SUMITOMO FORESTRY

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For immediate release

Sumitomo Forestry Co., Ltd.

- Acceleration of medium- to large-scale wooden structures -

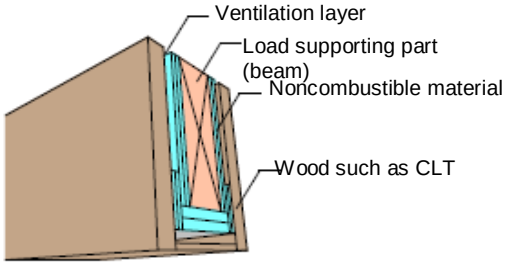
Development of Original Wooden Beam and Pillar Components with Two-Hour Fire Resistance

Sumitomo Forestry Co., Ltd. (President and Representative Director: Toshiro Mitsuyoshi; Headquarters: Chiyoda-ku, Tokyo; hereinafter Sumitomo Forestry) announced that for its in-house developed original wooden components, the beam has received certification from the Minister of Land, Infrastructure, Transport and Tourism as a two-hour fireproof structural member in February 2020, while the pillar has passed the performance evaluation test for a two-hour fireproof structural member in March. These original wooden beam and pillar components are fireproof structural members suitable for use in medium- to large-scale wooden structures. They are a new type of parts that can be manufactured while keeping down prices by using commonly available CLT* for the fire-resistant covering.

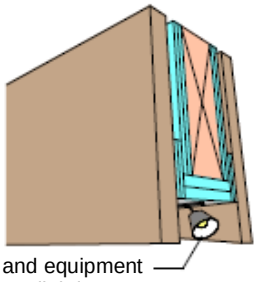
* CLT is an abbreviation for cross laminated timber.

■ Overview of original wooden beam and pillar components

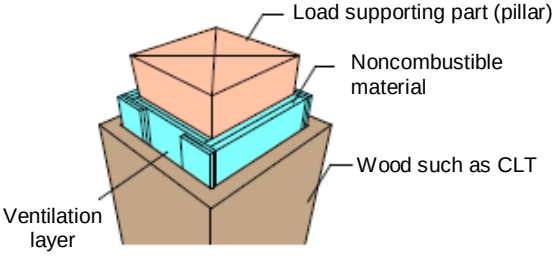
Beam member



Example of beam member design



Example of beam member design



Example of pillar member design

Existing fireproof wooden components were faced with the issue of high unit cost due to factors such as the use of custom-order fire-resistant covering materials and time-consuming construction processes. The new wooden beam and pillar components use commonly available noncombustible materials and CLT for their fire-resistant coverings, allowing them to be manufactured while keeping down costs. Traditionally, the use of CLT centers on structural members with flat surfaces such as walls and floors. Sumitomo Forestry has developed fireproof wooden structural members that use CLT in the fire-resistant coverings of beams and pillars. The wooden beams and pillars forming the structural support parts of these fireproof structural members are surrounded by noncombustible materials. CLT is placed on the outside of the noncombustible materials with a gap between the two. By raising the CLT slightly above the noncombustible materials to form a ventilation layer, the gap makes it possible to maintain a smooth surface finishing without being affected by the undulations of the materials below.

With the ventilation layer under the CLT, the design makes it easy for moisture to dry and maintain durability, including helping to drain away water such as when drenched by rain during construction.

The components can be produced both in plants and at construction sites. Should there be a fire, the CLT layers can be replaced at construction sites, making repairs easy. Lumber, glulam, LVL and other such wood materials can also be used in place of the exterior CLT, allowing to install house lighting, pipes for sprinklers, and other items.

■ Future prospects

The fire resistance required of structural members—such as beams and pillars—is regulated by the Building Standards Act based on the building's height and scale. Beam and pillar components of buildings with five or more stories need to be two-hour fireproof structural members, while those used in buildings with 15 or more stories require three-hour fireproof. Sumitomo Forestry will continue to work on development toward obtaining certification from the Minister of Land, Infrastructure, Transport and Tourism for beams and pillars with three-hour fireproof.

Sumitomo Forestry is working 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 the foundation of its business. With the new research building at Tsukuba Research Institute—completed in October 2019 to form the foundation for the W350 Plan—as a base, Sumitomo Forestry will accelerate research and development to increase the value of wood, such as the research in fireproof components mentioned here.