

October 21, 2019

For Immediate Release

Sumitomo Forestry Co., Ltd.

Completion of New Research Building at Tsukuba Research Institute Research Base for W350 Plan and the Scientific Study of Wood and Greenery

Sumitomo Forestry Co., Ltd. (President and Representative Director: Akira Ichikawa; Headquarters: Chiyoda-ku, Tokyo; hereinafter Sumitomo Forestry) announced that the new research building at Tsukuba Research Institute has been completed, and an opening ceremony was held on October 21. This research building will be the research base for the W350 Plan, and a base for disseminating a wide range of expertise related to timber and advanced technologies based on the scientific study of wood. Technologies used in this building will form the foundation for the W350 Plan. The total construction cost, including works within the premises, is approximately 2.5 billion yen.



The new research building is a three-story wooden building with a floor area of 2,532.67m². The beams, pillars, and walls use *arawashi*^{*1} exposed timber that has received Ministry of Land, Infrastructure, Transport and Tourism (MLIT) certification based on the full building evacuation safety verification method^{*2} and designed using the semi-fireproofing technique. Solar panels are installed on the roof, and the introduction of absorption water chiller-heaters fired using wood pellets significantly reduces carbon dioxide emission. Besides research and development of greening technologies for non-residential wooden architectural structures using the roof, balconies, and external walls as places for greening experiments, green layout for improving intellectual productivity within office spaces will also be verified.

Tsukuba Research Institute was opened 28 years ago, and the deterioration of the main research building and increase in staff had become issues needing to be addressed. New technologies related to wooden structures are used in the new research building. Energy saving technology and renewable energy will also be used with a view of achieving a zero energy building (ZEB).

This facility has been accepted as a fiscal 2017 leading project under the guidance program for sustainable wooden buildings and other structures being promoted by MLIT, and is an office building capable of housing a maximum of 140 persons.

^{*1} *Arawashi* is a finishing method where structural materials of wooden buildings, such as pillars and beams, are made visible.

^{*2} The full building evacuation safety verification method is a method for verifying safety performance where everyone within a building is able to evacuate safely to the ground level given a pre-determined fire scenario.

■ Overview of Facility

Enterprise	Tsukuba Research Institute, Sumitomo Forestry Co., Ltd.
Location	3-2 Midorigahara, Tsukuba-shi, Ibaraki Prefecture, Japan
Building Area	1,120.27m ²
Floor Area	2,532.67m ² (Level 1: 1,001.95m ² ; Level 2: 894.44m ² ; Level 3:
Structure	636.28m ²)
Use	Original post-tensioned structure; 3-story, semi-fireproof wooden structure
Project Management	Research facility
Design	MOCCA (Timber Solutions) Department, Sumitomo Forestry Co., Ltd. Atelier Asami Kazuhiro, le style h Co., Ltd.; MOCCA (Timber Solutions)
Construction Company	Department, Sumitomo Forestry Co., Ltd.
Construction Time	Kawada Industries, Inc. From March 26, 2018 to September 30, 2019; commencement of operation in early November 2019

Sumitomo Forestry is embarking on the concept W350 Plan to realize an environmentally-friendly and timber-utilizing city centered on a 350-meter-tall wooden high-rise building in 2041, which will mark the 350th year since foundation of the business. With this new research building as a base, Sumitomo Forestry will accelerate the further development of research technologies that increase the value of wood.

■ Overview of New Research Building

(1) Structural characteristics

The wall pillars of the new research building adopt an original structure utilizing post-tensioning*1 techniques, where blocks of laminated veneer lumber (LVL) which are 1,200 mm long on each side and 300 mm thick are stacked longitudinally in a checkered pattern with steel poles running through them to resist horizontal force. Exposing the timber of the structural materials achieves space with warmth.

*1 Post-tensioning is a technique where high-strength steel poles and wire ropes running through load-bearing members are tensioned to increase the fixation of position between members.



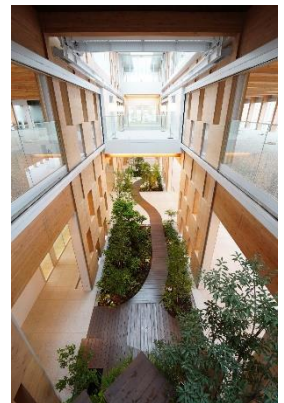
(2) Fire prevention and resistance verification

The main beams are flitch beams with a semi-fire-resistance rating of 60 minutes certified by MLIT. As the evacuation safety performance, such as evacuation routes during fires, has been verified through obtaining MLIT certification, regulations on interiors and other regulations have been eased, and the plan has secured a degree of freedom in design. This research building is the first in Japan to obtain MLIT certification based on the full building evacuation safety verification method which targets wooden architectural structures.



(3) Environmental characteristics

The building aims to be a zero energy building (ZEB) by installing solar panels on the roof to create energy, and adopting absorption water chiller-heaters fired using wood pellets to reduce carbon dioxide emission. In addition, skylights are installed on the upper part of the atrium to allow sunlight to shine on the inner courtyard of the first floor during all seasons. Updrafts are generated within the atrium to provide effective natural ventilation.



(4) Greening plan

Greening which can be applied to wooden buildings is used on the roof, balconies, and external walls. This will help the research and development of new green technologies for non-residential wooden architectural structures. The office space will be used for verifications such as green layouts that seek to improve intellectual productivity.

