




China Construction 4.0 (CC4.0) Platform

2018 Annual Activities Manual

20/11/2018 - 24/11/2018

Hunan China Construction 4.0 Building Industry Academy

The image features a scenic view of misty mountains. The sky is a clear, light blue, transitioning to a white mist that fills the valleys between the mountain ranges. The mountains themselves are layered, with the foreground showing dark, rocky peaks and the background fading into a soft, hazy blue. A large, solid blue triangle is positioned in the top left corner, and a smaller, solid green triangle is in the bottom left corner. The text is centered in the upper portion of the image.

**China Based International Knowledge and Innovation platform
for High-quality Construction and Sustainable Urbanization**

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Invitation from the Founder >>

"Quality Godfather" Clausby said: we are in a global economy era, when the quality will not only mean the best to have, but quality will be the basic condition to enter market. High quality will be a special symbol of the significance of success. In recent years, as an important strategy and policy, the Chinese economy is shifting from a high-rate of economic growth to an economy based on high quality development, among which urbanization and construction is a very important sector. In the past 30 years, large scale urbanization led to a large quantity of construction, but the quality for urban planning and construction was only satisfactory. The core idea of China Construction 4.0 is to by international cooperation, innovation and entrepreneurship, successfully improve the quality assurance system and promote the quality of construction in China along with the efficient use of green and intelligent technologies.

Based on previous events, China Construction 4.0 International Innovation Platform (CC4.0) will hold a series of events from November 20th to November 24th in 2018. The series of events, including Expo, Forums, Conference, Company and Project visits, interactive Discussions, will provide a platform for policy, research and business information exchanges among decision makers, researchers and entrepreneurs in China and abroad.

I sincerely invite you to our events to share the latest ideas and information with hundreds of international participants.

Founder of CC4.0 :

CC4.0 Introduction and Features >>

China Construction 4.0 platform (CC4.0, www.construct4.cn) was established by Guoqiang Zhang (www.chinasbe.com/gzhang), professor of Hunan University, China, CC4.0 is now growing quickly. Based on this platform, we can promote quality and sustainable construction in China, mainly cooperating with international institutions and companies who provide high quality services and products.

Features of CC4.0

1. We have an international vision and an international goal

We are aiming at high quality construction and sustainable cities in China and developing countries. We value the quality of products/services and related intellectual property rights, which is a core value of cooperation with all international partners.

2. We have strong supports from national and local government

1) We have National Center for International Research Collaboration in Building Safety and Environment, sponsored by the Ministry of Science and Technology of China, which encourages and facilitates our international collaboration for high quality and sustainable solutions in construction field.

2) We play the leading role in R&D and promotion of Construction Industry in Hunan province. Hunan Province considers sustainable construction as one of its 14 most important industry clusters in its overall economic and social development. Currently, the construction industry cluster in Changsha enjoys a leading position within China.

3. An International high quality construction Consortium has formed

Based on the common concept, a high quality international Consortium has been formed.

The core operation and management units of the Consortium include Hunan China Construction 4.0 Building Industry Academy, Institute of Sustainable Urbanization and Construction Innovation, Hunan University, National Center for International Research Collaboration of Building Safety and Environment, Ministry of Science and Technology, China, Hunan University Regal Energy Science and Technology Co., Ltd. and Changsha Ruili Netsun Cultural Communication Co., Ltd.

Members and partners of the Consortium include Research Institutes of Sweden, the Canadian Wood Industry Association, the France-China Cooperation Promotion Centre, the Sweden—China Green Technology Alliance, the German Thermal Energy Association, the Russian Eurasian Economic Union Industrial Council, Cloud River City Research Institute(Japan), the Indian-Chinese Business Council, the Sino-Malaysian Friendship Association and other units. A large number of governmental departments, such as the European Union, the Ministry of Education, the Ministry of Science and Technology, the Hunan Provincial Department of Housing and Urban-Rural Construction, the Hunan Provincial Department of Science and Technology, the Changsha Municipal People's Government, the Hunan Xiangjiang New Area Management Committee, as well as major companies and organizations in China as China Construction Co., Ltd., the Finance and Scientific Research Institute of the Ministry of Finance, the China Academy of Building Research, China Architectural Society to support and cooperate.

The Consortium organizes relevant professional activities through four platforms, namely, Communication, Fundamental Research, R&D promotion, and Demonstration Projects.

CC4.0 Events/Initiatives >>

1.Promoting events

- ◆ It is an annual Expo first held in 2015 and is now one of the most important expos in China. Especially, it is unique in China regarding promoting high quality products, services and international cooperation. www.higbe.org
- ◆ The China Construction 4.0 Forum. An annual forum designed for international partners to exchange their viewpoints on technology and market development in China. www.cc4forum.com
- ◆ The AsiaCity2050: High Quality Construction, Sustainable Cities. An annual conference that facilitates researchers to discuss future and fundamental issues of high quality construction. www.cc4conference.com
- ◆ Other permanent promoting activities/platforms include professional websites(www.chinahvacr.com, the first website in HVAC field in China, www.chinaeser.cn, internet portal in construction field), academic journal(www.chinabee.org) , new media platforms, promoting conferences and training programs.

The annual events of this year will take place in November 20-24(Conference 20-21, Expo/Forum 22-24)

2.Fundamental Research

Institute of Sustainable Urbanization and Construction Innovation, Hunan University, National Center for International Research Collaboration of Building Safety and Environment, Ministry of Science and Technology, China, are carrying out educational and research work with domestic and foreign partners. At present, we are planning to build an international innovation and entrepreneurship base in Hunan University.

- ◆ Multidisciplinary Green Building Education. In 2005, we were awarded by the European Union a project and took the leading position in green building education in China thereafter. At present, the Hunan University student team has taken part in Solar Decathlon China and developed the "R.E.A.L HOUSE" villa products, using solar energy as the only energy, and innovative use of light steel prefab structure, radiation ceiling air conditioning and smart home technology.
- ◆ Fundamental research with international cooperation. As a national representative of China, we participated in IEA EBC Annex 5,62,80, the International Energy Agency Ventilation Research International Cooperation Projects. We also carry out research on district cooling and heating technology, Green village planning and design research, and Prefab building technology research and so on.

3.R&D initiatives

- ◆ We have Institute for Sustainable Urbanization and Construction Innovation, Hunan University, together with National Center for International Research Collaboration in Building Safety and Environment, to undertake education and research collaborating with international partners. We are currently planning an International Construction Innovation and Entrepreneurship Base in Hunan University. Student team of Hunan University developed REAL HOUSE using solar energy as the only energy resources, with innovations in prefab structure, radiant ceiling air conditioning, and smart home technologies.
- ◆ We have a Hunan China Construction 4.0 Industry academy, together with Hunan University Regal Energy Science and Technology Co. Ltd., and Green Building Center of Hunan University Design Institute, which will cooperate with international partners to do localization R&D and marketing of their products/services in China. We are now already have business sector as urban planning and architectural design, green building consultant, renewable energy system, building energy monitoring and control, etc..
- ◆ Cooperation with international institutions and companies may include the following methods: co-training students, Joint research program, Localization R&D; Sales representative; support for setting local factory or branch; Joint venture to produce products/services. etc..

4.Demonstrating projects

- ◆ We shall implement a number of demonstrating projects which show the high quality and sustainable, intelligent construction, in which international cooperation is the main approach.
 - ◆ Currently we are planning an International Construction Park in Changsha, and other 4 district planning and construction projects. Besides, Changsha also has a number of Integration of Industry and City Construction projects under planning.
- We plan to discuss the participation of international partners to these projects during our Expo/Forum/Conference in Nov.

CC4.0 2018 Annual Events Program >>

Date and time	Events	Initiatives, themes and contents
Nov. 20-21, 09:00-17:00 (Conference Venue: Hunan Univeristy)	AsiaCity2050 Conference	<ol style="list-style-type: none"> 1. High Quality Construction Education and Research exchange 2. Releasing of REAL HOUSE1.0 Villa developed by Hunan University student team. Seeking for industry partner for next Solar Decathlon China 3. Opening Ceremony of International Construction Innovation& Entrepreneurship Base, Hunan University
Nov.22, 13:00-17:00 (Conference Venue: Exhibition Center)	High Quality Construction Forum	<p>Main Forum/ Integration of Industry and City Construction Forum</p> <ol style="list-style-type: none"> 1. Declaration and regulations of High Quality Construction International Consortium 2. Agreement of CC4.0 with country representatives for joint research centers (Canada, France, Sweden, Denmark, USA, Japan, Australia etc.) 3. Integration of Industry and City Construction discussion <p>International Construction Park BM discussion</p>
Nov.23, 09:00-11:00 (Conference Venue: Exhibition Center)		<p>Sino-Canada High Quality Construction Forum</p> <ol style="list-style-type: none"> 1. Quality assurance of Canadian products and services 2. Canadian products and services in China 3. Agreement of Sino-Canada Eco Demonstrating district
Nov.23, 11:00-14:00 (Conference Venue: Exhibition Center)		<p>Round Table Meeting and Lunch</p> <ol style="list-style-type: none"> 1. Projects exchange round table between key project owners and international companies
Nov.23, 15:30-21:00 (Conference Venue: Lu Valley)		<p>Lu Valley High Quality Development Forum</p> <ol style="list-style-type: none"> 1. Introduction of China and Hunan Prefab construction industry development status. 2. Introduction of Changsha High-tech Zone(Lu Valley) industry status and policy 3. Agreement of Project 4. Reception (from 18:00 to 21:00)
Nov.24, 09:00-17:00 (Conference Venue: Lu Valley)		<ol style="list-style-type: none"> 1. Discussion on development of construction, energy and environment industry international cooperation 2. Site visit of Lu Valley and famous companies
Nov. 22-24, 9:00-17:00 (Conference Venue: Exhibition Center)		PBCTE Expo

CC4.0 2018 Annual Events Details >>

1. International Conference on AsiaCity2050: High-quality Construction, Sustainable Cities

Date: Nov. 20-21

Website: www.cc4conference.com

Important events:

- ◆ Release of R.E.A.L HOUSE, a villa model developed by Hunan University student team Solar Offspring for Solar Decathlon China
- ◆ Opening of International Construction Innovation and Entrepreneurship Base of Hunan University

Brochure attached

Invitation & Welcome

Recently, the Chinese government has set an ambitious goal that in the following 10 years, 30% of the newly built buildings shall be constructed in prefabricated way, and in 2020, green buildings will account for 50% of the newly built buildings. To achieve this goal, a lot of scientific and engineering problems related to high quality construction and sustainable cities need to be studied and solved. In this context, we would like to initiate and organize an annual international conference on the topic of "AsiaCity2050—High Quality Construction, Sustainable Cities" from 2018 in Changsha, China. We sincerely invite you to attend this conference and share your expertise.

Topics

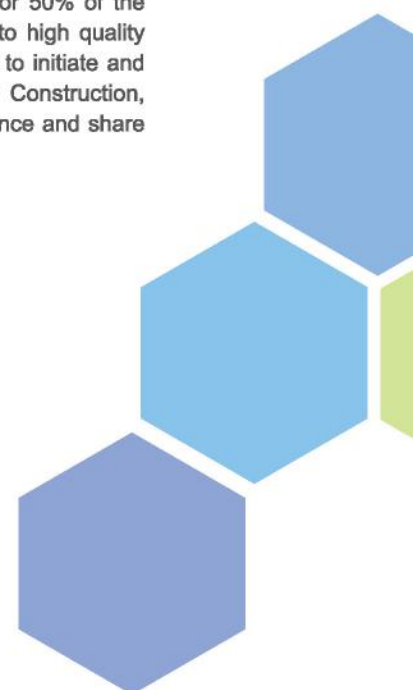
- 1) Sustainable urban planning and urban design
- 2) High quality prefabricated buildings
- 3) Ventilation and passive technologies
- 4) District cooling and heating with renewable energy and energy storage
- 5) Sustainable material and new structure system
- 6) Construction safety and waste management
- 7) IT application in construction (BIM, smart building and intelligent cities)

Key Dates

- 1) Deadline for abstract submission: Jun. 15, 2018
- 2) Review of abstracts: Jun. 2018
- 3) Deadline for full paper submission: Aug. 31, 2018
- 4) Review of full paper: Sep. 2018
- 5) Notification of acceptance: Sep. 30, 2018
- 6) Conference dates: Nov. 20-21, 2018
- 7) Post-conference events: Expo/Forum dates: Nov. 22-24, 2018 (www.higbe.org, www.construct4.cn)

Scientific Committee (Chairmen)

Jianguo Nie, Tsinghua University, Academician of the Chinese Academy of Engineering (CAE), China
Kamiel Gabriel, University of Ontario Institute of Technology, Fellow of Canadian Academy of Engineering, Canada



Organizing Committee (Chairmen)

Guoqiang Zhang, Hunan University, China
Renpeng Chen, Hunan University, China

General Secretary

Jinqing Peng, Hunan University, China

Registration

	Until Sep. 30	After Sep. 30
Full Delegate	200USD/1000RMB	280USD/1500RMB
Student	150USD/800RMB	200USD/1000RMB
Accompany Person	100USD/600RMB	
Online Registration Close	Oct. 31	

Conference Time & Venue

- 1) Time : Nov. 20-21, 2018
- 2) Venue : Hunan University, Changsha, China

Contacts

- 1) E-mail: cc4conference@126.com
- 2) Website: <http://www.cc4conference.com>

2.China Construction 4.0 International Innovation Forum

Date: Nov. 22-24

Website: <http://www.cc4forum.com>

1. High Quality Construction Series Forums

Time: Nov. 22-24

Website: www.cc4forum.com

Content of the Forum

1) Main Forum: High Quality Construction and Sustainable Cities

Time: Afternoon of Nov. 22

Important Event: Agreement of CC4.0 and different countries

2) Sub Forum: High Quality Integration of Production and City Construction

Important Event: Release of China(Changsha)International Construction Innovation and Entrepreneurship

3) Sub Forum: Sino-Canada High Quality Construction Forum

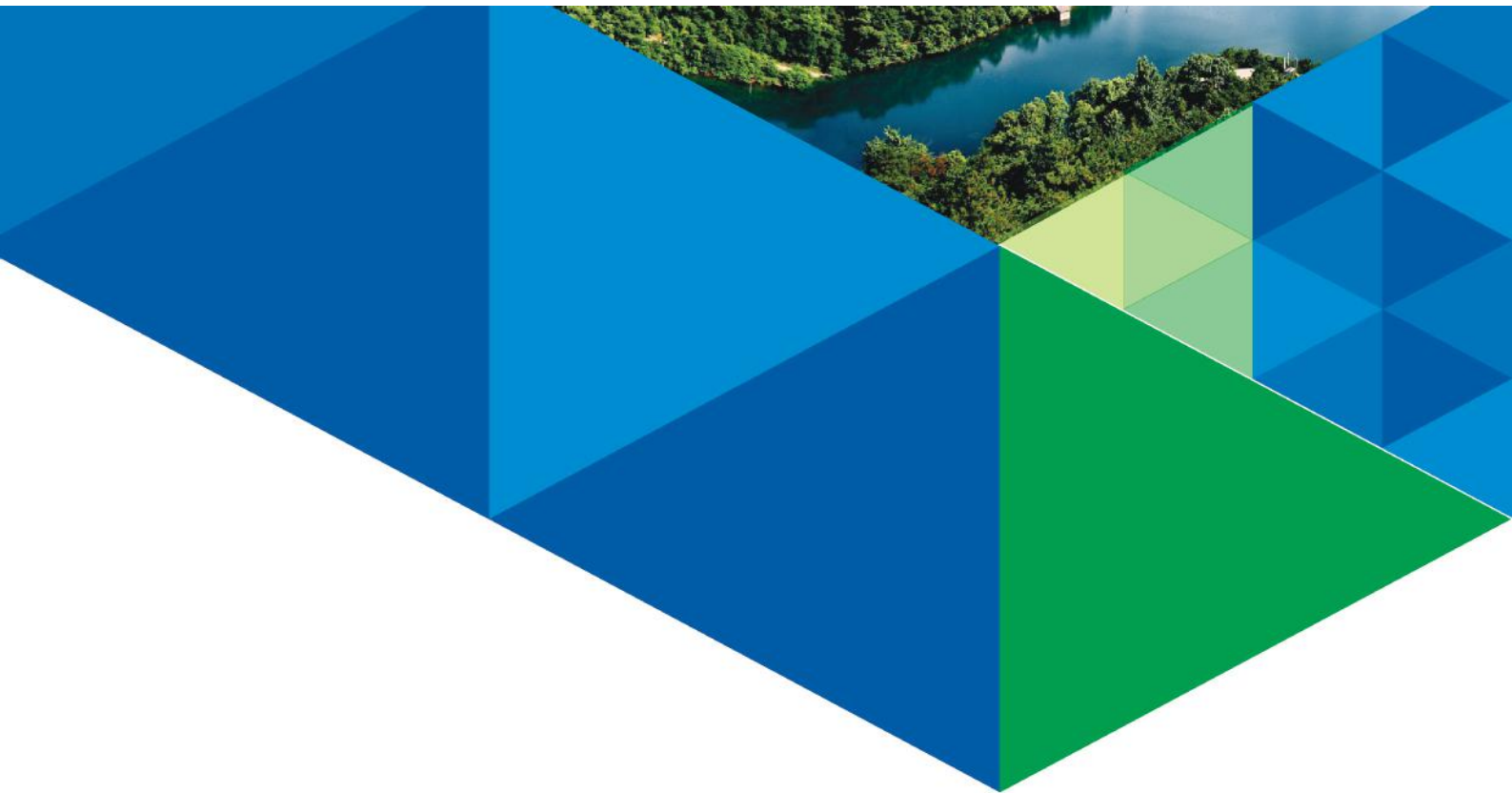
Time: Morning of Nov. 23

Important Event: Agreement of Sino-Canada Eco Demonstrating district

4) Sub Forum: Lu Valley High Quality Development Forum

Time: Afternoon of Nov. 23 to Nov. 24

Important Event:Changsha High Tech Zone project agreement



Appendix 1: Brief Introduction of Southern Part of Changsha

Changsha-Zhuzhou-Xiangtan urban agglomeration was approved by the State Council as the comprehensive reform pilot area for the construction of "two type society" (resource-saving & environment-friendly). Hunan province is committed to developing it into a super city cluster in the central region of China. The Southern Part of Changsha is located in the junction of Changsha, Zhuzhou and Xiangtan city. It is not only the core part of the integration of Changsha-Zhuzhou-Xiangtan urban agglomeration development, but also the important portal of Changsha to integrate into Pan-pearl river delta, the Yangtze river economic belt as well as "One Belt And One Road" policy.

The Southern Part of Changsha has a planning area of 300 square kilometers; it has the most developed transportation system in Hunan Province, combining a seamless connection network of aviation, high-speed rail, express way, water transport and urban main roads. It is also located within the Changsha-Zhuzhou-Xiangtan national "two type society" (resource-saving & environment-friendly) reform pilot areas, and the Changsha-Zhuzhou-Xiangtan national independent innovation demonstration area, which has strong talent and intellectual support. The district has initially formed an industry system supported by modern high-end services, digital information, cultural creativity, intelligent manufacturing and ecological tourism etc. It will be forged to be the most characteristic industrial new city in China, the most influential model of two types city, and the highest quality ecological green city.

The Southern Part of Changsha is in the planning stage. We warmly welcome industry elites from home and abroad to attend the 2018 PBCTE and related forums to exchange and share experience and seek cooperation opportunities. Exploring a new way of developing a new city and new district in China.

Introduction Video:<http://www.zbh168.cn/video/show.php?itemid=31>

Appendix 2: The Brief Introduction of Changsha High-tech Industrial Development Zone

Changsha High-tech Industrial Development Zone (Lu Valley) was established in October 1988. It was approved by the State Council as the first batch of 27 state-level high-tech zones in March 1991. After years of development, it made significant achievements in the socio-economic development. Ranked top 15 out of 115 state-level high-tech zones in the country, ranked 10th in terms of its comprehensive innovation ability, its economic strength was ranked as 2nd out of 11 national high-tech zones and it was named the National Advanced High-Tech Zone seven times in a row. Changsha high-tech zone achieved a gross revenue in 2017 of more than 550 billion RMB, has formed pillar industries such as advanced equipment manufacturing, energy conservation, environmental protection and new energy, electronic information, new materials, biological medicine and a modern service industry

Changsha high-tech zone attaches great importance to the development of strategic emerging industries such as prefabricated buildings, green buildings, energy conservation and environmental protection. It was approved in 2014 to become the nation's first pilot zone in the environmental services industry, and has formed an energy conservation, environmental protection and green construction industry cluster led by Zoomlion and Broad Housing. By 2020, the overall scale of the energy conservation, environmental protection and construction industry in Changsha High-tech Zone will reach 100 billion RMB.

<http://english.cshtz.gov.cn/>

3.China(Changsha) Prefabricated Building and Construction Technology Expo

Date: Nov. 22-24

Website: www.higbe.org

Brochure attached

Invitation

At present, the Chinese government is vigorously developing prefabricated buildings, actively promoting the progress of construction engineering technology, and promoting the transformation, upgrading and sustainable development of the construction industry. The Chinese government has thus set an ambitious goal that, in the coming 10 years, 30% of the newly built buildings will be constructed in a prefabricated way, and in 2020, green buildings will account for 50% of the newly built buildings. Hunan province and its capital, Changsha city, have a special status regarding urban-rural construction and building industry development in China, Both the Provincial and Municipal level governments define construction industry as a "pillar industry" and a "strategic emerging industry". By the end of 2017, the construction output of Hunan province has exceeded 840 billion yuan, The production capacity of precast concrete is particularly strong, as Changsha currently accounts for around 50% of China's total output of precast concrete. Moreover, the construction technology and industrialization level is currently occupying a leading position in China. Changsha City is thus regarded as the capital of construction industry in China. This city and its construction industry is aiming to become one of the centers for construction technology R&D, and becoming one of the largest construction industry clusters in the world.

For international construction companies and institutions, coming to Changsha, is opening the door to the Chinese market, while at the same time also gathering with other great international construction industry players.

Due to strong domestic and foreign demand and industrial advantages present in Changsha, the governments of Hunan Province and Changsha City have jointly organized the China (Changsha) Prefabricated Building and Construction Technology Expo (Referred to as PBCTE). This expo aims to integrate the policies, technologies, products and markets of both developed countries and "One Belt and One Road" developing countries including China to provide a good platform catering to all needs.

Proposed by Mr. Jiahao Du, the secretary of the party committee of Hunan Province, and supported by the People's Government of Hunan Province and the Ministry of Housing & Urban-Rural Development of China, Hunan Provincial Housing and Urban-Rural Development Department and Changsha Municipal People's Government had successfully co-sponsored the China (Changsha) Prefabricated Building and Construction Technology Expo (PBCTE) in 2016 and 2017 at Changsha International Convention and Exhibition Center. The 2017 Expo covered an area of 45,000 square meters and attracted attendees from 32 countries and regions. The total number of was visitors 64,716. Twenty cutting-edge forums were held during the Expo. Simultaneously, the expo also saw numerous agreements being signed, reaching a total value of over 20 billion RMB. Due to the smooth and successful operation of this conference, it won the "2017 Top Ten Brand Exhibition of China" and "2017 Top Ten Professional Exhibition of China".

The 2018 China (Changsha) Prefabricated Building and Construction Technology Expo (PBCTE2018) will be held in Changsha International Convention and Exhibition Center from November 22nd to November 24th. With the theme of "Construct new era, build green future", the Expo is planned to cover an area of 60000 square meters, displaying the contents of the entire industry chain including prefabricated building, green building, passive and low-energy-consumption in construction, full decoration and industrialization, BIM, architectural design and construction of building industry, new building materials and equipment and so on. Meanwhile, it will hold an opening, award and signing ceremony, mayor's forum of prefabricated construction and development of green building, CEO summit, China built 4.0 international innovation forum and One Belt and One Road forum of city construction and development, high quality construction and the sustainable city international academic conferences, construction technology and the green building industry summit, application of BIM technology and building industrialization forums, building waterproof industries high-end forum and architectural design competition, technology lectures, project inspection, product promotion and other activities, setting up a construct platform for exchanges and cooperation, boosting enterprise and market development.

The Organizing Committee hereby sincerely invite you to participate in the exhibition to exchange ideas and seek seek cooperation, jointly promoting the sustainable development of the construction industry!

China(Changsha) Prefabricated Building
and Construction Technology Expo
August 8, 2018



2018 PBCTE Organizing Committee:

Prof. Guoqiang Zhang	Executive Chairman of the Technical Committee E-mail: gqzhang@188.com
Ms. Yating Wang	International Trade Commissioner E-mail: pbcte@outlook.com
	Tel: +86-731-89678127 15802588457 fax: +86-731-89678128
	Website http://www.higbe.org

International Cooperation Proposal

1. Name of the Expo

China(Changsha) Prefabricated Building and Construction Technology Expo(Referred to as RBCTE)

2. Exhibition schedule

Preparation:Nov.20-21, 2018

Exhibition: Nov.22-24,2018

Removal: Nov.24 (15:00pm),2018

Venue: Changsha International Convention and Exhibition Center

3. Price Standard

Price for International standard booth (3mx3m):

Single open: \$ 2,000 /booth,

Double open: \$ 2,200 /booth

Price for Bare floor (at least 36m2): \$ 200/m2

·Each standard booth is equipped with bilingual lintel board, one table, two chairs, two spotlights, one single-phase power socket and floor carpets.

·Bare floor: open space, exhibitors need to bear their own booth structures, venues management and other expenses.

·Other resources: all kinds of sponsorship, print ads, on-site advertising, forum lectures and other investment resources, please contact the organizing committee for further information.

4. Cooperation proposal

We would like to invite your institute or association to be our overseas co-organizer by the means of listing your name and logo on our promoting material as our supporter, and kindly giving your advice and help as suggested below:

And kindly help us to invite enterprises and institutes in the construction industry in your country to attend the Expo to display their new technology, exchange ideas and seek cooperation opportunities with enterprises from China and other countries.

5. Preferential policy

(1) For exhibitors: 50% discount of the price (while only 20% discount for Chinese enterprises), and we will help to set up the standard booth, but for bare floor they do it themselves. We will provide free accommodation and catering to two persons from each company during their stay in Changsha from Nov.20-24.

(2) For visitors: We will provide accommodation and catering as well as local transportation for professional visitors, such as purchasers, companies, enterprises and so on. They only need to purchase their round trip air tickets to and from Changsha. Just please kindly let us know the visitors' list in advance for our report to upper organization.

(3) For thematic activities attendees: We will hold a series of thematic activities during the Expo and would warmly welcome experts and entrepreneurs from your country to attend. We will help to provide a place for some institutions and enterprises to hold some activities related to our theme, such as promotion meeting, technology forum, press conference

(4) Reception of leaders from the institute

We would like to invite relevant leaders of your organization to attend the construction expo at that time and we would be happy to provide free accommodation and catering during Nov.20-24. The number and details of the reception will be agreed by the organizing committee and your organization.

New initiatives >>

1.R.E.A.L House, a villa model developed by Hunan University team

Solar Decathlon (SD), is a competition sponsored by the US Department of Energy, that focuses on solar building technology involving universities around the world. The first competition was hosted in Washington, United States in 2002 and China first hosted the competition in 2013. The competition requires students to build a real building that uses solar energy as the only source of energy within three weeks and open the exhibition to the public for 18 days.

Solar Decathlon China 2018 (SDC 2018) is co-hosted by the U.S. Department of Energy and National Energy Administration of China. It aims to build high-quality, energy-saving, sustainable, intelligent residential houses and architecture, develop the innovative ability of interdisciplinary student team, combine production, study and research, and promote international exchange and cooperation and knowledge sharing. It has invited 22 teams from 41 different universities from 10 countries and regions to take part in the competition in Dezhou, Shandong Province in 2018.

SDC 2018 requires that each team builds a single-or-two-story solar house of 120-200 m² for permanent use which shall be equipped with all necessary domestic appliances such as TV, refrigerator, kitchenware, dishwasher, washing machine, and computer. In addition, each house shall have an electric vehicle and matching charging device.

This is the first time that Hunan University has participated in the International Solar Decathlon.

The university team is called "Solar Offspring" and consists of wide/disciplinary teachers and students. Together, they built the "R.E.A.L House" for the competition.

The team Solar Offspring and the 'R.E.A.L House' are both based on the China Construction 4.0 International Innovation Platform. Both the team development and building construction reflect the concept of high quality, sustainability and intelligence. The team is characterized by education and innovation, grows fast and commercializes its product.

Features of R.E.A.L. HOUSE

Solar Offspring uses CC4.0 as an innovation and entrepreneurship platform. High quality, Sustainable and Intelligent Construction concepts of CC4.0 are expressed in the team work R.E.A.L HOUSE.

Education and Communication

Basic model and objectives: High quality (user experience), sustainable, and intelligent construction are the goals of the Solar Offspring team and R.E.A.L. HOUSE.

High-quality, sustainable building education system: Solar Offspring is the result and R.E.A.L. HOUSE is the application of the Hunan University sustainable built environment education system. Hunan University has already listed the education system as one of the priority academic programs to support.

Industry and public communication: So far, Solar Offspring and the R.E.A.L. HOUSE have been reported by various public and professional media more than 100 times. Hunan provincial Party secretary, Chinese and foreign academicians and other famous people visited and praised R.E.A.L. HOUSE.



Technological Innovation

Architectural design: The simple and practical architectural space and shape design are all based on user experience and convenient technical application. The private space is relatively closed, the public space is open and flowing, and the dynamic and static division is clear. It satisfies the needs of building functions and is conducive to the application of natural ventilation technology. The slope roof is beneficial to solar energy applications.

CC light steel structure: Ultra-light steel materials support the design of the building space and meet the needs of easy transportation. No heavy machinery is used throughout the construction and no welding is required. It has realized the real assembly style, the leading and participation of the student team's design and construction through the whole process.

Solar energy use: The use of solar power generation and solar hot water production makes the house achieve energy balance, i.e., energy input to the house is zero.

RC/HF (radiation cooling / heating + fresh air system): The metal radiant air conditioning system is both energy saving, quiet and comfortable. The energy consumption is reduced by about 50%. The fresh air system is specially designed to be as healthy as possible (small air flow rate). The RC/HF system generate no excessive flow draught and no noise, and reach provide a high level of comfort.

Vertical Vegetation: It has used straw and other crop waste as the main material, and adopted special techniques to provide conditions for the growth of vertical plant growth. Waste recycling and energy conservation have become the major features of Vertical Vegetation of R.E.A.L. HOUSE.

Smart Home: R.E.A.L. HOUSE smart home system includes sunshine blinds, smart curtains, smart door locks and wireless passive switches. These innovative products enhance the user experience and help users develop energy-saving habits.



2. International Construction Innovation and Entrepreneurship, Base, Hunan University

It is planned that a building of 1200 m² with two floors will be built in Hunan University to achieve the following functions:

- ◆ An important platform for education, innovation and entrepreneurship through international cooperation in the field of building and civil engineering at Hunan University
- ◆ An Exhibition Base for interdisciplinary research, innovation and Entrepreneurship in sustainable building, Energy Saving and Emission Reduction of Hunan University (also as Changsha Energy Conservation and Emission Reduction Exhibition Center).
- ◆ An important platform for research and local social-economic service in sustainable building of Hunan University.

Advanced technologies and concepts at home and abroad in construction and decoration will be directly displayed in the real building system including prefabricated building and decoration; the application of BIM technology, natural ventilation and lighting, thermal insulation and waterproof envelope, high-performance windows and doors, solar building technology, emerging air-conditioning technology, water treatment technology, and energy consumption monitoring and control.

The international platform for urban and construction innovation of Hunan University invites enterprises both at home and abroad to get involved in this initiative to display the latest building, energy saving and environmentally friendly technologies.

3.China (Changsha) International Construction Innovation and Entrepreneurship Park

Hunan is a province in the middle of South China. Its construction (prefabricated building) industry cluster has a good foundation compared with those in other Chinese provinces and is strongly supported by local government policy. Moreover, it is listed as one of the 14 major industry clusters in the province. Meanwhile, Hunan province is the hometown of Chairman Mao and it is one of the best tourist destinations globally.

Changsha, the capital of Hunan province, is one of the most active provincial capital cities in China. Its per capita GDP ranks high among all Chinese cities. Changsha is also one of the most important cities in the urban agglomeration in the middle reaches of the Yangtze River, which is the most promising opening area of China. Currently Changsha is expected to be developed as an international city, as well as a world-class R&D and communication center for urbanization and construction industry.

At present, an annual event including a Building Engineering Expo, an International Forum and an International Academic Conference have been successfully held in Changsha. These activities are first-class in China and also exert a powerful influence internationally. In this year they are scheduled for being held on Nov. 20-24 (Conference on Nov. 20-21, Expo & Forum on Nov. 22-24).

Based on Hunan University, whose civil engineering education and research are well-known and very strong in China, headed by Professor Guoqiang Zhang, dean of the Institute for Sustainable Urbanization and Construction Innovation, an important R&D and communication team has been established to support the development of the construction industry in Hunan province. This team established China Construction 4.0 International Innovation Platform and Consortium (www.construct4.cn,CC4.0) in 2016. The core idea of the platform is to build a world-class construction industry cluster. This objective can be achieved by fully taking advantage of local government policy and clustering industry, and according to international rules, world renowned enterprises and innovative entrepreneurs will be attracted to gather here through international cooperation and innovative entrepreneurship. The international rules mainly refer to respecting for innovation and intellectual property rights; and give top priority to high quality products and services.

CC4.0 is preparing to build an International Construction Innovation and Entrepreneurship Park (simply International Construction Park) with an area of 1000 mu (about 67 hectares). The park is located in the Southern Part of Changsha and adjacent to the provincial government. It is located in the best transportation location of the Changsha, Zhuzhou and Xiangtan urban agglomerations, with the best ecological environment. International construction services companies will be invited to come here to design and build their own construction parks, according to their own quality standards and styles, under the unified planning and management of CC4.0. After the completion of the construction, we wish that the construction services companies will also introduce international trade enterprises, international life service enterprises and construction service enterprises in their countries to setup an office in this park, including new cooperative joint venture innovation enterprises and Chinese headquarters of existing international enterprises. CC4.0 will provide a world-class environment and services for these companies to conduct business and for staff members to live in.

At present, the Nordic Industrial Park has planned to settle in the international community, with an area of 200 mu. Specifically, 300,000 square meters of buildings will be built and about 100 enterprises will move in including 20 large-scale enterprises and 80 small and medium-sized enterprises. Some have also expressed their interest in this project and are currently in the process of discussing their participation.

You are sincerely invited to participate to explore the possibility of forming a team of construction enterprises (e.g. quality supervision, design, consultant, construction management, supply of important equipment and materials, etc.) from your country to build construction park of your own country. It is highly desirable to obtain government support from your country so that we can jointly build and settle in the park for future business. On this basis, other international business and construction companies in your country will be invited so that one of the largest gathering places of companies of your country in China will be formed.

The basic business model is as follows:

1. Changsha municipal government has planned 4000 mu in the southern Part of Changsha as an international concept area. 1000 mu of this project is planned to be the core area of the international concept area.
2. CC4.0 sign an agreement with a Chinese investor to reach consensus on high quality and international cooperation construction mode.
3. Find potential interested international companies/institutions in the field of construction to discuss the specific mode of cooperation, at the Expo/Forum/Academic Conference which are scheduled on November 20th-20th, 2018, including investigating potential construction site.
4. The preliminary suggested model of international cooperation is: after land function and investment are determined, in accordance with the Chinese law and business rules, the international partners including design, project management, important equipment and material suppliers will participate in the construction process. Cooperation agreement will be signed.
5. According to the cooperation agreement, international partners participate in the whole construction process, and work with the team of CC4.0. They will obtain corresponding remuneration.
6. We wish international partners spare part of their remuneration (such as 60%) to renting or buy houses in the area built, as offices of their own or other construction services and international trade enterprises they bring in.
7. CC4.0 will work together with international partners to make the companies get international level logistics services, business services, business cooperation and business information services in the construction park.
8. CC4.0 will work with international companies that reside in the park to open up a market for the urban agglomeration in the middle reaches of the Yangtze River (the middle reaches of the Yangtze River, 320 thousand square kilometers, the population of 130 million, GDP 7 trillion RMB), and strive to enter the whole Chinese market.



<http://www.construct4.cn/en/>