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Sumitomo Forestry Co., Ltd.

The Beauty of Traditional Japanese Architecture Now Possible in Strict Fire Zones

Sumitomo Forestry Develops Semi-Fire-Resistant

***Shinkabe* Construction Method**

—Allows for Greater Differentiation of Japanese-Style Rooms in Urban Areas—

Sumitomo Forestry Co., Ltd. (Head Office: Chiyoda-ku, Tokyo; President and Representative Director: Akira Ichikawa) has successfully developed a new semi-fire-resistant *shinkabe* wooden construction method that allows *shinkabe*-style rooms to be built in fire prevention zones, semi-fire prevention zones, and other municipal zones subject to strict fire regulations. *Shinkabe* is a type of wall construction method seen in *sukiya*- and *shoin*-style rooms and other traditional Japanese architectural constructions.

The new semi-fire-resistant *shinkabe* wooden construction method is awaiting patent as a Sumitomo Forestry proprietary technology that makes it possible to construct *shinkabe*-style interiors in wooden houses located in fire prevention zones and in three-story wooden houses located in semi-fire prevention zones without changing the standard thickness of posts and walls in *Sumitomo Forestry Home* houses. The new construction method has passed the Ministry of Land, Infrastructure, Transport and Tourism's certification test for external and partition walls

■ **Development Objective**

The construction design with exposed wall posts or beams is called “shinkabe” in Japanese. The *shinkabe* style is a defining and charming feature of traditional Japanese rooms (“washitsu”). However, *shinkabe* walls are seldom seen in relatively new ordinary homes due to a number of factors that include strict laws and regulations, high construction costs, and changing construction materials. Sumitomo Forestry, the leading brand in wooden custom-built houses in Japan, has received numerous requests from its customers for specific *washitsu* rooms that employ the *shinkabe* construction—even in zones with strict fire regulations. The company developed the new semi-fire-resistant *shinkabe* wooden construction in order to satisfy these needs while also contributing to the perpetuation of traditional Japanese construction methods.

■ **Background**

Since entering the housing business, Sumitomo Forestry has specialized in building custom wooden homes. During that time the company contributed to the proliferation of wooden houses in Japan by pioneering the use of dried and laminated engineered wood and by making construction design process accessible with the introduction of computer-aided design (CAD).

Meanwhile, Sumitomo Forestry has also developed the Multi-Balance Construction Method, an advanced wooden post-and-beam construction method based on the company's proprietary technologies, and Japan's first Big-Frame configuration (wooden beam Rahmen structure), providing homebuyers with safety, security, and comfort based on the reliable performance of its houses. The *shinkabe* style not only inspires visual relaxation; it is also a traditional Japanese construction method that makes use of different kinds of wood in all the right places. Supporting the *shinkabe* style with the latest technologies will help preserve traditional culture.

■ Technology Overview

In municipal zones with strict fire prevention regulations, external and partition walls are required to perform on par with semi-fire-resistance-rated constructions. The *shinkabe* style has long been considered impractical for ensuring fire safety using traditional construction methods, because exposed posts and beams ignite and char under direct heat, resulting in cross-sectional damage of structural members.

The semi-fire-resistant *shinkabe* wooden construction method developed by Sumitomo Forestry uses metal connectors and crossbeams to reinforce Sumitomo Forestry Home standard 105mm square posts before working on the standard interior construction using reinforced gypsum board and other materials, thereby achieving the minimum semi-fire-resistance rating of 45 minutes without encroaching on the usable room area.

Furthermore, the semi-fire-resistant *shinkabe* wooden construction also has many potential applications beyond newly constructed detached wooden homes. It can also be applied to fireproofing projects in existing homes by converting *ookabe* walls (walls with internal posts and beams) to *shinkabe* walls while keeping their fire-resistant or semi-fire-resistant construction, as well as traditional buildings that require substantial fire-resistant performance.