup>rd</sup> Prize will be chosen. The nine remaining teams will be awarded Honorable Mentions.
4. The Public Favorite Award will be presented to the team out of 15 finalists that gets the most favorable votes by visitors at the Horticultural Expo.
5. A certificate issued by INBAR will be awarded to both students and advisors.

## **Intellectual Property Rights:**

1. The participant is responsible for the authorship of the submitted proposal. The participant shall ensure that he/she fully owns the intellectual property right of the submitted proposal.

2. The participant shall ensure that no intellectual property rights and copyright of third party are violated;
3. Should the proposal be submitted, the participant authorizes organizers to disseminate, reproduce and publish the proposal in any format;
4. Should finalists be chosen to construct the real house in 2019 Beijing Horticultural Expo, the ownership of the real bamboo houses belongs to the organizer;
5. Should finalists be invited to come to Beijing, all the models are donated to the organizer for the exhibition in 2019 Beijing Horticultural Expo. After the end of exhibition, the organizer has right to deal with those models.

**Contact:**

**Official Website:** [www.IBCC2019.org](http://www.IBCC2019.org)

**Email:** Inquiries related to the competition will be responded to via e-mail:  
[IBCC2019@outlook.com](mailto:IBCC2019@outlook.com)

**Background of INBAR:**

The International Bamboo and Rattan Organisation (INBAR) is a multilateral development organisation which promotes environmentally sustainable development using bamboo and rattan. It has 44 Members. In addition to its Secretariat headquarters in China, INBAR has regional offices in India, Ghana, Ethiopia, and Ecuador.

Its unique set-up makes INBAR an important representative for Members. With over 40 of its members from the Global South, INBAR has played an especially strong role in promoting South-South cooperation for the last 20 years. Since its founding in 1997, it has been making a real difference to the lives of millions of people and environments around the world, with achievements in areas such as: raising standards; promoting safe, resilient bamboo construction; restoring degraded land; capacity-building; and informing green policy and Sustainable Development Goal objectives.

Website of INBAR: [www.inbar.int](http://www.inbar.int)