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# **Solar Decathlon China 2017**

## **Building Code Updates**

November 4, 2016

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# Declaration

1. Solar Decathlon China Building Code is the basic threshold that teams have to follow. The Chinese National Standard (GB) and the National Standard for Building Industry (JGJ), as well as other related codes listed in *Section 2* shall also be met so that your house can be legally built as permanent in China. International teams that have difficulties in reading and following Chinese standards could design according to your national or international codes/standards for provisions not prescribed in Solar Decathlon China Building Code. A designated Chinese design institute will review your design based on GB and JGJ later on, and notify you once critical contradictions happen, and discuss about adjustments/revisions case by case. Please refer to *Clause 2.0.2* for requirements on alternate materials and methods of construction.
  2. The position of plumbing and electrical mains is provided by default at the center of the 25m × 25m lot. However, it can be customized and adjusted upon teams' request. Teams are required to notify the organizing committee in advance, and provide the foundation drawings indicating your desired connection location.
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# Updates

- 1.0.9 International system of units shall be used in all design submissions, including but not limited to drawings, project manuals, and other related documents. Other systems of units are optional for reference purpose.
- 2.0.1 Adopted Chinese building codes were updated.
- 3.0.4 Definition of *Non-Combustible Component* was updated.
- 3.0.5 Definition of *Difficult-Combustible Component* was updated.
- 3.0.6 Definition of *Combustible Component* was provided.
- 4.1.2 Fire resistance rating requirements for building components were updated.
- 4.1.3 Table 5. Combustibility grades for *Floor* and *Partition* were updated.
- 4.1.5 Exterior fire escape stairs are prohibited.
- 4.2.3 Table 6. Maximum permitted area of safety glass was updated.
  - e. (ii). Frameless glass in the bathroom shall be tempered glass conforming to the provisions in Table 6 and with nominal thickness of no less than ~~5mm~~ **12mm**.
- 4.3.6 For the treads and risers of indoor stairways, the depth shall be no less than **0.26m**, and the height shall be no more than **0.175m**.

For the treads and risers of outdoor stairways, the depth shall be no less than **0.30m**, and the height shall be no more than **0.15m** but no less than **0.10m**.
- 5.2.3 The wind load for Dezhou shall be taken as **0.45kN/m<sup>2</sup>**.

At 10m above the ground, 10-minute average annual maximum wind speed is about **26.86m/s**.  
When it is predicted that the wind velocity may exceed **26.86m/s**, a notice for forcible

- withdrawal (evacuation order) will be issued.
- 5.2.4 In Dezhou, the earthquake-resistant fortification intensity is 7, and the design basic acceleration is 0.10g.
  - 5.2.5 In Dezhou, the snow load shall be 0.35kN/m<sup>2</sup>, and the coefficient division of quasi-permanent value for snow load shall be II.
  - 5.2.6 The horizontal load on the railing tops of stairs, stands, balconies, accessible roofs, etc. shall be set as 1.0kN/m<sup>2</sup>. The vertical load shall be set as 1.2kN/m<sup>2</sup>.
  - 6.1.3 Fire suppression sprinkler systems are not required. The municipal water distribution system does not provide fire demand on site. Otherwise, the participating buildings have to define their own fire water tanks.
  - 6.2.8 Water closets shall be fully functional, and shall be connected to the water supply and the sewage disposal systems.
  - 6.3.2 The hydrostatic pressure of water supply ~~before~~ **after** the threshold water meter in the building shall be no less than ~~0.05~~ **0.1**MPa, and the water supply pressure of the service pipe shall be no more than 0.35MPa.
  - 6.7.1 Domestic water not in contact with the human body, such as water for landscapes, greening, vehicle washing, road watering, toilet flushing, etc. ~~shall~~ **is recommended to** make use of the non-traditional water sources such as urban recycled water, rainwater, building reclaimed water, etc.
  - 7.3.1 The outdoor fresh air inlet and the air outlet shall be arranged to face different directions.
  - 7.3.2 Measures for preventing the entry of sundries **and rainwater** shall be taken for the air inlet and the air outlet via screening or other approved methods.
  - 7.5.2 The internal walkway longer than 20m shall be provided with an operable external window. The area of the external window shall be no less than **2%** of the floor area of the internal walkway.
  - 8.3.5 All power receptacles shall be safety receptacles.
  - 8.4.2 The efficiency of interior lighting shall not be less than 70%. For shaded interior lighting, the efficiency shall not be less than 60%. The average luminous efficiency of light sources shall not be less than 60lm/W.
  - 8.5.3 Metallic conduits and ~~plastic~~ **PVC** conduits may be used for distribution circuit wiring in houses. The tube wall thickness of concealed metallic conduits shall be no less than 1.5mm, and the tube wall thickness of concealed ~~plastic~~ **PVC** conduits shall be no less than 2.0mm.
  - 8.6.2 The distance between high-voltage and low-voltage power receptacles shall not be less than 20cm.
  - 9.1.4 Both the isolating switch and the circuit breaker between the PV system and the public grid shall have the function of breakage of zero line, and the phase line and the ~~zero~~ **neutral** line shall be capable of being disengaged and engaged simultaneously.
  - 9.1.6 The participating teams are allowed to consider storing the power energy up to **10kWh**. Commercially available direct-current devices are permitted to be connected to the power storage system.