June 26, 2015

For Immediate Release

Sumitomo Forestry Co., Ltd.

In Pursuit of Advanced Fire Prevention and Resistance Technologies
to Expand the Use of Wooden Constructions

New Experimental House with Large Multi-purpose Furnace Built at Tsukuba Research Institute

Selected among Fiscal 2014 Leading Projects for Wood Construction Technology

Sumitomo Forestry Co., Ltd. announced today the new construction of an experimental house with large multi-purpose furnace for fire prevention and resistance experiments within the Sumitomo Forestry Tsukuba Research Institute.

The experimental house is a special facility for preparing test pieces and conducting heat tests for the purpose of developing fire resistance technologies. Construction of the house has earned its selection among Fiscal 2014 Leading Projects for Wood Construction Technology promoted by Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT). It is also the sixth time a Sumitomo Forestry project has received the honor. Sumitomo Forestry will install cutting-edge equipment for fire prevention and resistance experiments in the Tsukuba Research Institute experimental house. In this way, it is developing advanced wooden structure technologies that turn wood into science, and is contributing to expanded use of wooden houses and other wooden constructions.

■ Overview of Facility

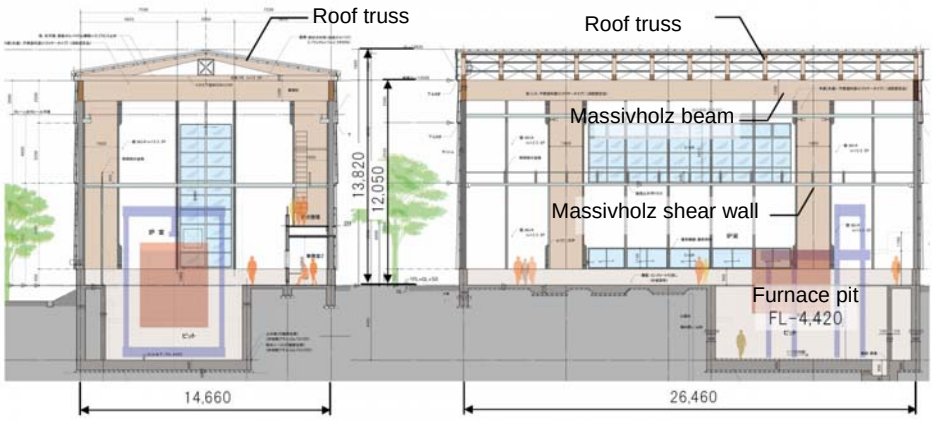
Enterprise	Tsukuba Research Institute, Sumitomo Forestry Co., Ltd.
Location	3-2 Midorigahara, Tsukuba-shi, Ibaraki Prefecture, Japan
Floor Area	448.52 square meters
Height to Eaves	12.05 meters
Structure	Wooden post-and-beam construction method
Use	Research facility (fire prevention and resistance experimentation facility)
Design (Basic and Working)	Sumitomo Forestry Archi Techno Co., Ltd.
Construction Company	Kawada Industries, Inc.
Construction Time	From March 2015 to the end of October 2015 (planned)

■ Aims of Experimental House Construction

1. To complete construction of large multi-purpose furnace for fire prevention and resistance experiments
   Since the October 2010 enactment of the Act for Promotion of Use of Wood in Public Buildings, the country has taken the lead in initiatives to use wooden materials and an increasing number of large constructions using timber are appearing. The development of fire resistance technologies is very important to Sumitomo Forestry, as a home builder expanding the use of wooden houses. By constructing an experimental house with a large furnace, and creating a development environment for in-house verification of fire-resistant materials and structures, Sumitomo Forestry is driving the development of fire resistance technologies with a sense of urgency.

2. To actively conduct combustion experiments with large members
   Within the experimental house, it is possible to conduct combustion experiments on test pieces measuring up to 2.5 meters wide and 4 meters long for horizontal members and up to 3.5 meters wide and 3.5 meters high for vertical members, while the members are subjected to real-world loads. Being able to conduct in-house verifications at this facility when needed, for such things as development of principal structural members, design-related proposals and development of members for facilities, enables trouble-free development of proprietary fire resistance technologies.

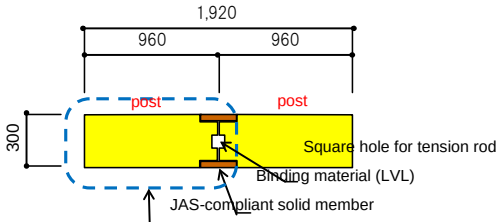
New Experimental House (from published materials for selected example)



■ Main Features of Experimental House

1. New structure for use in large wooden construction proposals

The experimental house is assembled with thick sheets of laminated veneer lumber (LVL)[*1] and has a post-tension structure consisting of shear walls (two LVL posts aligned end-on-end and combined into one using a tension rod and binding material). It is a proposal designed as a stepping stone to large multi-level constructions.



Cross-section of shear wall

*1 Laminated veneer lumber is an engineered wooden material where veneer is assembled in multiple layers using an adhesive with the direction of the fibers running parallel to one another.

2. Fewer members and simplified joints

The experimental house uses a combination of shear walls made of thick Massivholz LVL (300 mm thick × 1,920 mm wide × 9,850 mm high) and a post-tension structure to increase rotational rigidity[*2] and shear stress[*3], which enables a reduction in the number of members used and simplification of the joints. In addition to acting as a stepping stone to multi-level wooden constructions, it also reduces construction man-hours and control items at the construction site. The post-tension technique employs high-strength steel rod or wire rope passed through shear walls to apply a tensile force and increase the degree of fixity between members.

Artist's impression of experimental house

*2 The degree to which a rigid structure can withstand deformation when a force is applied to its joints. The higher the rigidity, the lower the deformation, and the lower the rigidity, the higher the deformation.

*3 The force required to withstand a sliding force acting in a lateral direction across an object's internal surface.

3. Overview of fire prevention design
With the height of the building up to the eaves being over nine meters, laws and regulations required employment of a 25 mm “flammable barrier” design[*4] for the wooden structures. The interior of the experimental house reveals wooden structures made of posts, beams and roof trusses. Test rooms and other rooms are separated by partitions and flooring that uses wooden fire-resistant structures in line with specifications of the Wooden Home Builders Association of Japan.

*4 Design technique that determines cross-sectional dimensions of members by anticipating a margin of burnt wood in an anticipated fire.

4. Construction using combined strengths of the Group
This experimental house is a facility designed for development of fire prevention and resistant wooden members, with Sumitomo Forestry’s Tsukuba Research Institute being responsible for technical proposals and Sumitomo Forestry Archi Techno Co., Ltd. being responsible for designs. LVL used as structural materials in the house comes from Nelson Pine Industries Ltd. in New Zealand, a wholly-owned subsidiary of Sumitomo Forestry. The company produces thick timber using a secondary bonding process and then pre-cuts the timber. The International Marketing Department at Sumitomo Forestry is in charge of importing the LVL.

About Sumitomo Forestry

Founded in 1691, Sumitomo Forestry Co., Ltd. and its Group companies have broadened business activities focused on wood. Based on its corporate philosophy—“utilize timber as a renewable, healthy and environmentally friendly natural resource, and contributes to a prosperous society through all types of housing-related services”—and with its approximately 250,000 hectares of owned and managed forest, the global network that spans more than 20 countries and expertise and technology in housing-related businesses, Sumitomo Forestry Group is developing the Forestry and Environment Business, the Timber and Building Materials Business, the Housing Business, the Overseas Business, the Lifestyle Service Business and other businesses both in Japan and abroad. Adding such businesses as wooden biomass power generation and Timber Solution, it will continue to pursue the potential of timber.
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