



# SOLAR DECATHLON CHINA 2021 REQUEST FOR PROPOSALS

23 February 2020

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## DATES & CONTACTS

### IMPORTANT DATES

Release of Request of Proposal	January 2020
Application Deadline	April 3, 2020, 5:00 PM Beijing Time
Selection of Participating Teams	April 20, 2020
Launching Ceremony	May 2020
Technical Training Workshop	August 2020
Middle-term Evaluation	November 2020
Foundation Construction	August 2021
Assembly & Testing	September 2021
Competition & Exhibition	September-October 2021

### FOR MORE INFORMATION AND QUESTIONS

Solar Decathlon China

Website <http://www.sdchina.org.cn/>

Email [support@sdchina.org.cn](mailto:support@sdchina.org.cn)

Phone +86 (0)10 67080760

Tax +86 (0)10 67089760

## INTRODUCTION

Initiated by the United States Department of Energy, Solar Decathlon (SD) is an international collegiate competition, comprising ten contests, which challenges university teams to design, build, and operate highly efficient and innovative houses powered by renewable energy. The winner of the competition is the team that best blends design architectural and engineering excellence with innovation, market potential, building efficiency, and smart energy production. The Solar Decathlon has currently expanded globally in the United States, China, Europe, the Middle East, Africa, and Latin America & the Caribbean. More information about past Solar Decathlons is available at <http://www.solardecathlon.gov>.



### SOLAR DECATHLON CHINA 2021

Solar Decathlon China (SDC) conceived in China since 2011, as an achievement of the Sino-U.S. Strategic and Economic Dialogues signed by the U.S. and Chinese governments. The City of Datong witnessed its successful inauguration in 2013 with the participation of 21 teams from 13 countries. The competition received support from more than 30 governmental agencies and 200 enterprises and attracted approximately 260,000 visitors. In 2018, the City of Dezhou in Shandong Province successfully hosted the second SDC event: 19 teams from 34 universities, 370 enterprises and 500,000 visitors. The game covered the fields of building & construction, renewable energy, home automation, IoT, communication & media, electric vehicles, etc. More information about Solar Decathlon China is available at <http://www.sdchina.org.cn>.

The objective of Solar Decathlon China is to create a workforce development and education program which can provide student architects, engineers, business majors, and communicators the opportunity to cooperate in designing and building sustainable housing projects. Solar Decathlon China seeks to reach its impacts on the following scales.

- committing to talent cultivation by offering students a unique opportunity for learning and putting theory into practice. The projects are developed by multidisciplinary teams, allowing the students the opportunity to learn not only about technical issues but also about teamwork, communication skills, and socio-economic issues.

- creating a platform to educate the general public about renewable energy, high-performance buildings, and a low-carbon lifestyle, and to raise people’s awareness about energy saving and environmental protection.
- leveraging industry-education-research cooperation and stimulating industries to evolve. It advocates businesses and enterprises that focus on efficiency and sustainability and facilitates industry upgrade and transformation.
- forming a legacy for the host city. The SDC serves as a paradigm for sustainable urbanization, as well as a pioneer that is actively exploring paths for high-quality regional development.

In cooperation with the city of **Zhangjiakou, Hebei Province, China**, the final competition of the third SD China is scheduled in the fall of 2021. Solar Decathlon China 2021 encourages competition prototypes to meet a triple challenge in the context of our host city.

*CHALLENGE 1--SUSTAINABLE DEVELOPMENT*

United Nations brought out the 17 sustainable Development Goals in 2015 as a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. In Solar Decathlon China, Sustainability is the core feature of all the designs, technologies, products, and systems. All the efforts we are making through cooperation crossing disciplines, fields, and countries are for a more sustainable future of all human beings. As described in the UNDP website, “17 SDGs are integrated—that is, they recognize that action in one area will affect outcomes in others and that development must balance social, economic and environmental sustainability”. Solar Decathlon China 2021 calls for innovative young people to make contributions to the achievement of the UN Sustainability Development Goals through coming up by designing integrated solutions that can respond to people’s daily realities.

*CHALLENGE 2--SMART CONNECTION*

As buildings evolve from primitive shelters made from stones, sticks, and other natural materials, to modern complicated concatenations of structures, systems, and technology, people today are beginning to look beyond the physical envelope and consider the connection and interaction of their buildings with the global environment. Buildings of the future provide not just the roof overhead; instead, they enable innovation by creating a platform for accessible information and objects, connecting the various pieces in an integrated, dynamic, and functional way. The vision goes far beyond saving energy and contributing to sustainability, and it also seeks an information infrastructure to make possible a brilliant world. Solar Decathlon China 2021 challenges teams to look beyond traditional building services, and to deliver houses that are intelligently connected and responsive to the power grid, automation systems, home appliances, and interact with occupants to empower them with new levels of visibility and actionable information. The competition encourages sophisticated control systems, interoperable home devices, visualized user interfaces, and a suite of features to improve the convenience, interaction, and productivity of the occupants.

*CHALLENGE 3--HUMAN HEALTH*

On average, we spend about 90 percent of our time indoors, where pollutant levels are often higher than those outside. The importance of the indoor environment to human health has been highlighted in numerous environmental risk reports. Indoor pollution is estimated to cause thousands of cancer deaths and hundreds of thousands of respiratory health problems each year. A poor indoor environment also affects unfavorably people’s cognitive function and work

efficiency. As buildings have become more energy-efficient, they have also become more airtight, increasing the potential for poor indoor environmental quality. However, this fact is often overlooked in conventional buildings. Solar Decathlon China 2021 challenges participating teams to build beyond green – to deliver a health house for human inhabitants, creating non-toxic places of living and working that reduce or eliminate sick building syndrome and building-related illness. Meanwhile, the competition promotes a new healthy lifestyle that benefits to occupants’ mental development and daily enjoyment. It requires not only a high-level thermal, visual, acoustic comfort, and indoor air quality but also unusual home activities and harmonious neighborhood interactions that contribute to inhabitants’ health and wellbeing.



Caption: All-team photo of Solar Decathlon China 2018 in Dezhou, China August 2018.

## THE HOSTING CITY

Solar Decathlon China 2021 will be held in the City of Zhangjiakou, Hebei Province. **Zhangjiakou**, located 190 kilometers (120 mi) northwest of Beijing, is the joint host city of Beijing Winter Olympic 2022. The recently opened Beijing-Zhangjiakou High-Speed Railway connects the two host cities with a travel of 50 minutes. Zhangjiakou is the first and only existing one National Renewable Energy Demonstrative Zone (国家级可再生能源示范区) approved by the State Council of China. In its recent recently issued strategic plan 2019-2035, Zhangjiakou is designated as the water conservation and ecological environment support for the capital(首都水源涵养功能区和生态环境支撑区).

Average weather in Zhangjiakou, China: summers are long, warm, and partly cloudy and winters are freezing, dry, windy, and mostly clear. Over the year temperature typically varies from lows of -15 degrees Celsius in the winter to highs of 29 degrees Celsius in the summer. (4 degrees F to 84 degrees F)

### References:

- 1, 2022 Beijing Winter Olympics, <https://www.olympic.org/beijing-2022>
- 2, The Legacy Plan of the Olympic and Paralympic Winter Games Beijing 2022 (English), [https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/News/2019/02/Beijing2022-Legacy-Plan.pdf#\\_ga=2.183469862.1288984361.1579561783-247553691.1579561783](https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/News/2019/02/Beijing2022-Legacy-Plan.pdf#_ga=2.183469862.1288984361.1579561783-247553691.1579561783)

- 3, The Legacy Plan of the Olympic and Paralympic Winter Games Beijing 2022 (Chinese), <http://mat1.gtimg.com/bj2022/beijing2022/yichanzhanluejihua.pdf>
- 4, Zhangjiakou Renewable Energy Demonstration Strategic Plan (Chinese) [www.gov.cn/xinwen/site1/20150729/87251438169616905.pdf](http://www.gov.cn/xinwen/site1/20150729/87251438169616905.pdf)
- 5, Zhangjiakou Water Resource and Eco-system Supporting System Strategic Plan, 2019-2035 (Chinese) <https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/201908/W020190905497969927652.pdf>

## PROTOTYPE

Solar Decathlon China 2021 requires participating teams to design and build a **one-story** competition prototype as a residential building for family living and to meet at least the following requirements:

- The competition prototype should have a finished area of **120-150 square meters** as defined by ANSI Z765-2013.
- The prototype must be well-built and able to accommodate occupied people all year round. Heating systems are required.
- Landscaping is required within the designated site lot.
- A concrete foundation will be provided by the OCSDC for teams to build the projects. Teams are required to offer specific drawings and to send representatives to coordinate the construction of the foundation on-site in advance.
- Alternative accommodation purposes like a home office are also allowed.
- International teams are welcome to enter the competition individually or in cooperation with Chinese universities. But the house should be designed to operate at 50 hertz, to remain permanently and conform to China's electric grid.

## STRUCTURE OF FINANCIAL SUPPORT AND RECOGNITION

OCSDC is inviting **15** collegiate teams of creative designers and innovators to enter this competition. OCSDC intends to offer financial support, monetary prizes, and logistic support in phases to teams that are selected to participate via this Notice, and that brings an eligible house to the Solar Decathlon China competition. The structure of the Solar Decathlon China 2021 support and recognition comprises four categories: A, B, C, and D.

### A. Funding and Ownership

Each of the 15 teams selected in the Solar Decathlon China 2021 competition will receive funding up to **RMB1,000,000** in phases based on submittal of delivery, mid-term evaluation, and completion on site. Considering the potential withdraws, OCSDC will accept 15 teams with two backup teams. The two backup teams can take the place of any team among the 15 teams who withdraw or cannot pass the mid-term evaluation. **The city of Zhangjiakou or its reprehensive entity will own the Prototype House after the competition.** OCSDC will facilitate the transition of Ownership.

**B. Monetary Prize Based on the standing of points in the final Competition**

Prize	Standing of points	Award(RMB, before tax)
First Prize	1 <sup>st</sup>	300,000
Second Prize	2 <sup>nd</sup>	200,000
Third Prize	3 <sup>rd</sup>	100,000
Fourth Prize	4 <sup>th</sup> -15 <sup>th</sup>	50,000

**C. Local Support and Logistic Assistance**

OCSDC will provide the teams with local accommodation, food, and insurance during the competition. OCSDC will assist the international teams with customs clearance if necessary.

**D. Long-term Demonstration**

The competition entries are required to be transferred to the City of Zhangjiakou after the competition for long-term demonstration as SDC legacy. The city of Zhangjiakou will recognize and maintain them as facilities serving for Winter Olympic 2022, living labs of the National Renewable Energy Demonstrative Zone and models for regional sustainable development. Teams are allowed to access them for testing purposes within one year since the completion of the competition. Participating universities or industries are welcome to apply for post-competition activities jointly led by OCSDC and the city of Zhangjiakou. Following-up activities include but are not limited to theme research, academic seminars, industry fairs, and extended projects.

## APPLICATION INSTRUCTION

### ELIGIBILITY REQUIREMENTS

Teams must be led by a post-secondary education institution.

Teams are encouraged to cooperate with organizations or enterprises that would benefit from involvement in the competition and the 2022 Winter Olympics.

### APPLICATION PROCESS

The applicants should submit the Application Form I – Team Information and Application Form, II – Project Summary, Application Form III – Budget Estimate by the indicated deadline to be eligible for application. OCSDC will review the applicant submissions to determine whether they meet the eligibility requirements of the Notice. OCSDC will not review or consider noncompliant and/or nonresponsive or otherwise inappropriate submissions.

### MATERIAL SUBMISSION

All submissions must conform to the form and content requirements, including maximum page lengths described in the Application Forms. Both the electronic version and physical copy of the Application Forms should be submitted to the OCSDC. The electronic version can be emailed to [support@sdchina.org.cn](mailto:support@sdchina.org.cn) as an attachment in the form of PDF unless explicitly stated otherwise. The physical copy must be mailed to OCSDC with the address below, postmarked before the deadline.

**Ms. Pei Wang**

Organizing Committee of Solar Decathlon China

814 Xincheng Cultural Mansion, No. 11 Chongwenmen Outer Street

Dongcheng District 100062, Beijing, China

北京市东城区崇文门外大街 11 号新成文化大厦 B 座 814, 100062

王培 女士 (收)

Tel: +86 13439515126

OCSDC will not review or consider submissions submitted through means other than sufficient email and mail address, submissions submitted after the applicable deadline, and incomplete submissions. OCSDC will not extend deadlines for Applicants who fail to provide required information and documents due to server/connection congestion.

### APPLICATION FORMS

The Application Forms and instructions are attached to this RFP and available on <http://www.sdchina.org.cn>. You can also acquire the application forms by sending email to [support@sdchina.org.cn](mailto:support@sdchina.org.cn).

The Application Forms contain THREE sections:

**Application Form I – Team Information**  
**Application Form II – Project Summary**  
**Application Form III – Budget Estimate**

The applicants should complete all three forms following the instructions on the forms, of which **Application Form I must be signed by the leading faculty and sealed by the university or department.** The OCSDC will use the information provided in the forms to organize and communicate with competition teams. Once all forms are finished, save them separately as individual PDF files named “*TeamName\_ApplicationFormI,*” “*TeamName\_ApplicationFormII,*” and “*TeamName\_ApplicationFormIII*” and submit to the OCSDC according to the submission guidelines provided above.

The Application Forms must conform to the following requirements:

- Each must be submitted in Adobe PDF format unless stated otherwise.
- Each must be written in English; the Chinese version can also be submitted for reference purposes.
- All pages must be formatted to fit on 8.5\*11-inch or A4 paper with margins not less than one inch on every side. Use *Times New Roman* typeface, a black font color, and font size of 11-point or larger (except in figures or tables, which may be 10-point font). A symbol font may be used to insert Greek letters or special characters, but the font size requirement still applies. References must be included as footnotes or endnotes in a font size of 10 or larger. Footnotes and endnotes are counted toward the maximum page requirement.
- Each must not exceed the specified maximum page limit of 10, including cover page, charts, graphs, maps, and photographs when printed using the formatting requirements set forth above and single-spaced. If Applicants exceed the maximum page lengths indicated, OCSDC will review only the authorized number of pages and disregard any additional pages.

**DEADLINE**

The submission period ends on **Friday, April 3, 2020, at 5:00 PM Beijing Time.** Applicants are strongly encouraged to submit Application Forms at least 48 hours in advance of the submission deadline.

## NOTIFICATION OF SELECTIONS

### SELECTION NOTICES

The evaluation process consists of multiple phases that each includes an initial eligibility review and a thorough technical review. Rigorous professional reviews are conducted by reviewers that are experts in the subject matter of this Notice. Ultimately, the Selection Official considers the recommendations of the reviewers, along with other considerations such as program policy factors, in determining which applications to select.

OCSDC anticipates notifying applicants of its decisions by **Friday, April 20, 2020, Beijing Time.**

### REJECTED SUBMISSIONS

Ineligible Application Forms are rejected by the Contracting Officer and are not reviewed or considered. The Contracting Officer sends a notification letter by email to the technical and administrative points of contact designated by the applicant. The notification letter states the basis upon which the application was rejected.

### APPLICATION NOTIFICATIONS

OCSDC notifies applicants of its determination via a notification letter by email to the technical and administrative points of contact designated by the applicant. The notification letter may inform the applicant that its application was selected for the competition, or not selected. Alternatively, OCSDC may notify one or more applicants that a final selection determination on particular applications will be made at a later date, subject to the programmatic or other factors.

### SUCCESSFUL APPLICANTS

A notification letter selecting an application team for the competition does not authorize the applicant to commence the performance of the project. If an application team is selected for the competition, it is not a commitment to issue an award. Applicants are not officially accepted into the game until OCSDC negotiations are complete.

The competition acceptance process will take approximately 60 days. Applicants must designate a primary and a backup point-of-contact with whom OCSDC will communicate to conduct negotiations. The applicant must be responsive during negotiations (e.g., provide requested documentation) and meet the negotiation deadlines. If the applicant fails to do so or negotiations are otherwise unsuccessful, OCSDC will cancel negotiations and rescind the Selection. OCSDC reserves the right to terminate negotiations at any time for any reason.

### UNSUCCESSFUL APPLICANTS

OCSDC shall promptly notify in writing each applicant whose application has not been selected for the competition.

## TERMS AND CONDITIONS

Selectees must continue to comply with all terms and conditions of these Official Rules, and receiving a prize is contingent upon fulfilling all requirements contained herein.

OCSDC reserves the right to interpret the financial support structure and make adjustments if necessary, according to the actual situation.