

POLITECNICO DI TORINO
Repository ISTITUZIONALE

"Long Plan" - One-Family, Solar Powered house for the "Solar Decathlon China - 2018" Competition, Dezhou (China). Winning Project

Original

"Long Plan" - One-Family, Solar Powered house for the "Solar Decathlon China - 2018" Competition, Dezhou (China). Winning Project / Berta, Mauro; Bonino, Michele; Fabrizio, Enrico; DE PAOLI, Orio; Filippi, Marco; Robiglio, Matteo; Serra, Valentina; Frassoldati, Francesca; Yimin, Sun; Jing, Wang; Yiqiang, Xiao; Yufeng, Zhang; Guanqiu, Zhong. - (2018).

Availability:

This version is available at: 11583/2786592 since: 2020-01-29T21:15:41Z

Publisher:

Published

DOI:

Terms of use:

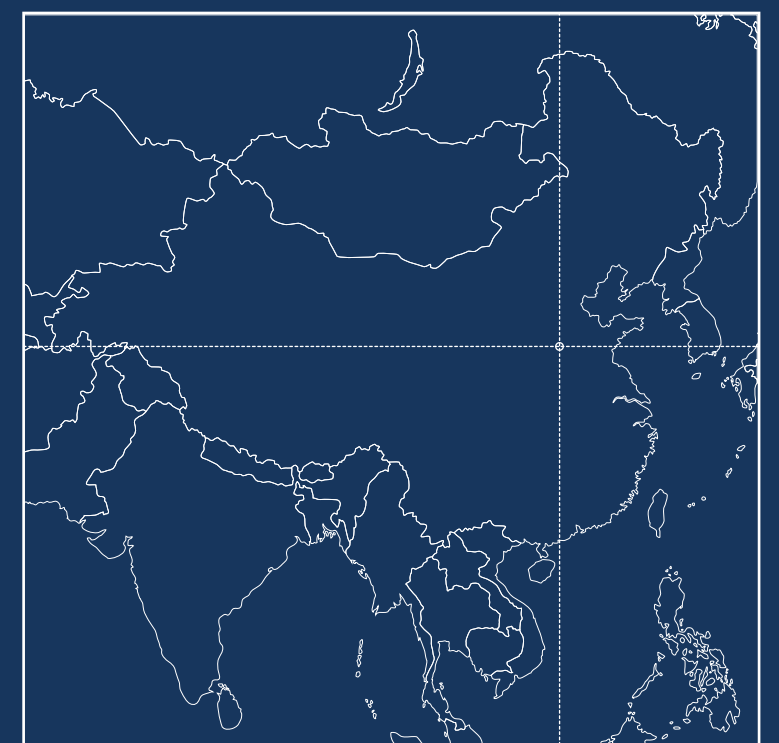
This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

Solar Decathlon China 2018

Dezhou (China) | 2016-2018





Solar Decathlon China 2018

Year: 2017-2018

Type: Invited Design Competition (1st Prize)

Site: Dezhou (China)

Designers: Politecnico di Torino and South China University of Technology Design Groups (Coordinators: M. Berta, Sun Yimin).

In August 2018 the joint team of professors and students of both Politecnico di Torino (PoliTO) and South China University of Technology of Guangzhou (SCUT) has been awarded the 1st prize in the second Edition of the Solar Decathlon China contest.

Solar Decathlon was launched for the first time in 2002 by the American Department of Energy and it spread rapidly in 5 other parallel editions in Europe, China, South America and Caribbean, Middle East and Africa; it is one of the most important international design competitions, addressed to teams made of students and professors coming from the courses of Engineering and Architecture of the worldwide major Universities. The objective is to design, build and run an NZEB (Net Zero Energy Building), a single-family house exclusively powered by solar energy. During the competition the buildings are really inhabited by the team members and they must undergo 10 proofs (from which the term "Decathlon") whose results, assigned by a technical jury, take into consideration multiple aspects, such as the power generation, the engineering, the innovation, the market appeal, the overall architectural quality of the proposal etc. SCUT-PoliTO's proposal tried to challenge the model of the detached house, very common in this field, which is on one side more suitable to better exploit the insolation, but - on the other side - less sustainable at a large scale, because it entails a higher land take. We chose instead to work on the "narrow house" typology (single-family terraced houses), which is very common in many historical urban contexts, from Northern Europe to South China, and which allows to obtain a higher density, with a level of privacy and a quality of the interior space much higher than the standards of a traditional apartment. Low rise and high density are thus the main aspects of this model, which is not addressed to the very limited target of the wealthy people, but primarily to the new middle-class market - constantly growing in China - which is more and more eager to access to higher standards of living.

The house, named "Long Plan", is equipped with a sophisticated HVAC and Air Treatment system, but it can also take advantage of a passive cooling system, which exploits the natural convection; for this reason it can also be compared to the passive houses.



