

Special Feature: Homes for the Age of Environmental Symbiosis

The Sumitomo Forestry Group integrates environmental considerations related to “wood” and “living” in a variety of forms for the *Sumitomo Ringyo no Ie* (Sumitomo Forestry Home) houses designed for the age of environmental symbiosis.



Company-owned forests in Kyushu.

As consciousness of the environment grows globally, the industrialized nations as a whole have proposed the long-term objective of an 80% reduction in greenhouse gas emissions by 2050. Looking at global economic trends, economic policies that emphasize preservation of the environment are gaining attention, beginning with the Green New Deal in the United States, which calls for development of energy-saving technologies and nurturing the foundations of a society with a low carbon footprint.

The heart of our business—wood—is deeply and inextricably connected to our concept of coexistence with the environment. Our roots date to 1691, and over the centuries, our businesses have grown steadily to include forestry, timber and building materials distribution and manufacturing, and housing businesses in Japan and around the world. Our houses are not merely the embodiment of more than three centuries of experience and knowledge, but also represent our commitment to and sense of mission for “realizing a prosperous society”—our corporate philosophy.

Our businesses are built upon knowledge and expertise in construction technologies, design concepts, the materials we use, maintenance, and housing lifestyles of the future. Our commitment to the environment is evident in each of those areas and in all of our businesses.

The Basic Act for Housing, enacted in 2006, emphasizes the importance of high-quality housing that lasts for generations. Toward this end, 2009’s Excellent Long-term Housing Promotion Act stipulates preferential treatment, including reduced taxes on mortgages and housing investment, for housing that is highly durable and environmentally sensitive. Other laws also provide for subsidies for installation of home fuel cells and solar energy to reduce CO₂ emissions.

Sustainability is the key theme of environmental movements in Japan and abroad, all of which seek ways for the peaceful coexistence of environmental protection and economic activity.

We share this theme, which we have expressed as “Symbiosis with the Environment,” since the founding of the Sumitomo Forestry Group three centuries ago.

We would like to share the thinking that drives our business activities and explain how “Symbiosis with the Environment” is realized in the houses we build.

The Technology behind Environmentally Sensitive Houses

CO₂-Fixing Effect of Wooden Housing and Promotion of the Use of Japanese Timber

Enacted in June 2009, the Excellent Long-term Housing Promotion Act calls for the promotion of wooden housing and expanded use of Japanese timber as measures to protect the environment.

Even before the enactment of this Act, we have been focused on promoting the environmental benefits of wooden housing, especially its CO₂-fixing effect*—the concept that “building a wooden house is like creating a forest in your town.” We have also long been committed to the proactive use of Japanese timber as a means to support the revitalization of domestic forestry. Today, up to 70% of the principal structural members used in the houses we build are Japanese timber.

* The effect of absorbing CO₂ and storing it as carbon.

Ryounbou—the Natural Heating and Cooling System

Some 70% to 80% of the CO₂ emissions generated over the life of a house are said to be from the energy consumed while living in it. Heating and cooling of homes are the primary components of energy use, along with hot water supply, lighting, and use of electrical devices.

We reduce impact on the environment by installing the latest heating and cooling systems and devices. Moreover, we achieve further reductions through our proprietary *Ryounbou* design process. The *Ryounbou* design process uses the natural power of the sun, wind, and garden vegetation to lessen the heat of summer and the cold of winter. Using proprietary simulation software, we are able to confirm the effects of environmental impact reduction for each and every home we build. In this way, we are able to provide a comfortable living environment that reduces reliance on traditional heating and cooling systems and to raise the environmental consciousness of the people who live in these homes.

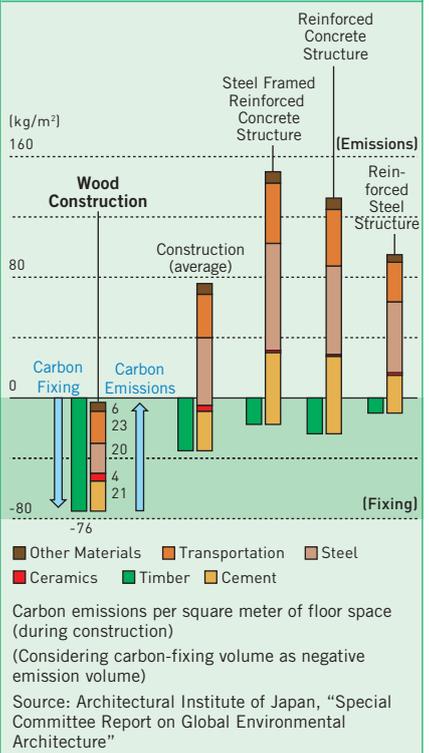
Long-Term Warranty and Maintenance System

To enable our customers to enjoy a comfortable living environment for generations to come, we offer a 20-year warranty* for the structural framework and water-proofing of our homes, as well as a maintenance program that is available up to a maximum of 60 years. We provide not only maintenance of

CO₂-Fixing Function of Wooden Housing

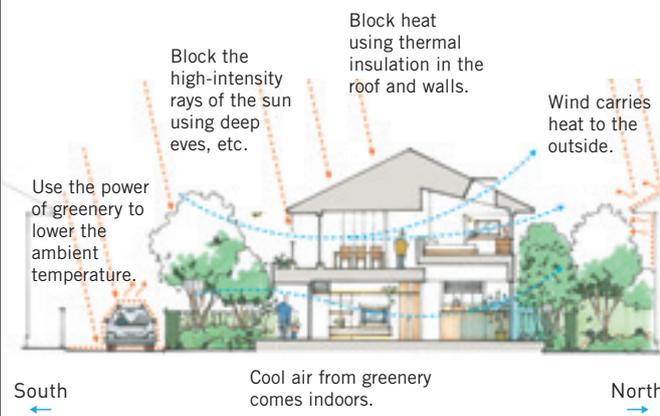
Construction of wooden housing consumes less energy during construction, making it possible to greatly reduce carbon emissions. And the volume of carbon fixed is greater than that of other types of building structures. It is said that the wood used in a single wooden house stores approximately six tons* of carbon, equivalent to that stored in about 900 square meters of forest.

* Estimation based on a wooden house with floor space of 136 square meters.

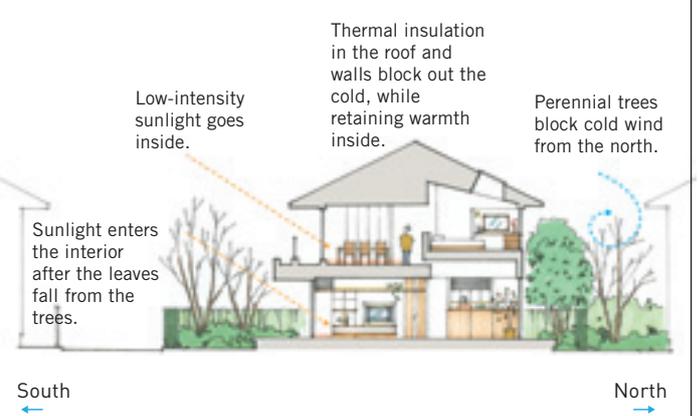


Ryounbou Design Concept

Houses that are cool in the summer



Houses that feel warm in the winter



the durability of the house, but an excellent-quality, long-lasting home for the people who live there, providing true ease-of-living across life stages and generations.

** In addition to a ten-year guarantee, we extend the warranty on the structural framework and water-proofing an additional ten years when we are contracted to perform for-fee maintenance work, such as pest control treatment, that we deem necessary. For houses qualifying under the stipulations of the Excellent Long-term Housing Promotion Act, the warranty is for a maximum of 30 years.*

Development of the Most Advanced Technology

In addition to the *Ryouonbou* design concept and our long-term maintenance programs, we continuously conduct research and development of leading-edge technologies to provide a safe and comfortable home that lasts for the long term.

We have developed and deployed products that enhance the durability of our homes, including: Super Cypress laminated engineered wood for structural use, which has approximately 1.2 times the strength of solid wood; *Kizure* Panels, which make efficient use of forest thinnings; and Seismic Energy-Absorbing Panels that convert seismic energy into thermal energy, providing protection of the home from earthquake damage.

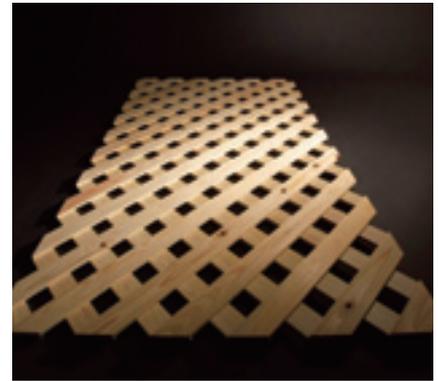
Reducing Environmental Impact in the Timber and Building Materials Distribution and Manufacturing Businesses

Acting Responsibly as the Leader in Timber and Building Materials

In fiscal 2008, we achieved a 70% utilization ratio of Japanese timber used in principal structural members in the houses we build. Japan's self-sufficiency in wood materials, however, is only 24%*¹ and the supply requires further stabilization, even for cypress, the wood we mainly use for principal structural members. As the leading company in the timber and building materials industry*², we are focused on promoting the use of Japanese timber as a means to revitalize the Japanese forestry industry, thereby helping to secure a more stable supply chain.

1. Source: Forestry Agency, "Wood Material Supply and Demand Table 2008"

2. Number one in sales among domestic building materials trading companies as of the year ended March 2009.



From top: Super Cypress, *Kizure* Panels, Seismic Energy-Absorbing Panels

MyForest-Solabo (Reduced CO₂ Model Specification) Reduces CO₂ Emissions by 65%* over the Life of the Home

Using the *Ryouonbou* design concept and a double solar system—solar power-generation and solar water-heating—this model specification reduces CO₂ emitted during the period the home is occupied by about 65% compared with other houses built to the new energy-saving standard. After taking possession, residents can share their CO₂-reduction scheme with other owners via a dedicated website. Launched in February 2009, this model was selected by the Ministry of Land, Infrastructure, Transport and Tourism as a fiscal 2008 "Model Business Promoting Reduced CO₂ in Houses and Buildings."

* Calculated on the basis of a two-story model plan with floor space of 130.83 square meters for a family of four in Tsukuba City, Ibaraki Prefecture. Since the calculations were based on certain conditions in the model plan, actual performance may vary.



Timber Procurement Standards

Destruction of the world's forests is a serious problem. The world's forests are shrinking by about 7.3 million hectares annually. In Japan, a great many plantation forests, which make up approximately 40% of the total domestic forest area, are left untended, leading to their rapid decimation. On the other hand, demand in newly industrializing nations is forecast to drive increased demand for the world's forest resources. To address the problems facing forests and to promote procurement of timber from sustainable forests, Sumitomo Forestry has promulgated its own Timber Procurement Philosophy and Policy, and has launched its own environmental initiatives, focusing on handling timber cut from forests that have received Forest Stewardship Council (FSC) certification, plantation timber, and Japanese timber. Further, we reduce the environmental impact of our overseas factories by using plantation timber and wood waste as raw materials in wood panel manufacturing. In addition, we use wood chips generated from our timber mills and manufacturing facilities as biomass fuel, seeking to eliminate waste wherever possible.

** Food and Agriculture Organization of the United Nations "The Global Forest Resources Assessment 2005"—average 2000-2005.*



The wooden-biomass boiler at RPI, our building materials manufacturing facility in Indonesia.

Environmental Practices Gained from Forestry Business

Besshi Copper Mine: Origins of the Group and Large-Scale Reforestation

The Sumitomo Forestry Group's relationship with the environment has its roots in the management of forest areas surrounding the Besshi Copper Mine in Shikoku, which opened in 1691. While the mining business grew, the forests surrounding the mine were devastated by over-cutting and smoke damage from the smelting operations. In 1894, Teigo Iba, the manager of the Besshi Mining Plant, was filled with a strong sense of resolve to resuscitate the devastated mountains and launched a large-scale reforestation plan.

Wood is being Rediscovered Worldwide as the Natural Environmentally Sound Material



In Sweden, a nationwide effort is underway to increase the number of wooden houses as a means to reduce CO₂ and prevent global warming. Of particular note is the city of Skellefteå

located in the northern part of the country. In 1995, Sweden changed its laws to allow wood-construction buildings, and in response, the city of Skellefteå launched a plan to greatly expand the number of wooden structures. Today, there are not only condominiums and office buildings, but also large-scale shopping centers, libraries, sports facilities, and even the airport control tower—all constructed from wood.



Student dormitory being constructed using our BF configuration.

Wood construction technology in Europe, however, was only able to create structures that were supported by the walls, which makes it difficult to modify the layout of the floorspace after construction. The solution was Sumitomo Forestry's BF "Big Frame" configuration. One of our researchers was invited by the Royal Swedish SP Research and Development Agency as a project leader, to share the basic technology of the BF configuration. Using the BF configuration, the structure is supported by the posts and beams with strong metal joints, not the walls.

Joint research and development have been conducted, and as a result, construction of a student dormitory using the BF configuration is currently underway in Skellefteå city. In this way, Sumitomo Forestry's environmentally sensitive technology is being recognized in Northern Europe.



Large wooden structures with a high degree of layout freedom are possible using Sumitomo Forestry technology.

Conducting an enormous reforestation effort that at times saw one million trees planted in a year, generations of nurturing and management resulted in the successful achievement of the original goal of “restoration of the forests to their original state and return of the forests to nature.”

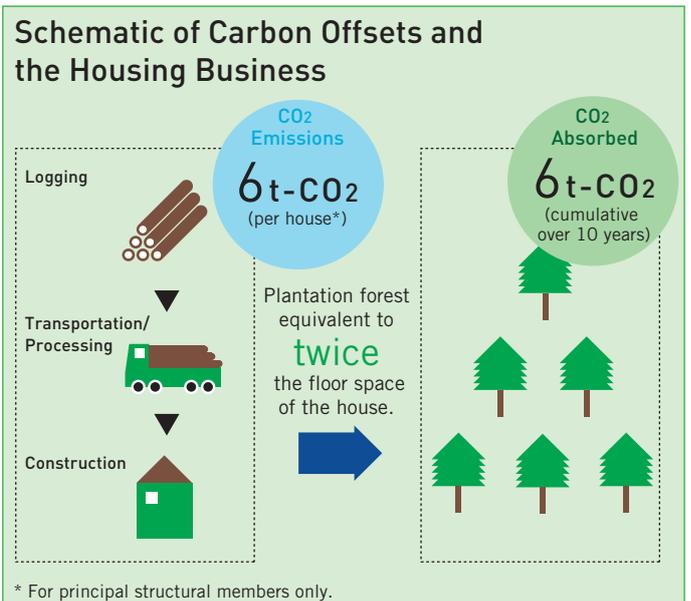
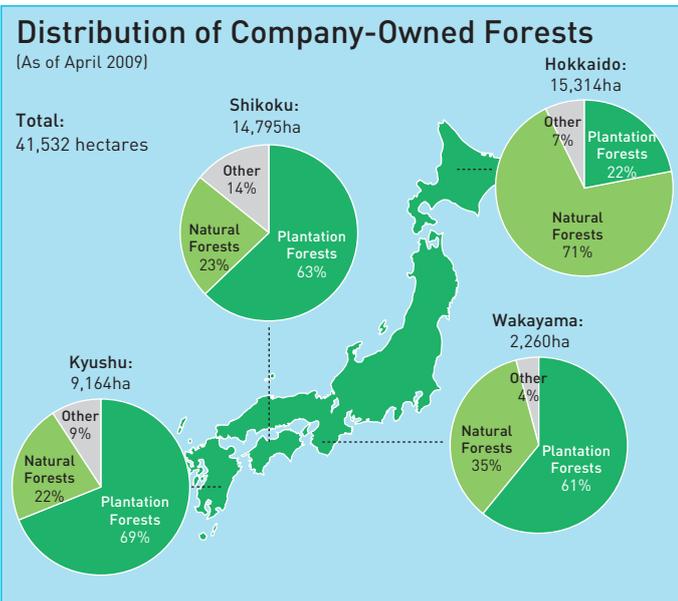
Sustainable Forestry is Practiced Today

Trees are a truly remarkable resource that can be harvested, planted and nurtured, and used again. Not only do trees absorb CO₂ as they grow, they continue to store the carbon after being processed into wood products. Forests provide numerous benefits for the common good, cultivating sources of water, protecting biodiversity, and preventing soil erosion. The Sumitomo Forestry Group owns approximately 41,500 hectares of forests, equivalent to 1/1000th of Japan’s land mass and we are expanding the area under management, primarily forests adjacent to those owned by the Company. We manage these forests from the long-term perspective, with consideration for sustainability and the environment. We can also claim a long history of achievement outside of Japan, including the rehabilitation of temperate-zone rainforests in Indonesia.

Carbon Offsets from Plantation Forests

In 2009, leveraging our strengths as the “Wood and Forest Professionals,” we began to use “carbon offsets” to compensate for the total CO₂ generated across the entire chain, from logging to construction, of the wood used as principal structural members of the detached wooden houses we build. In this project, we plant trees in plantation forests on land area that is equivalent to twice the floor space of the house to be constructed. Over the next 10 years, the amount of CO₂ absorbed by the forest offsets the approximately six tons*¹ of CO₂ emitted per each house constructed. We will plant a total of approximately 1,500 hectares with about 2,000,000 trees over five years on devastated land in Indonesia, then manage and nurture the forests for another 10 years. In Bromo Tengger Semeru National Park, we manage environmental tree plantations, where the planted trees will never be cut down, aiming to contribute to the environment and community of the area. On devastated lands outside of protected forests in National Parks, etc., we manage industrial tree plantations, where the cycle of cutting and plantation is repeated endlessly, to create both employment and income from timber sales for the regional community. The project includes provisions for third-party issuance of certification of the amount of carbon absorbed by the forests, as well CDM*² certification by the United Nations.

Financial institutions have recognized this integrated approach and have begun offering special CSR loans with preferential interest rates available only





Plantation forest area in Indonesia

to customers of the houses we've built. In this way, we are rising to the challenge of creating new ways that not only allow our customers to participate in activities for protecting the environment but also connect our house-building and forest-building businesses.

1. Forecast based on a wooden house with floor space of 136 square meters.
2. Clean Development Mechanism

The Legacy of the Sumitomo Spirit

Our corporate philosophy is “utilize timber as a renewable natural resource, and contribute to a prosperous society,” and our Action Guidelines and the Ethical Charter “Our Values and Ideals” both emphasize symbiosis with the environment.

The large-scale reforestation plan at the Besshi Copper Mine that was undertaken more than 100 years ago has been called an expression of the Sumitomo Spirit of “We conduct business that is beneficial to society based on the principles of integrity and sound management.” Over many years, the belief that “we must repay our debt to the land” has become a spiritual pillar supporting the Sumitomo Forestry Group, a part of our DNA, and infuses our primary product—housing.

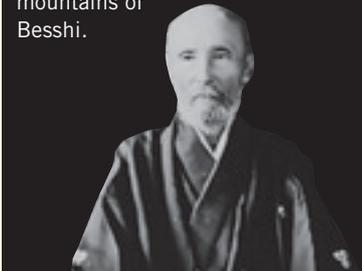
Today, coexistence with the environment has become the center of attention, but we will continue, as we have for more than a century, to aspire to making even greater contributions to society and the environment.



Tropical rainforest rehabilitation project in East Kalimantan Province, Indonesia, where 7.38 million trees were planted on 503 hectares of land over the 13-year period from 1991 to 2004.

Large-Scale Reforestation Plan and Teigo Iba (1847-1926)

As manager of the Sumitomo Family's Besshi Mining Plant, he worked to resolve the smoke damage problem, launching a large-scale reforestation plan that restored the forests of the mountains of Besshi.



Source: Sumitomo Group Public Affairs Committee Home Page



Before and after photographs of the reforestation plan.

