

“The 5th LIXIL International Student Architectural Competition”

**Top Prize-Winning Oslo School of Architecture and Design’s INVERTED HOUSE Is Completed
~New next-generation sustainable housing is created on the site of Memu Meadows in
Taiki-cho, Hokkaido ~**

The LIXIL JS Foundation (located in Koto-ku, Tokyo; president: Yoichiro Ushioda), which facilitates surveys and research related to the housing and building materials industries as well as supporting the development of human resources, is pleased to announce today that the next-generation sustainable housing “INVERTED HOUSE” designed by the Oslo School of Architecture and Design has been completed on a site of Memu Meadows in Taiki-cho Hokkaido, environmental technology research facilities managed by the foundation.

INVERTED HOUSE is the top prize winner in the 5th LIXIL International Student Architectural Competition sponsored by the LIXIL JS Foundation, aimed to seek and review next-generation sustainable housing technology and communicating that technology to global society. The project was designed based on the theme: “House for Enjoying the Harsh Cold.”



“INVERTED HOUSE” designed by the Oslo School of Architecture and Design

INVERTED HOUSE has floors of different heights and roofs of different slopes, which help control its environment, thereby allowing residents to embrace the cold and the beauty of seasonal changes. The two intersecting walls, which are the main structure, divide the house in four main rooms with specific architecture, where all life activities, including cooking, dining, taking a bath or sleeping, are performed outdoors and the rooms inside are made to allow them to seek shelter from the unexpected bad weather.

The four spaces are made up of the “Garden Room,” which will gather snow in winter, the “Outside Living Room,” the main space of the house, the “Room for Cooking” protected from the strong winds with a very steep roof and the “Inside Room,” the most protected room against the external environment. The character of inside-outside spaces inverts with seasons. The warmest space in winter, the Inside Room, becomes the coolest shadowed space in summer. The outside spaces, harsh in winter, become the most pleasant ones in summer.

With the completion of INVERTED HOUSE, Memu Meadows is currently a home to five houses designed by students. The effects of these “next-generation sustainable housing” will continue to be verified.

Contact Information

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<Reference Information>

■ **INVERTED HOUSE** Design Team: The Oslo School of Architecture and Design(Norway)

Supervisors:

Neven Fuchs, Associate Professor/Thomas McQuillan, Professor

Raphael Zuber, Guest Professor

Students: Laura Cristea

Mari Nysveen Hellum

Stefan Hurrell

Niklas Lenander

Architect: Kengo Kuma and Associates **Structural Engineer:** Oak Structural Design Office

General Constructor: Takahashi Construction Company **Building Area:** 94.68m²

Construction Cost: Approx. 30 million yen

Construction Period: September 2015 - January 2016

【Concept】

INVERTED HOUSE was built based on the seemingly contradicting theme: “House for Enjoying the Harsh Cold.” The house, which opens its four walls to the external environment, is proposed as a house that embraces the cold and the beauty of seasonal changes. All life activities, including cooking, dining, taking a bath or sleeping, are performed outdoors while the inside rooms are made to allow residents to take shelter from the unexpected bad weather.

【Features】

• **Four Spaces that Change in Character According to the Season**

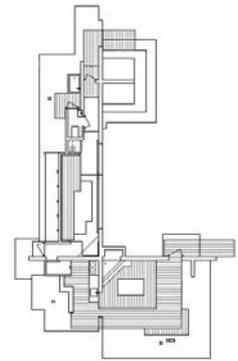
First, people approach the architecture from the first room called the “Garden Room” defined by the cross-wall. The garden will gather snow in winter, keeping it until early spring in the shadow of the high walls. Passing through the entrance door, you find the main space of the house; the “Outside Living Room.” A series of elevated wooden floors takes you closer to the fireplace while a large roof extends toward the enriched surroundings and the sunset. The “Room for Cooking,” the next outside room, is protected from the strong winds with a very steep roof. A narrow passage around the cross wall takes you to the most protected room against the external environment, the “Inside Room.” The space is narrow and dark, heated by an open fireplace.

The character of inside-outside spaces inverts with seasons. The warmest space in winter becomes the coolest shadowed space in summer. Conversely, the outside spaces, harsh in winter, become the most pleasant ones in summer.

• **An Experience of Enjoying the External Environment Created by the Cross Walls and Long Roof**

The long roof over the Inside Room opposes strong winds from west and northwest, gathering snow on the other side of the wall in the Garden Room. The cross-walls are facing south and west to create shadow for keeping the snow longer. The bedroom is facing east to enjoy sunrise, and be protected from cold western winds. The Outside Room is facing west to capture the low sunset sun.

Inverted House is designed as a horizontal architecture, spreading out in its terrain. To strengthen this concept, the design team decided to make an artificial earth platform, with clear cut and geometry. Its slight rotation towards the fence makes the house relate to surroundings far beyond the property limit.



■ Overview of the 5th LIXIL International Student Architectural Competition

1. Participating universities: 12 universities in 11 countries

* The three universities marked with © proceeded to the Open Final Screening held on April 21.

©Ecole Nationale Supérieure d'Architecture de Paris La Villette (France)

Politecnico of Milan (Italy)

©The Oslo School of Architecture and Design (Norway)

Superior Technical School of Architecture of Madrid (Spain)

Istanbul Technical University (Turkey)

Yale University (USA)

Universidade de Sao Paulo (Brazil)

The University of Hong Kong (Hong Kong)

Seoul National University (South Korea)

©Chulalongkorn University (Thailand)

Tokyo Institute of Technology (Japan)

Tokyo University of Agriculture (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). The top prize winner was subsequently chosen in the Open Final Screening.

3. Jury:

Kengo Kuma (Architect / Professor, the University of Tokyo)

Tomonari Yashiro (Professor, Institute of Industrial Science, the University of Tokyo / Vice President, the University of Tokyo)

Dana Buntrock (Architect, Department of Architecture, University of California, Berkeley)

4. Prizes

Top prize (one work): \$15,000 (USD; including design fee)

Award of Excellence (two works): \$3,000

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

■ Overview of Facility

Name: Memu Meadows

Location: 158-1 Memu, Taiko-cho, Hiro-gun, Obihiro, Hokkaido

Owner: LIXIL JS Foundation 2-1-1 Ojima, Koto-ku, Tokyo, 136-8535

Site area: App. 184,000 square meters

Main facilities: Experimental house “Même”, “Mock-up of Multiple floor Bamboo House”, “A recipe to live”, “BARN HOUSE”, “HORIZON HOUSE”, “NEST WE GROW”, Multipurpose Facility, Conference Pavilion, Residence 1L and 1R (accommodation for researchers), two log houses (accommodation for researchers), fitness center, restaurant, Administration Wing, etc.

Official website: <http://www.lixiljsfound.com/>