

Next-generation Sustainable “HORIZON HOUSE” Designed by Harvard University, the Top Prize in “3rd LIXIL International University Architectural Competition”, Completed in Memu Meadows

Aiming to verify the effectiveness of technology and establish new technology based on empirical data

The LIXIL JS Foundation (located in Koto-ku, Tokyo; president: Yoichiro Ushioda), which facilitates surveys and researches related to the housing and building materials industry as well as supporting the development of human resources, announced that the “HORIZON HOUSE” designed by students of Harvard University has been completed at the “Memu Meadows” (Taiki-cho, Hiroo-gun, Hokkaido), environmental technology research facility owned by the foundation.



Harvard University's "HORIZON HOUSE"

“HORIZON HOUSE” won the 3rd LIXIL International University Architectural Competition held by LIXIL JS Foundation to discover and examine next-generation sustainable housing technology, and communicate such technology to the society. One of the benefits of winning the competition is having the design actually built at “Memu Meadows”.

“HORIZON HOUSE” was designed around the theme of “RETREAT IN NATURE”. The design has highly praised not only for the sustainable design elements such as the system to lower the energy consumption of building materials and the raised floor in consideration of heavy snowfall, but also the 360 degrees panorama which provides a “RETREAT”. It was unanimously chosen by the judges in recognition of the fact that the people living in the house can choose the scenery to match their mood at the time.

In order to limit carbon emissions associated with the production, transportation and construction when actually building the house, and to contribute to the local economy, the use of concrete was kept to a minimum, and timber primarily produced in the region was used. Consideration was also given to recycling of these local materials in the future by adopting a design enabling the house to be easily dismantled.

With the completion of “HORIZON HOUSE”, there are now three houses designed by university students at “Memu Meadows”, and these also include “A Recipe to Live” (winner of 1st LIXIL University Architectural Competition) designed by Waseda University and “BARN HOUSE” (winner of 2nd LIXIL International University Architectural Competition) designed by Keio University, which were both completed last year.

After the completion of these houses, verification of the creatively designed “next-generation sustainable houses” has been continued, and examination of the effectiveness thereof are also being conducted. LIXIL JS Foundation and the local government (Taiki-cho, Hokkaido) both provide ongoing support, and information on the results of the demonstration will be communicated in the future.

Contact Information

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■ “HORIZON HOUSE” Design: Harvard University

[Designers]

- Professor Mark Mulligan (supervising faculty)
- Thomas Sherman
- Ana Garcia Puyol
- Carlos Cerezo Davila

[Concept]

"HORIZON HOUSE" symbolizes dialogue between individual living space and the landscape of the pasture in Taiki-cho. The interior relief connected from the foundation to the roof offers a 360-degree panorama of nature, that shows the changing seasons to the residents of the house. In addition, to prevent the view from the windows being cut off because of the house being partially buried in snow, the living space has been raised one meter above ground using a wooden foundation, enabling the view of nature to be enjoyed from indoors all year round.

[Features]

- Utilization of local resources

Timber produced locally and waste materials no longer used in the region form the bulk of the building materials, and locally-rooted nature and the memories of people have been incorporated as the face of the building. Utilizing locally produced timber makes it possible to limit carbon emissions associated with production, transportation and construction, and also contributes to the local economy. This is based on the assumption that the main insulation used indoors is made of wood waste produced in local sawmills and that the house will eventually return to nature.

- A comfortable space brought about by locally-oriented environmental technology

Floor heating systems can be configured to match the positions and physical conditions of users, and it is possible to change the indoor programming to match the changes in outdoor temperature in summer and winter. The system converts the heat generated by a wood stove to heat only the floor surfaces that the residents are in direct contact with in order to efficiently provide comfort using little energy. Also, by utilizing a variety of environmental technology such as the outdoor shavers, indoor insulated curtains, ventilation pipes dug into the ground and a skylight installed at the highest part of the ceiling, comfort is provided year-round to realize HORIZON HOUSE's basic concept of a "retreat in nature."

■ Overview of the “Memu Meadows” Facility

Name: Memu Meadows
Location: 158-1 Memu, Taiko-cho, Hiro-gun,
Obihiro, Hokkaido
(on the former site of Taiki Farms)
Owner: LIXIL JS Foundation
(2-1-1 Ojima, Koto-ku, Tokyo, 136-8535)
Site area: Approx. 184,000 square meters



Main facilities: “Même” cold climate experimental house (see photo at top right), “Bamboo Frame House” experimental house, “A Recipe to Live” experimental house, “BARN HOUSE” experimental house, multipurpose hall, laboratory, housing units 1, 2 and 3 (accommodations for researchers), log houses 1 and 2 (accommodations for researchers), fitness center, restaurant, sauna, administrative building, etc.

Overview: The name of the environmental technology research institute established in Taiko-cho, Hokkaido based on the founding philosophy of the LIXIL JS Foundation. The central part of the institute is the “Même” cold-climate experimental house designed by Kengo Kuma & Associates.

URL: <http://www.lixil.co.jp/s/taiki-cho/about/>

■Overview of 3rd LIXIL International University Architectural Competition

1. List of participating universities

(◎ Entrants that advanced to the open final screening on April 20)

Aalto University (Finland)

Dresden University of Technology (Germany)

◎Delft University of Technology (The Netherlands)

Swiss Federal Institute of Technology Zurich (Switzerland)

The Bartlett School of Architecture, University College London (UK)

Vienna University of Technology (Austria)

◎Harvard University (USA)

Tongji University (China)

◎National University of Singapore (Singapore)

Hanoi Architectural University (Vietnam)

Kyoto University (Japan)

Hokkaido University (Japan)

2. Judging method

Twelve universities in eleven countries were invited to submit proposals for a next-generation, sustainable house designed for a cold region. Three entrants were then selected in the first screening (based on documents submitted). And the top prize winner was subsequently chosen in the open final screening.

3. Review board

Chief Juror: Kengo Kuma (architect / professor, University of Tokyo)

Jurors: Tomonari Yashiro (doctor of engineering / vice president, University of Tokyo)

Darko Radović

(professor, Keio University)

4. Prizes

Top prize (one project): \$15,000 (USD; including design costs)

Award of Excellence (two projects): \$3,000 (USD; including design costs)

*Top-prize project will be constructed on a site in Memu Meadows (Taiki-cho, Hokkaido).

Organizer: LIXIL JS Foundation

Cooperator: LIXIL Corporation Research Institute / Taiki-cho, Hokkaido

Supporter: Obihiro Development and Construction Dept. / Hokkaido Regional Development Bureau / Hokkaido Government Tokachi General Subprefectural Bureau / Architectural Institute of Japan / The Japan Institute of Architects (JIA) / Japan Federation of Architects & Building Engineers Associations / Shinken-chiku-sha Co., Ltd.

Official website: www.lixiljsfound.or.jp/category/1835715.html

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